# DH Thermal

## User's Manual

# Foreword

## General

This manual introduces the functions and operations of the software DH Thermal.

## Safety Instructions

The following signal words might appear in the manual.

| Signal Words | Meaning |
|---|---|
| ⚠ **DANGER** | Indicates a high potential hazard which, if not avoided, will result in death or serious injury. |
| ⚠ **WARNING** | Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury. |
| ⚠ **CAUTION** | Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results. |
| ⊙⌐ **TIPS** | Provides methods to help you solve a problem or save time. |
| 📖 **NOTE** | Provides additional information as a supplement to the text. |

## Revision History

| Version | Revision Content | Release Time |
|---|---|---|
| V1.0.0 | First release. | September 2021 |

## Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

## About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.

- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

# Table of Contents

# 1 Introduction

With DH Thermal, you can:

● Connect the device to see live view on the PC, and to take manual snapshot and recording.

● Enable automatic snapshot, recording and audible alarm when an alarm is triggered, and set storage paths for these files.

● Import and analyze heat maps, including regional temperature measurement, temperature filter and other functions.
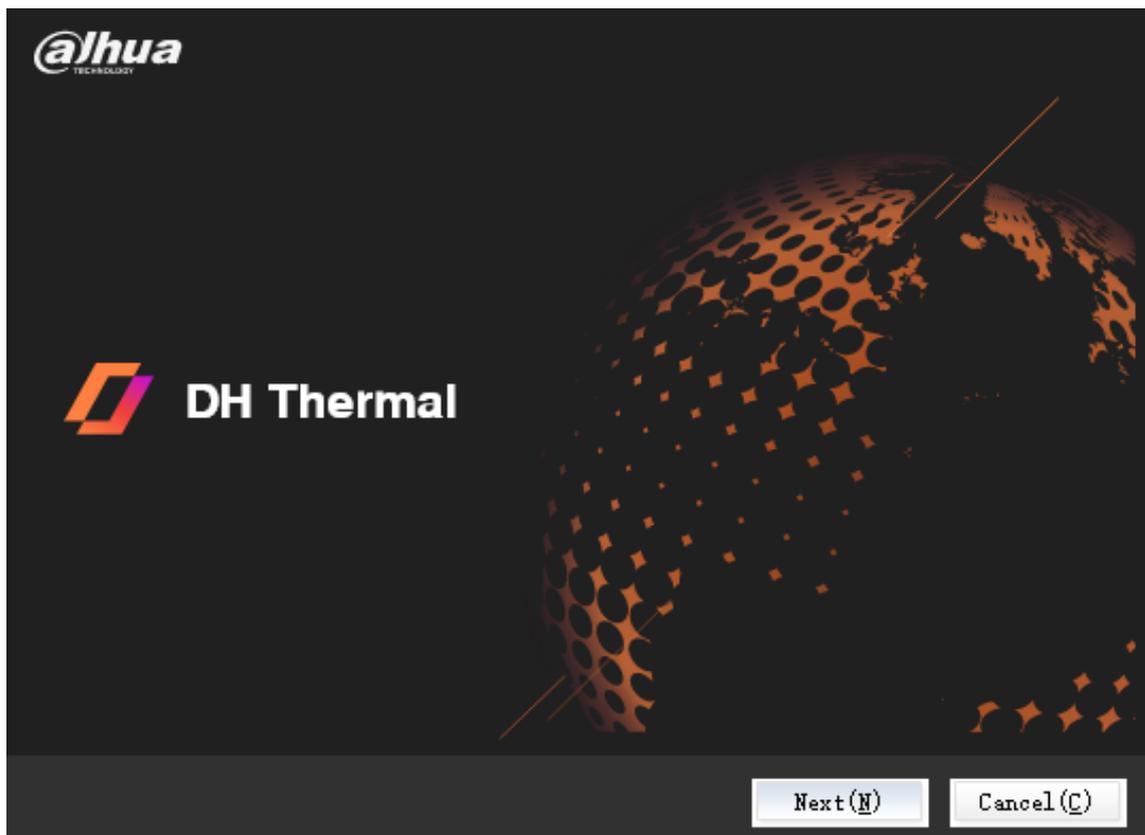
# 2 Installation and Uninstallation

## Installation

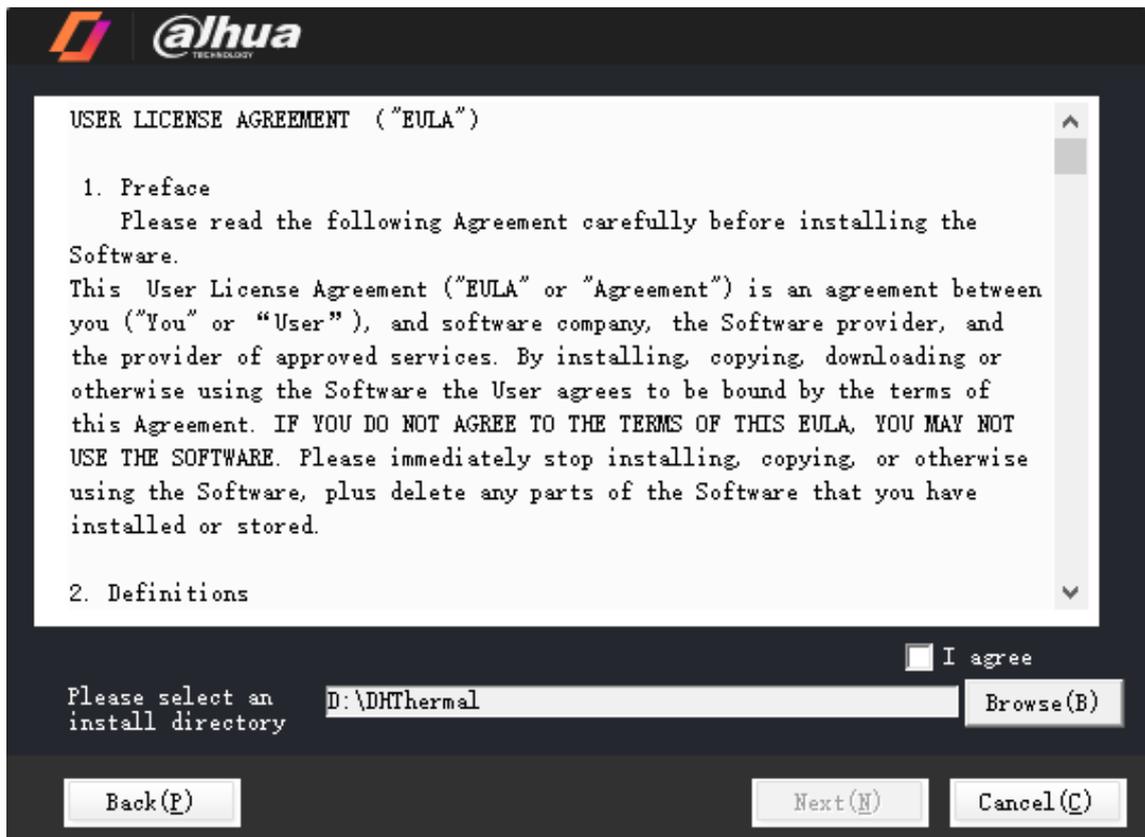Step 1    Double-click DH Thermal.exe.

