Version：V2.5

General Monitoring System (LGSS)

Software Operation Manual

Contents

1. General Introduction

1.1. Software overview

General monitoring system (hereinafter referred to as LGSS) is a terminal display and control software which is applicable to all types of radar products of the company.

LGSS integrates the control and display of photoelectric equipment, has the linkage function of radar and photoelectric, and integrates multiple jamming, searchlight, passive spectrum, electronic fence and other products into the software for display and linkage control.

When the software starts, it will automatically switch to English or Chinese version according to the computer system language.

1.2. Basic hardware requirements

To ensure the smooth operation of LGSS, the basic requirements for computers are as follows:

Operating system: 64-bit win10 Professional Edition (recommended)

Display resolution: adaptive

CPU：Core i3@2.4GHz Dual core four thread CPU

Memory: 4GB of memory

Network port: 100M network interface

1.3. Software installation

LGSS installation file setup Exe. It is recommended to install it on a non-system disk (such as D / E / F disk).

Matters needing attention:

(1). By default, LGSS adopts online download map for display, and offline map can also be used under special circumstances.

(2). When the software is running, some versions of win10 operating system may need to install the corresponding runtime files. The installation file of runtime is provided in the folder of LGSS. Execute the "software installation package \ windows system runtime. Exe" program to complete the installation of general runtime.

2. System configuration

2.1. Computer configuration

The default IP address of radar equipment is 192.168.0.100 (changeable). The computer configuration can ping other IP addresses of radar normally. The same network segment is generally used. It is recommended to default 192.168.0.201, as shown in Figure 1.

Note: the firewall is allowed to pass through all applications of the radar. Otherwise, the data transmission will be unstable and the software will not work normally

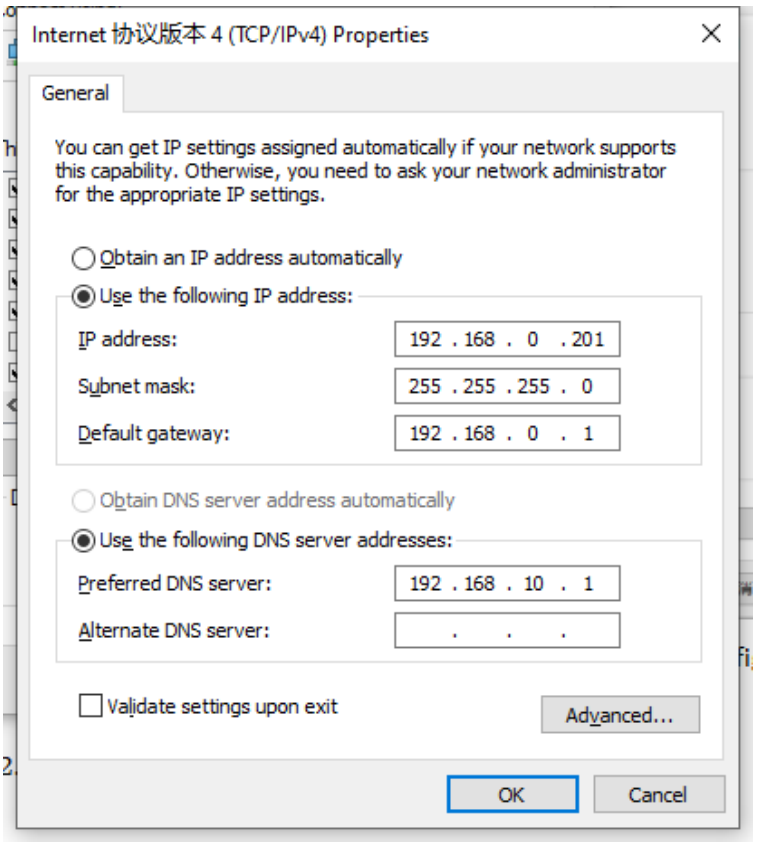


Figure 1 computer IP address configuration

2.2. Software language switching

1. Enter the computer setting - region and language: modify the window display language to English or other (non-Chinese), and restart the win10 system according to the system prompt. The system language before and after switching is shown in Figure 2 below:

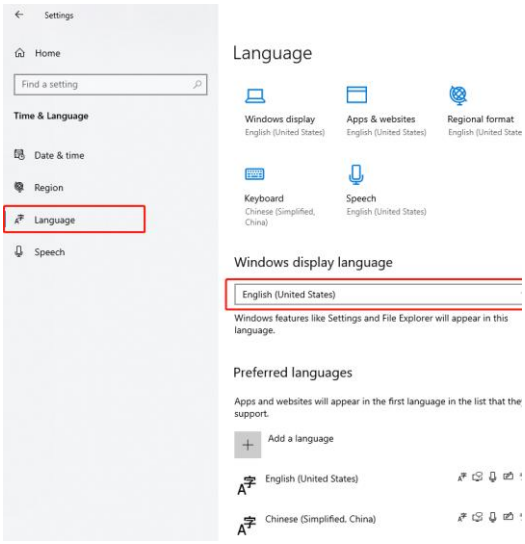


Figure 2 system language switching

2. Open the LGSS software. After logging into the software, all functional interfaces of the software are displayed in English. The interface effect is shown in Figure 3:

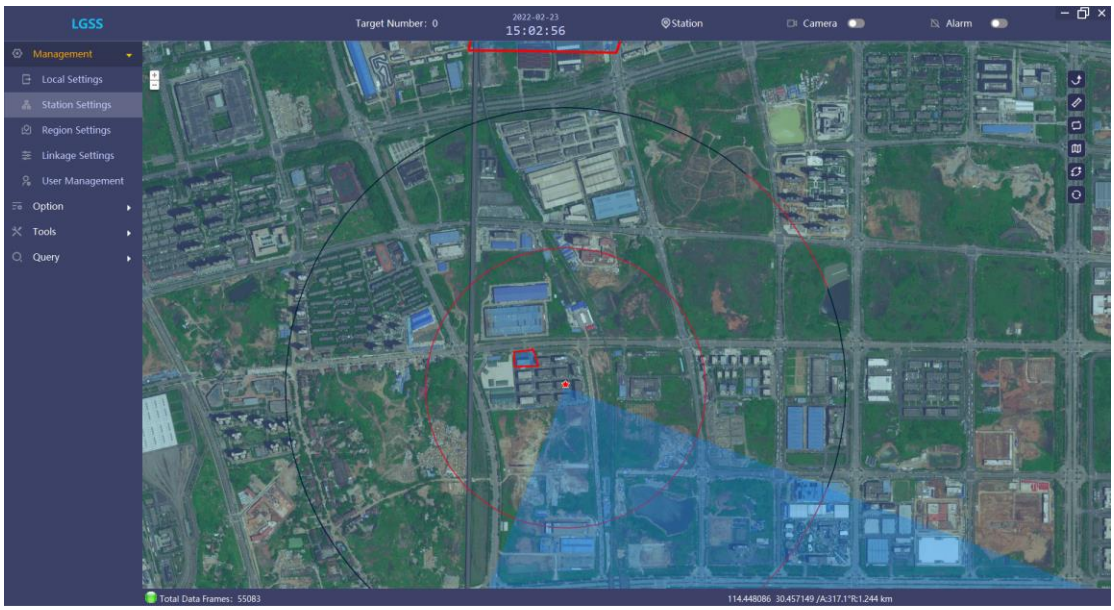


Figure 3 Interface of English version

3. Enter computer settings - region and language: change the window display language to Chinese, and the system restarts. Run LGSS software, and all functional interfaces of the software are displayed in Chinese. The interface effect is shown in Figure 4:

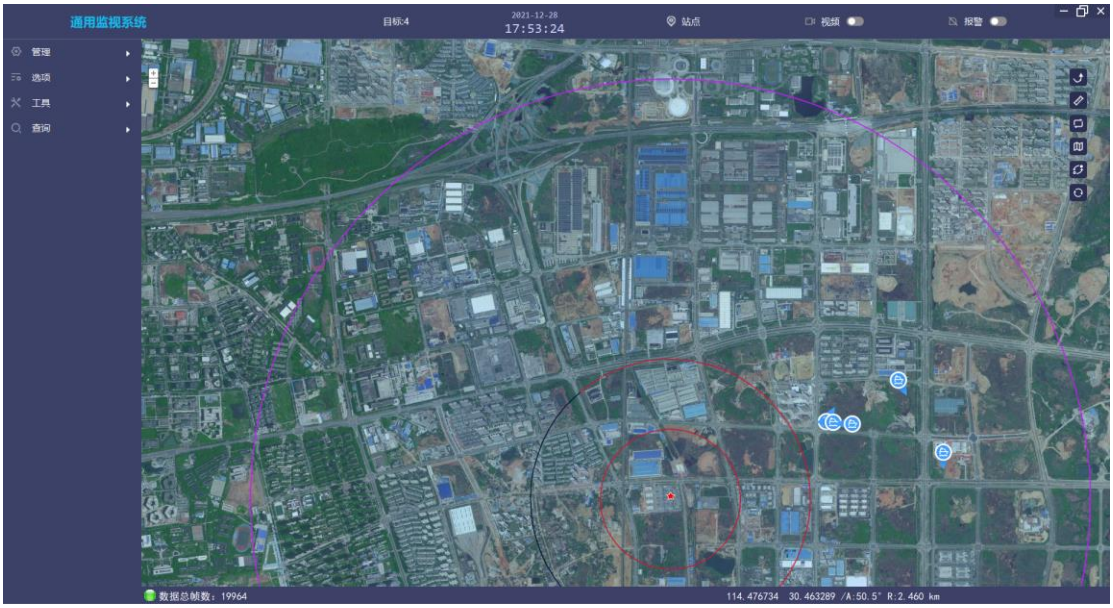


Figure 4 Interface of Chinese version

2.3. Software configuration

2.3.1 Software registration

When the computer installation software is not registered, enter the user name and password, and the interface will prompt that you have no permission to use it again. Click the OK button, and the computer will display the software registration interface, as shown in the figure below. Click the button to obtain the equipment machine code, and a string of character codes will be displayed in the machine code display box. Copy and send the content to the software supplier. After the software supplier feeds back the registration code, paste the character code into the registration code display box, and click to start registration, You can normally enter the software login interface;

2.3.2 Software login

After the software is installed, double-click the desktop shortcut icon to enter the

software login interface. Enter the user name and password to enter the main function interface of the software. As shown in Figure 5:

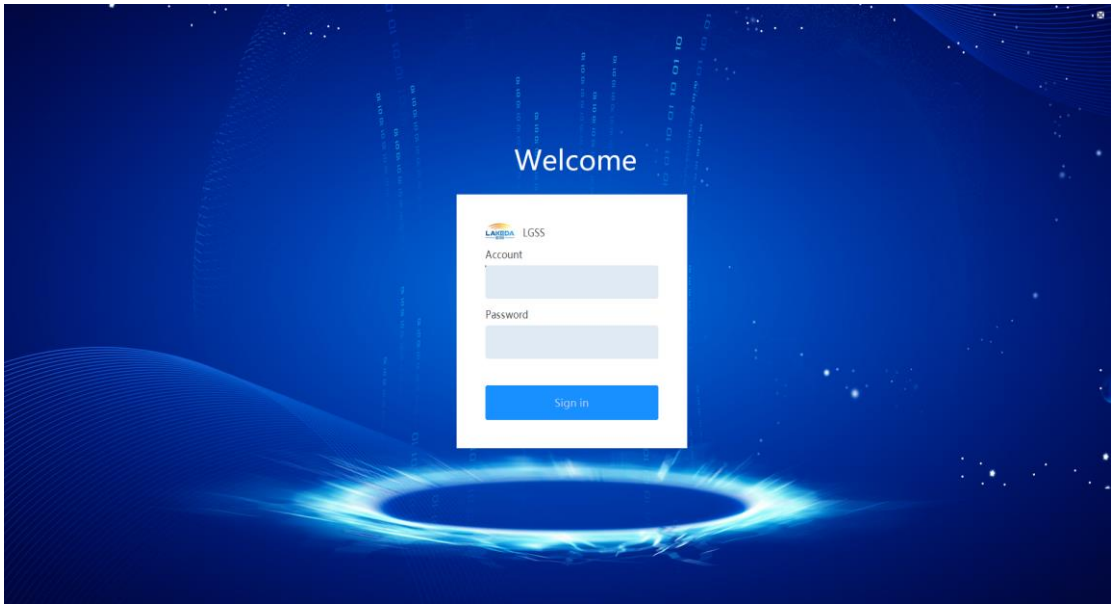


Figure 5 Software Login Interface

For account password information, see the document "Introduction to permissions".

2.3.3 Software information configuration

When the software leaves the factory, the general default local IP address is 192.68.0.201. If the IP address does not match the IP address of the local computer, an error will appear in the upper left corner of the software after the software is opened, as shown in Figure 8. You need to modify the IP address according to the prompt.