Step 2    Click **Next**.
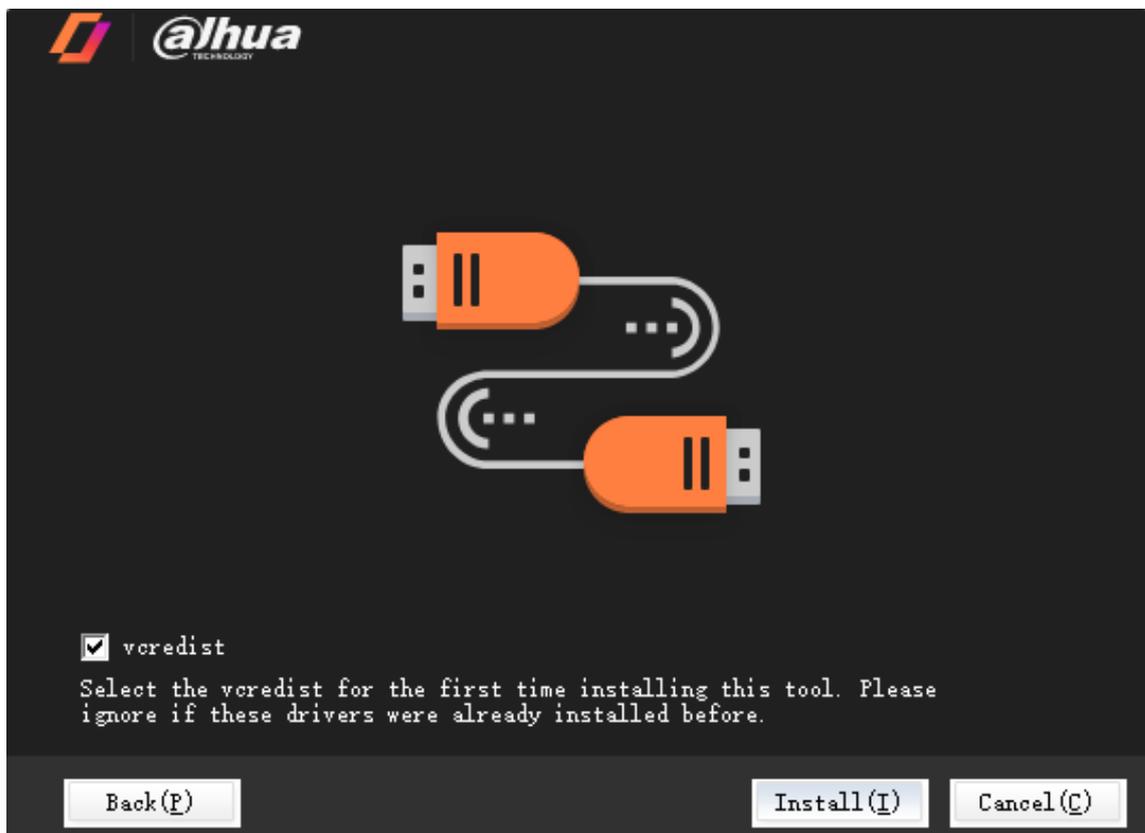
Figure 2-1 Installation interface



Step 3    Read the Software License Agreement carefully. Select "**I agree**" and then click **Browse** to choose a path. It is recommended to install it outside the system disk.
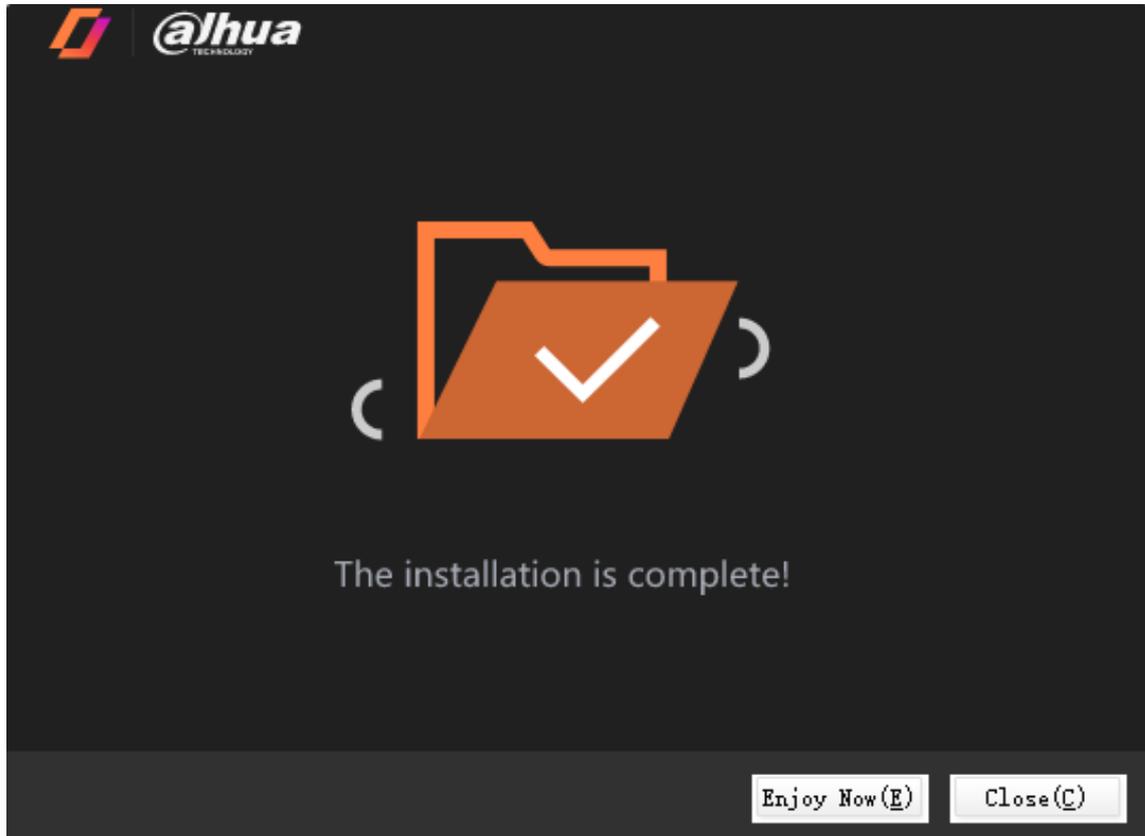
Figure 2-2 Select a path



Step 4    **Voredist** is selected by default. Click **Install**.

Figure 2-3 Ready to Install

Step 5    Click **Enjoy Now** to run the program. Or click **Close** to finish the process.
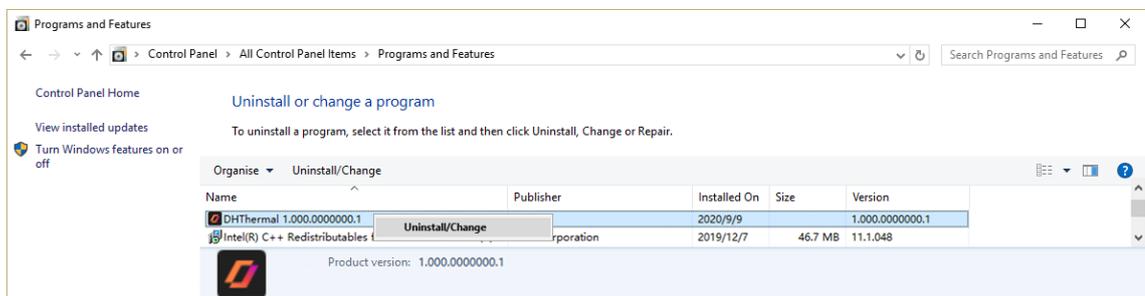
Figure 2-4 Installation completed



## Uninstallation

Step 1    Open Control Panel, click **Programs and Features**, right-click **DH Thermal** and then click **Uninstall/Change**.
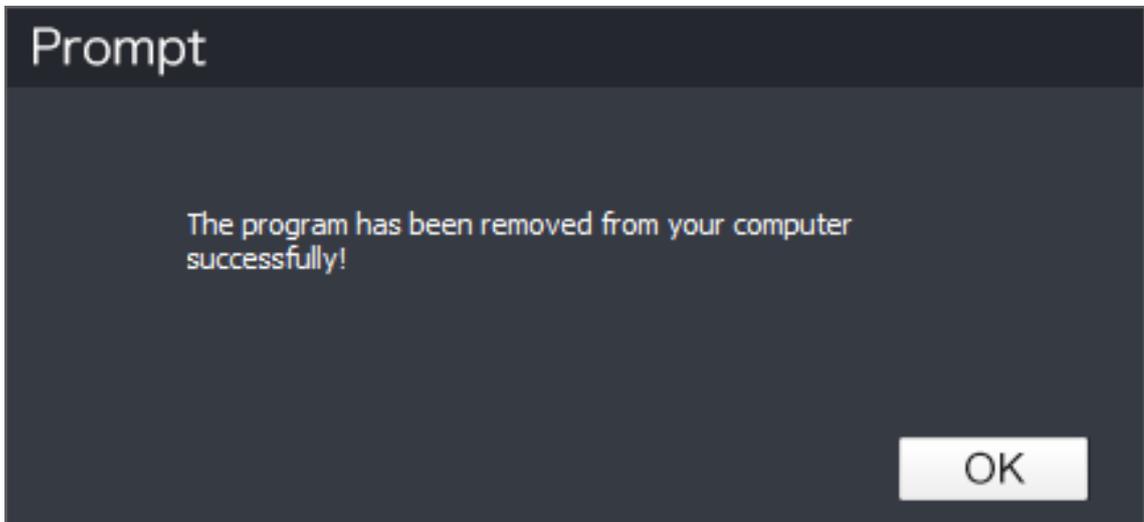
Figure 2-5 Uninstall/Change



Step 2    Click **Uninstall**.

Figure 2-6 Uninstallation



Step 3    Click **OK**.

Figure 2-7 Uninstallation completed

# 3 Connecting the Device

## Preparations

- Use a USB cable to connect the device to PC.
- Install DH Thermal on PC and run it.

## Procedures

<u>Step 1</u>    Power on the device. On the device, select **System Settings** > **USB Option** > **PC Preview Mode**.

<u>Step 2</u>    You can now see the live view from the device on PC.