Figure 6 software local IP error prompt

After the IP address is set successfully, the red prompt message will disappear and "set successfully" will be prompted in the local setting window.

The system name of the modified software will be displayed in the upper left corner of the interface. As shown in Figure 7

Figure 7 software system name modification

2.3.4 Precautions

1. It is recommended that the firewall be turned off. If you need to open the firewall,

after the program starts normally, you need to allow all pop-up windows (more than 6 modules) until the total number of data frames in the lower left corner is green and jump normally. As shown in Figure 8:

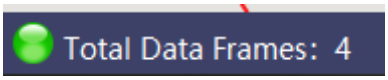


Figure 8 All modules of the software allow firewalls

2. 3. 5 Device information configuration

Click "modify" in "equipment Settings"> > equipment management "to modify the IP and other information of radar equipment or photoelectric equipment, as shown in Figure 11 and Figure 9: (see Chapter 3.2-3.3 for details of adding equipment)

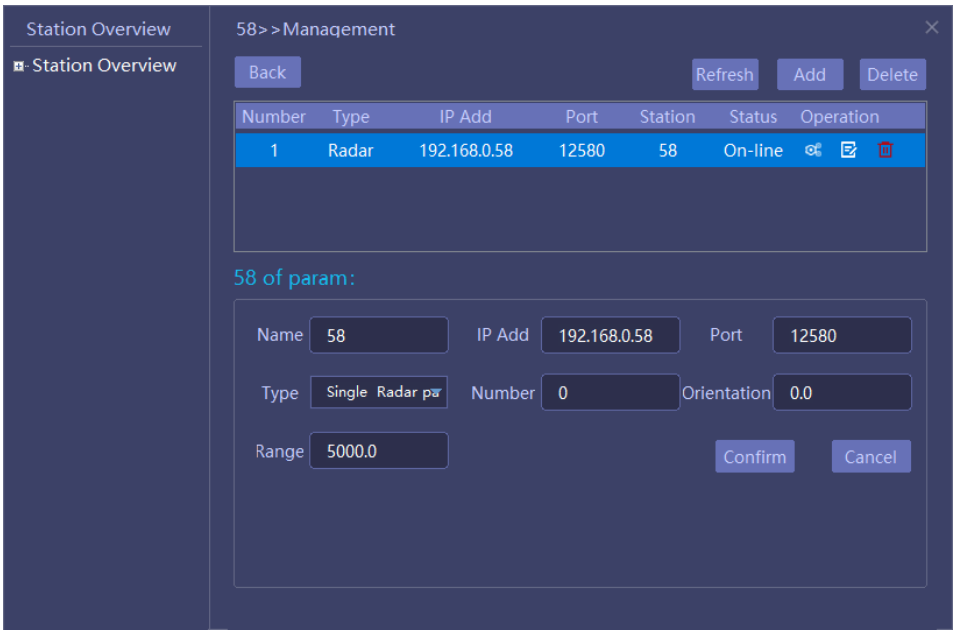


Figure 9 Radar information modification