# 4 Live View

Open DH Thermal, you can see the live view from the device.
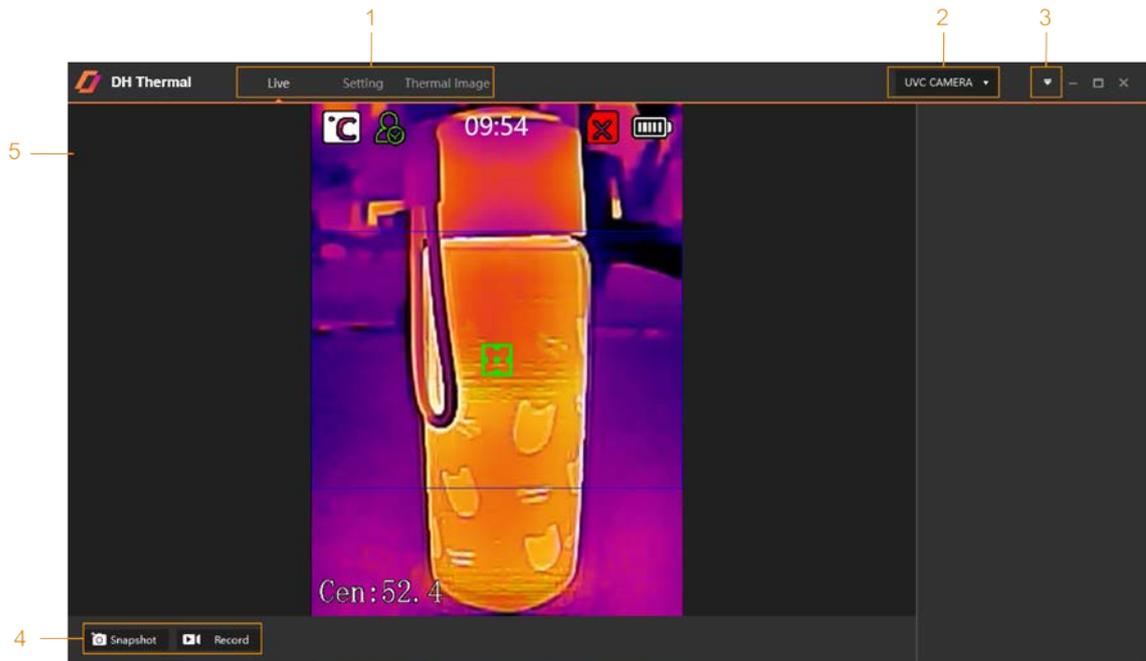
Figure 4-1 Live view



Table 4-1 Interface description

| No. | Description |
| --- | --- |
| 1 | • **Live**: Connect the device to PC and see the live view from the device. The live view displays information such as temperature of the center spot and time. You can take snapshot and recording manually.<br>• **Setting**: Configure various function parameters. See "5 Configuration" for details.<br>• **Thermal Image**: Import and analyze heat maps. |
| 2 | Name of the connected device. |
| 3 | See help document and the version of the client. |
| 4 | • **Snapshot**: Take snapshot of the live view. The default path is "./Snapshot".<br>• **Record**: Click to start recording and then click again to stop. You can see the recording time on the live view. The default path is "./Records". |
| 5 | Live view of the device. |

Enable high temperature alarm, alarm recording and snapshot, and audible alarm.

● When the temperature of the objects reaches the threshold, the device gives off the alarm sound, and triggers alarm snapshot that will appear on the right side.

● When the alarm sound stops, the alarm recording finishes.

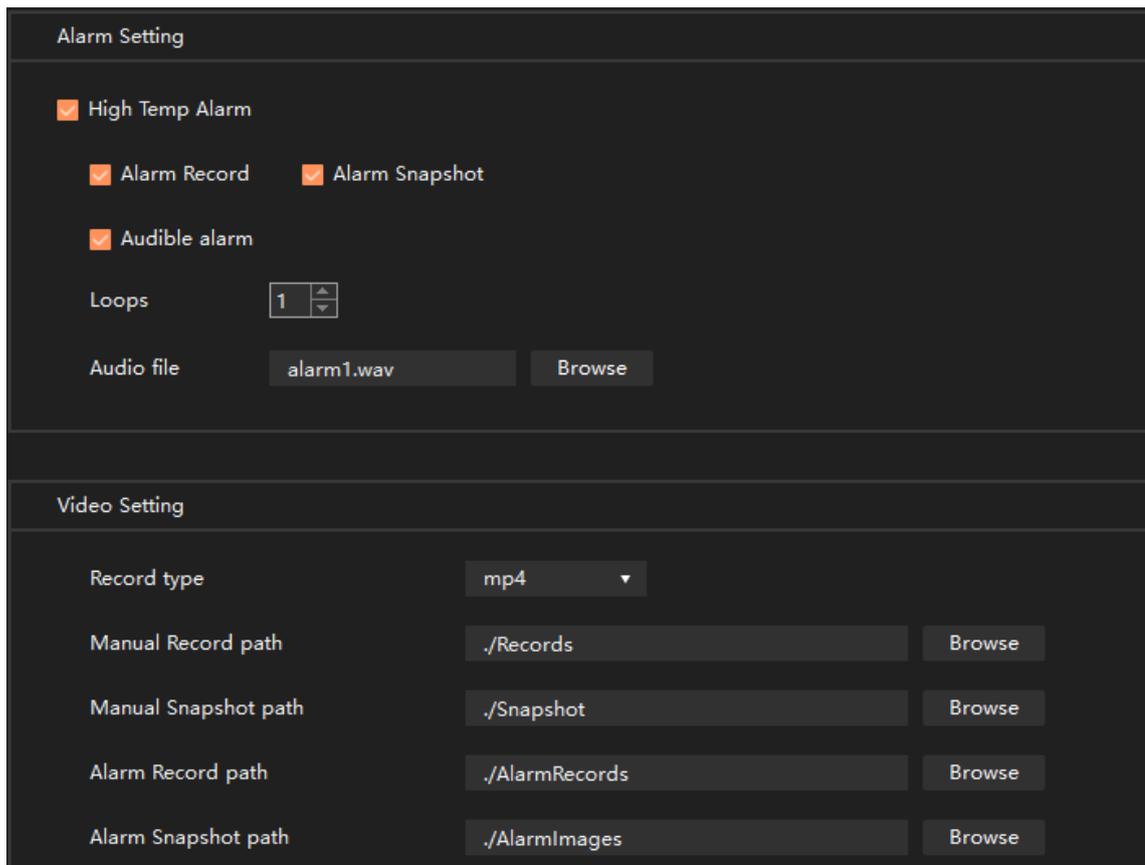Figure 4-2 High temperature alarm



When monitoring body temperature, on the device select **Temp Monitor** > **Temp Monitor Mode** > **Head Detection**. Point the device to faces. Alarms will be triggered when the temperature reaches the threshold.

# 5 Configuration

Enable high temperature alarm, alarm snapshot and audible alarm. For audible alarm, you can import an audio file and set loop times when triggered. Select recording file type and storage paths for manual and alarm snapshot and recording.

Open DH Thermal and then click **Setting**.

Figure 5-1 Configuration



Table 5-1 Configuration

| Parameter | | Description |
|---|---|---|
| Alarm Setting | High temp alarm | On the device, select **Temp Monitor** > **Alarm Settings** > **Alarm Threshold**, and set a value. Alarms will be triggered when the temperature of an object reaches the threshold. |
| | Alarm record | When the temperature of an object reaches the threshold, recording starts and will be saved to the default path. |
| | Alarm snapshot | When the temperature of an object reaches the threshold, a snapshot will be taken and saved to the default path. |
| | Audible alarm | When the temperature of an object reaches the threshold, the imported audio file will be played. |

| Parameter | | Description |
|---|---|---|
| | Loops | Set how many times the alarm sound will be played. |
| | Audio file | When an alarm is triggered, the imported audio file will be played. |
| Video Setting | Record type | **.mp4** or **.dav** format. |
| | Manual record path | Click **Browse** to set a path for manual recordings. The default path is "./Records". |
| | Manual snapshot path | Click **Browse** to set a path for manual snapshots. The default path is "./Snapshot". |
| | Alarm record path | Click **Browse** to set a path for alarm recordings. The default path is "./AlarmRecords". |
| | Alarm snapshot path | Click **Browse** to set a path for alarm snapshots. The default path is "./AlarmImages". |

# 6 Heat Map Analysis

Import and analyze heat maps, and then save the analytical information.

## 6.1 Importing Heat Map
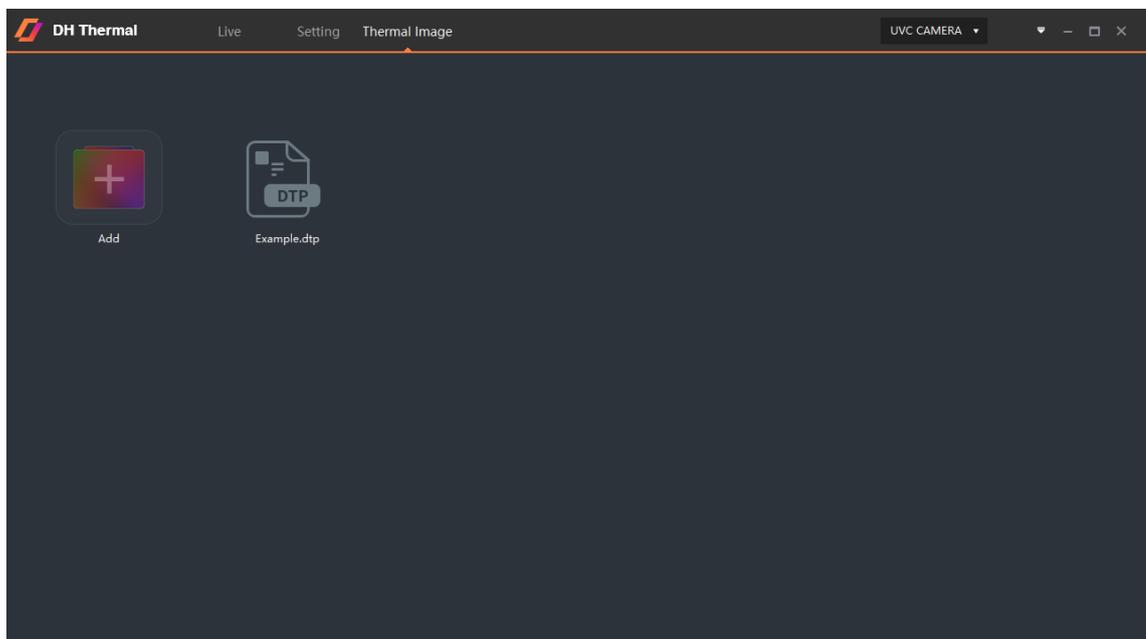
Step 1    Open DH Thermal.

Step 2    Click **Thermal Image**.

Step 3    Click **Add** and import the heat map file. Imported heat map files will appear under **Thermal Image**.

Figure 6-1 Importing a heat map (1)



.jpg, .dtp, .csv, and .bmp formats are supported. For all heat map analysis operations, the actual interface shall prevail.

Step 4    Click the imported heat map file.