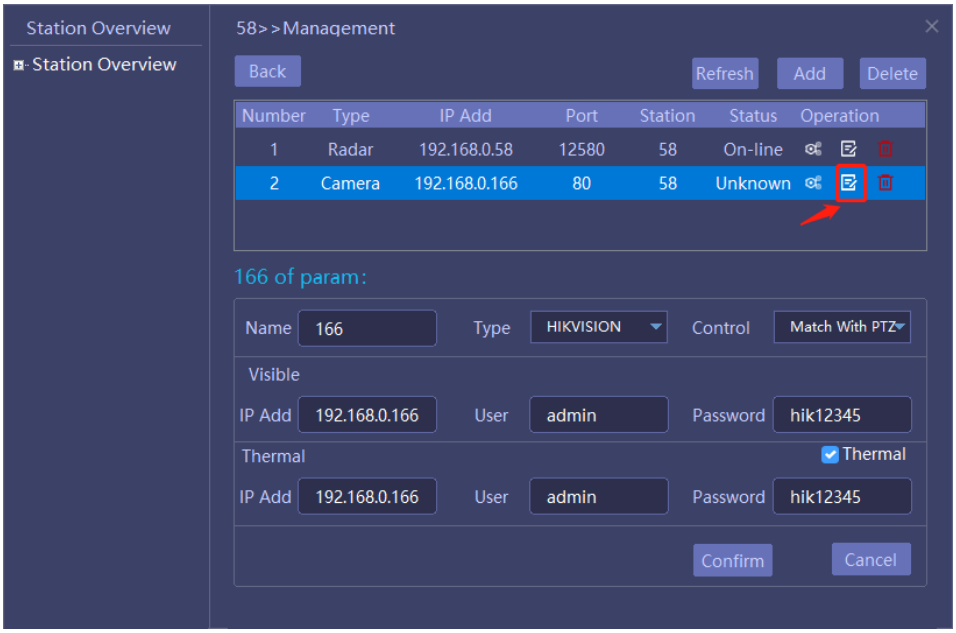


Figure 10 photoelectric information modification

2.3.6 Regional settings

LGSS software needs to set the area correctly to display the target information:

When the target appears within the alarm area, the track information is displayed and an alarm is issued;

When the target enters the shielding area, the target information will not be displayed and no alarm will be given;

If no area is set or the target is not in the alarm area, the target information will not be displayed and no alarm will be given;

2.3.6.1. Draw alarm area

Open the "management" > > "regional setting" window, and click Add 

alarm area in the menu bar on the right side of the

interface, as shown in Figure 11:

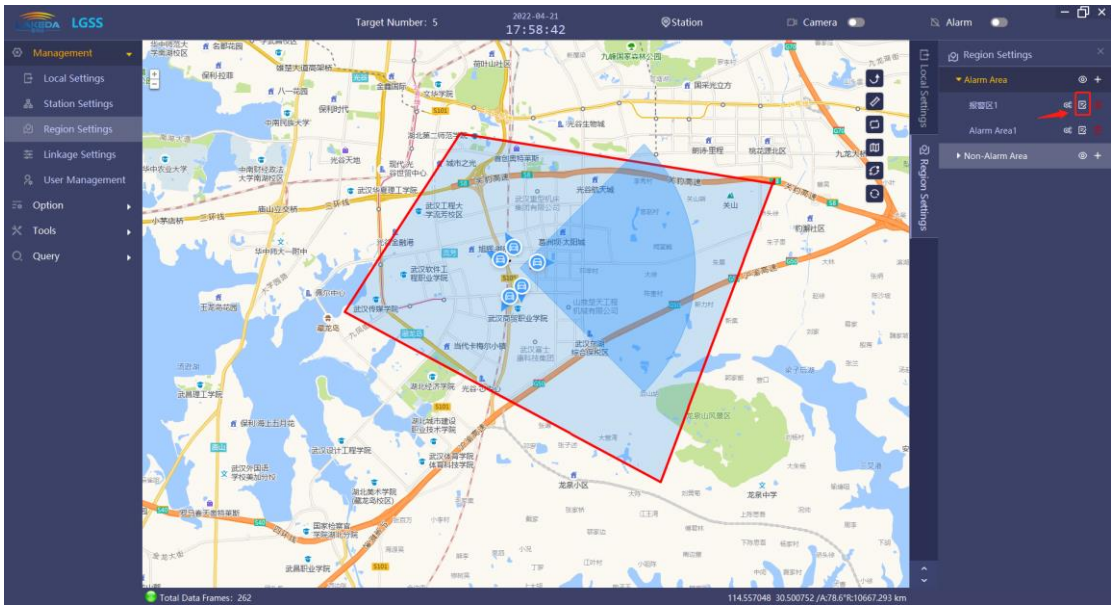


Figure 11 adding alarm area

Set the name of the alarm area and the level of the alarm area in the edit box of the added area on the left. Click the left mouse button on the map to draw the alarm area (at least three points are required to draw an area). After drawing, double-click the left mouse button to save the drawn alarm area, and then click the confirm button. As shown in Figure 12.