Figure 6-2 Importing a heat map (2)
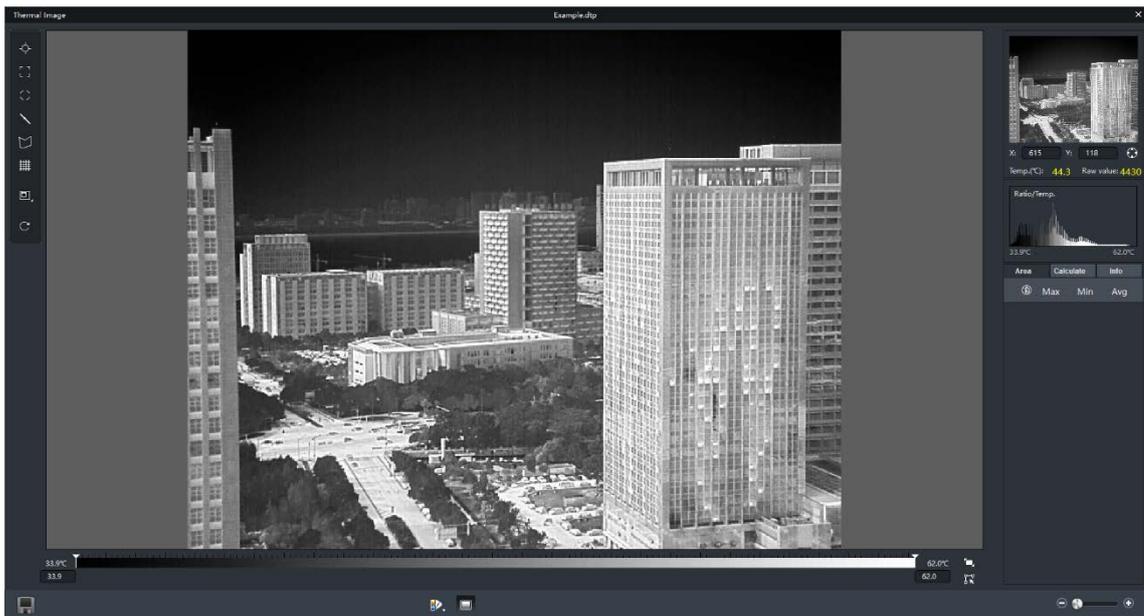


## 6.2 Heat Map Analysis

You can analyze the data in the heat map to generate temperature information and temperature ratio, and calculate maximum, minimum as well as average temperature of a region.

Open DH Thermal. Click **Thermal Image** and then click the heat map file.

Figure 6-3 Heat map interface

Table 6-1 Heat map interface description

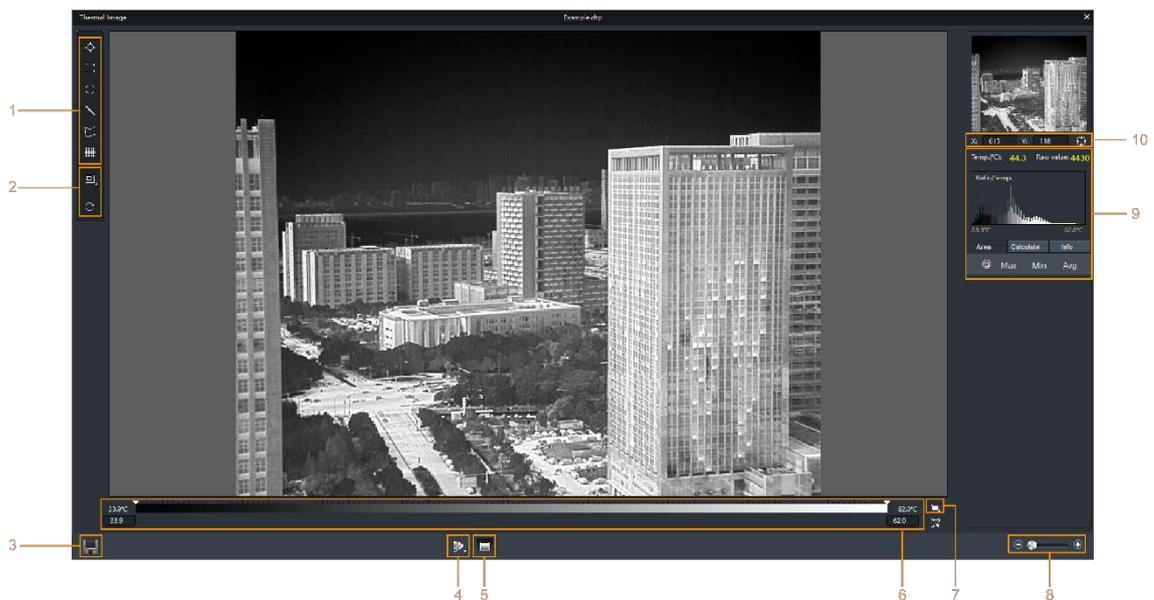| No. | Name | Description |
|---|---|---|
| 1 | Drawing a region | You can draw a region on the heat map to measure the temperature. It can be: point, rectangle, circle, line, or polygon. See "6.2.2 Region and Temperature" for details. |
| 2 | Resizing and rotation | ● Click ▣ to set as original or stretched size.<br>● Click ↻ to rotate the image 90° clockwise. |
| 3 | Save data | Save the information after analysis. |
| 4 | Rendering type | There are 14 types of rendering. The default setting is White Hot.<br>● White Hot: Brighter when temperature is higher in gray image.<br>● Black Hot: Brighter when temperature is lower in gray image.<br>● Fusion: Colors fall within purple-red-yellow range. Purpler when temperature is lower, and yellower when temperature is higher.<br>📖<br>The following content will take **Fusion** as an example.<br>● Rainbow: Colors fall within blue-green-red-yellow range. Bluer when temperature is lower, and yellower when temperature is higher.<br>● Globow: Colors fall within red-yellow range. Redder when temperature is lower, and yellower when temperature is higher.<br>● Ironbow1: Colors fall within blue-purple-red-yellow range. Bluer when temperature is lower, and yellower when temperature is higher.<br>● Ironbow2: Color range is similar to Ironbow1, but its brightness is lower than Ironbow1<br>● Sepia: Mainly brown. Brighter when temperature is higher.<br>● Color1: Colors fall within purple-red-yellow-green-blue range. Purpler when temperature is lower, and bluer when temperature is higher.<br>● Color2: Colors fall within blue-red-yellow range. Bluer when temperature is lower, and yellower when temperature is higher.<br>● Ice Fire: In a colored image, high temperature is red and low temperature is blue. Ice Fire is usually used to give warnings.<br>● Rain: Colors fall within purple-blue-green-yellow-red range. Purpler when temperature is lower, and redder when temperature is higher.<br>● Red Hot: Colors are mostly red. Brighter when temperature is higher.<br>● Green Hot: Colors are mostly as green. Brighter when temperature is higher. |
| 5 | Heat degree mode | .dtp and .jpg formats are supported. Displays a blended image of a thermal image and a visible light spectrum image. |

| No. | Name | Description |
|-----|------|-------------|
| 6 | Temperature | Generates a color bar that corresponds to different temperature values, based on the selected rendering type. The values at either end define the temperature range in the heat map.<br>● Temperature and color: When the mouse hovers on the heat map, the temperature of this spot displays.<br>● Enhanced temperature contrast: Enter temperature values at either end of the bar, and the heat map will automatically change the color to this temperature range.<br>  ◇ Regions with temperatures below the minimum value are displayed in the leftmost color on the bar.<br>  ◇ Regions with temperatures above the maximum value are displayed in the rightmost color on the bar. |
| 7 | Auto | Automatically adjust the color according to the maximum and minimum temperature of the heat map. |
| 8 | Heat map size | ● Click "-", "+" or drag the slider to adjust the heat map size.<br>● Move the mouse over the heat map and scroll to adjust the heat map size.<br>📖<br>If the size is too big, click and hold to drag. |
| 9 | Area temperature information | On the heat map, select a region (except for points) and its maximum, minimum and average temperature displays. See "6.2.2 Region and Temperature" for details. |
| 10 | Coordinates | Use the grid function to set a point area. See "6.2.1 Setting a Point Area" for details. |

## 6.2.1 Setting Point Area

Set the X/Y values of a point area to see its temperature.

Step 1    Open DH Thermal.

Step 2    Click **Thermal Image** and then click the heat map file.

Step 3    Click ▦.

Step 4    Move and hover the mouse over the heat map, and the X/Y values and temperature will appear.

📖

You can also see the changing X/Y values, temperature and raw value on the right as the mouse moves.
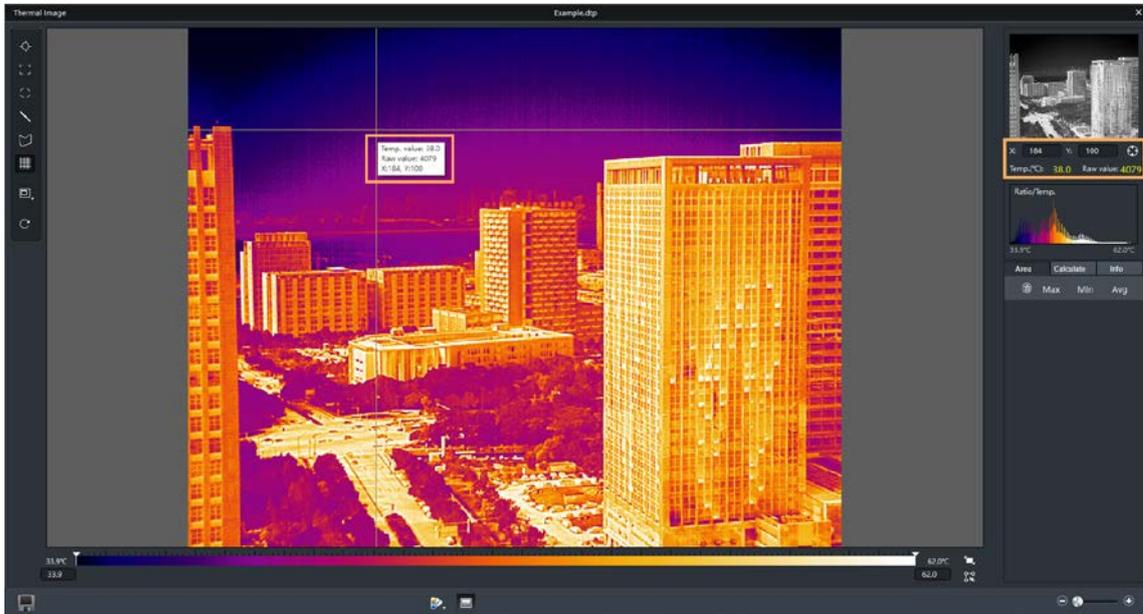
Step 5    To set a point area, you can:

● Right-click the heat map and then select **set fixed point as point area**.

- Enter X/Y values on the right and then click ⊕.

📖

Right-click the heat map, you can also select **Lock grid** to fix the coordinates, or **Exit grid mode**.

Figure 6-4 Setting a point area



## 6.2.2 Region and Temperature

Draw a region on the heat map to see the maximum, minimum and average temperature of this region.

Add multiple regions on the heat map to compare temperature differences among them.
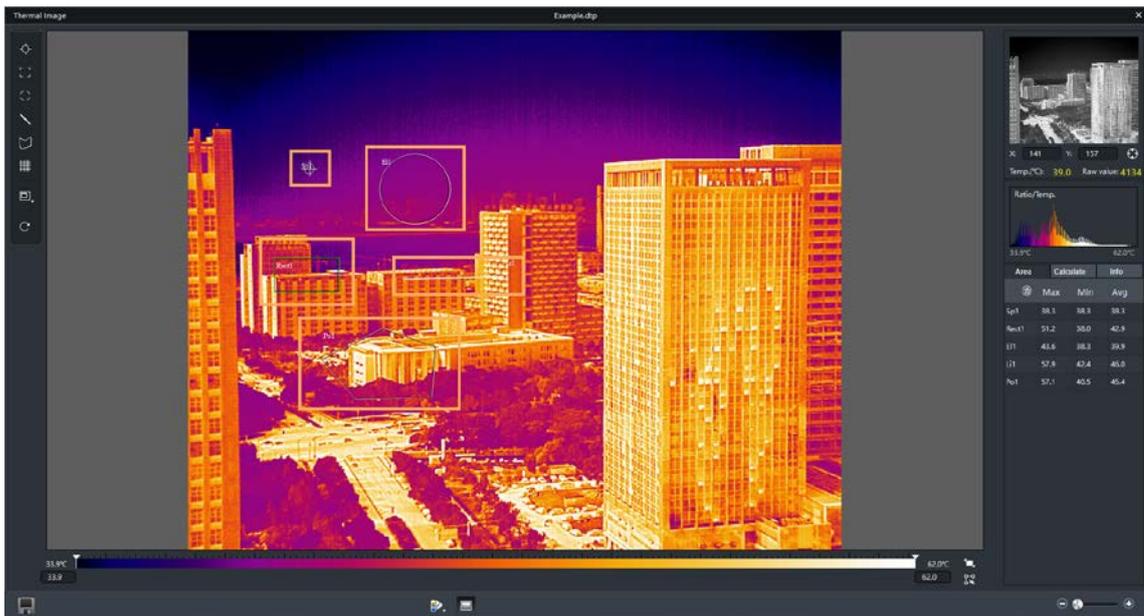
Step 1    Open DH Thermal.

Step 2    Click **Thermal Image** and then click the heat map file.

Step 3    Select a shape and draw on the heat map.

- Select from the left menu.
- Right-click the heat map, click **Select** and choose **Point**, **Rectangle**, **Circular**, **Linear** or **Polygon**.

Figure 6-5 Draw a region



The maximum, minimum and average temperature of a region will display on the rights.
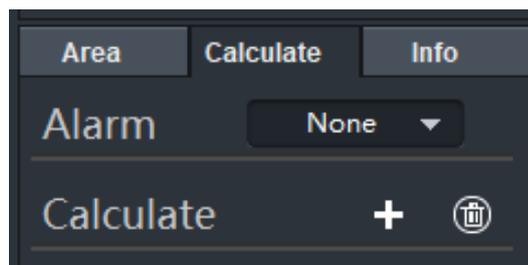
## 6.2.3 Filtering Temperature

Enable alarm, set threshold and the heat map will display alarming regions.

Step 1    Open DH Thermal.

Step 2    Click **Thermal Image** and then click the heat map file.

Step 3    Click **Calculate**.

Figure 6-6 Setting alarm conditions (1)



Step 4    Set **Alarm** as **None**, **Above**, **Below** or **Between**.
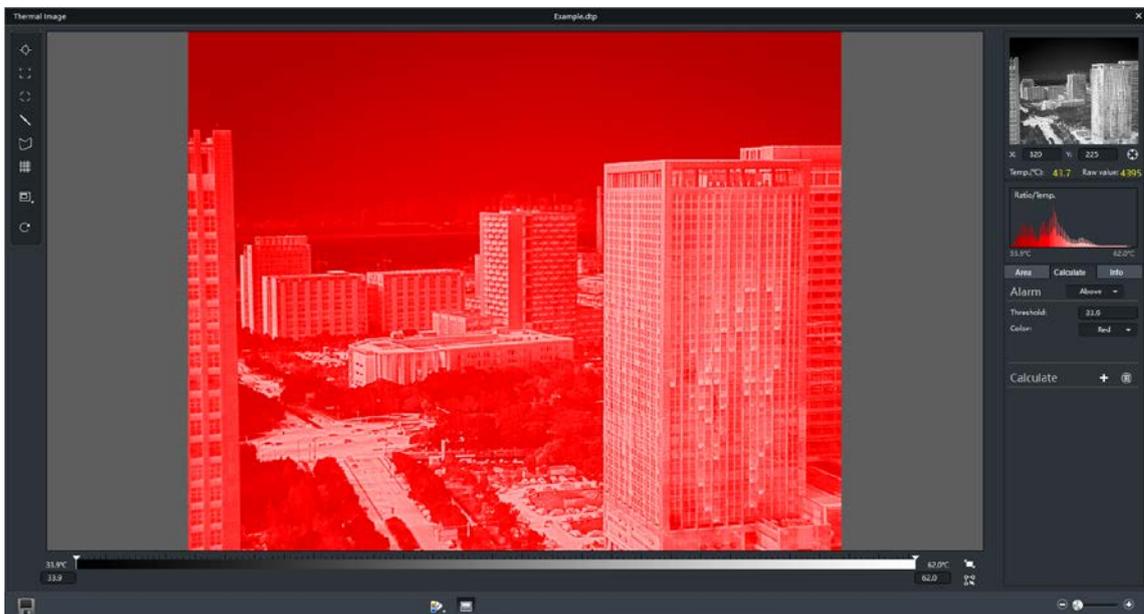
Take **Above** as an example.

Figure 6-7 Setting alarm conditions (2)



Step 5    Enter **33.9** as the **threshold** and set **Color** as **red**.

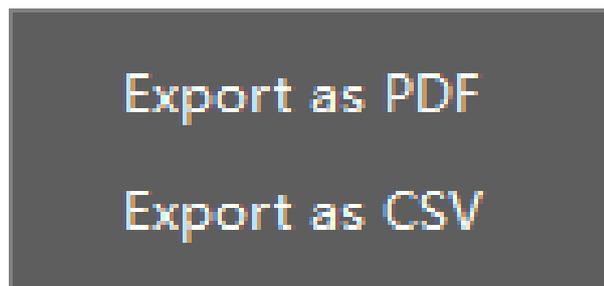Figure 6-8 Regions with temperature above 33.9 display in red



# 6.3 Saving Data

Step 1    Open DH Thermal.

Step 2    Click **Thermal Image** and then click the heat map file.

Step 3    After analysis, click [icon].

Figure 6-10 Select a file format



Step 4    Export as a PDF or CSV file, enter the file name and notes (optional), and then click **OK** to choose a path for the file.

# Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

**Mandatory actions to be taken for basic device network security:**

1. **Use Strong Passwords**

    Please refer to the following suggestions to set passwords:
    - The length should not be less than 8 characters;
    - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
    - Do not contain the account name or the account name in reverse order;
    - Do not use continuous characters, such as 123, abc, etc.;
    - Do not use overlapped characters, such as 111, aaa, etc.;

2. **Update Firmware and Client Software in Time**

    - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
    - We suggest that you download and use the latest version of client software.

**"Nice to have" recommendations to improve your device network security:**

1. **Physical Protection**

    We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

    We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

    The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

    The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.

● Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.

ENABLING A SAFER SOCIETY AND SMARTER LIVING