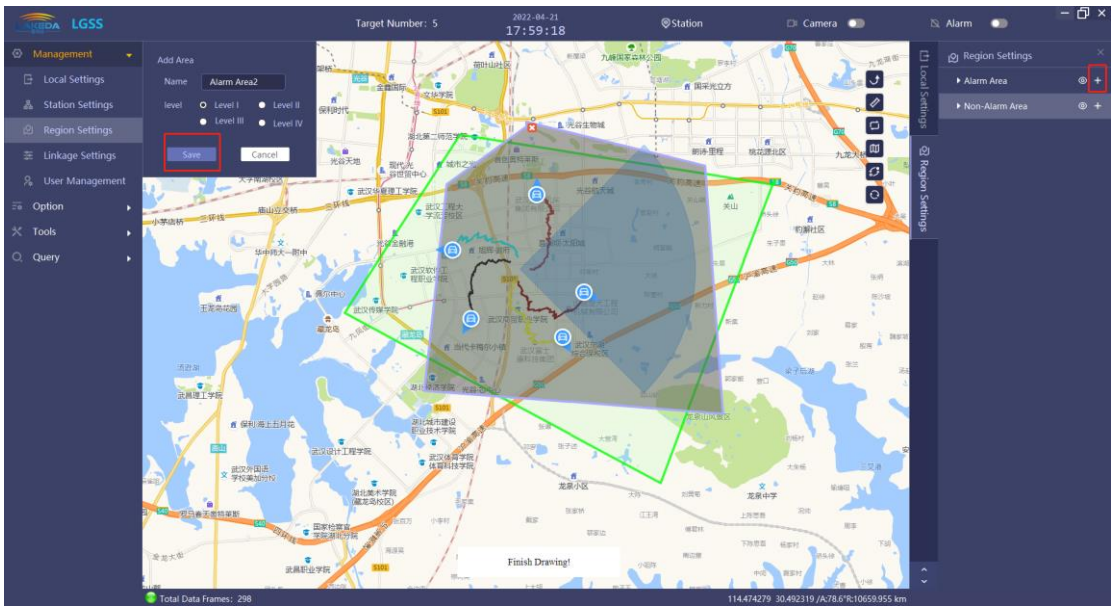


Figure 12 drawing alarm area

2. 3. 6. 2. Delete alarm area

Open the "management" - "regional setting" window, click the delete alarm area button  in the menu bar on the right side of the interface, and the interface will prompt whether to delete it. Click the OK button to delete the alarm area normally, and there is no alarm area on the map. Click the cancel button, and the prompt box disappears to return to the regional setting interface; As shown in Figure 13

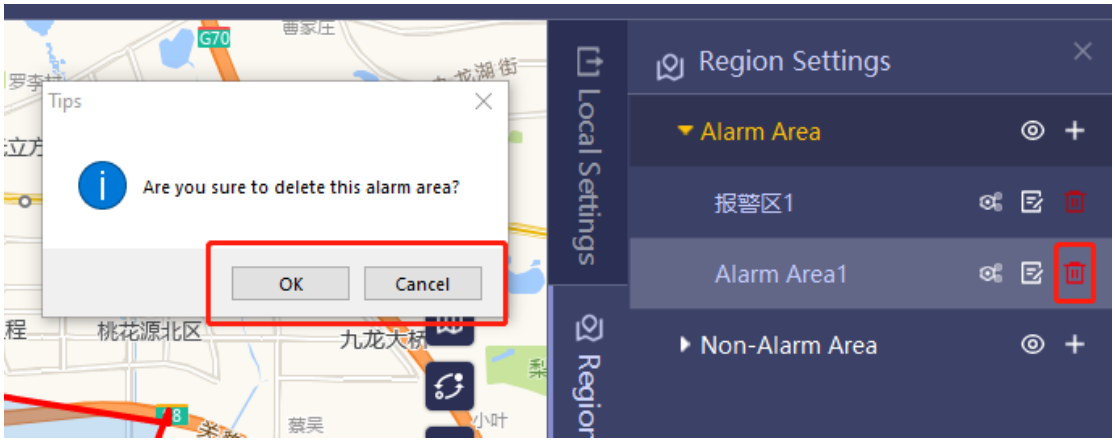


Figure 13 deleting the alarm area

2. 3. 6. 3. Draw jamming area

The method is the same as drawing the alarm area.

3. Operation

Run LGSS software. The menu bar is on the left, including all settings and operations of the software. The upper part displays system time, total number of targets, site information, video interface switch, alarm sound switch, etc. The total number of data frames, longitude and latitude of cursor, distance and azimuth from radar, etc. are displayed below.

3.1. Local settings

Management - local setting: the local IP is set to the IP address of the computer

running the software, the port number cannot be modified, and the system name can be set to Chinese / English, as shown in Figure 14.

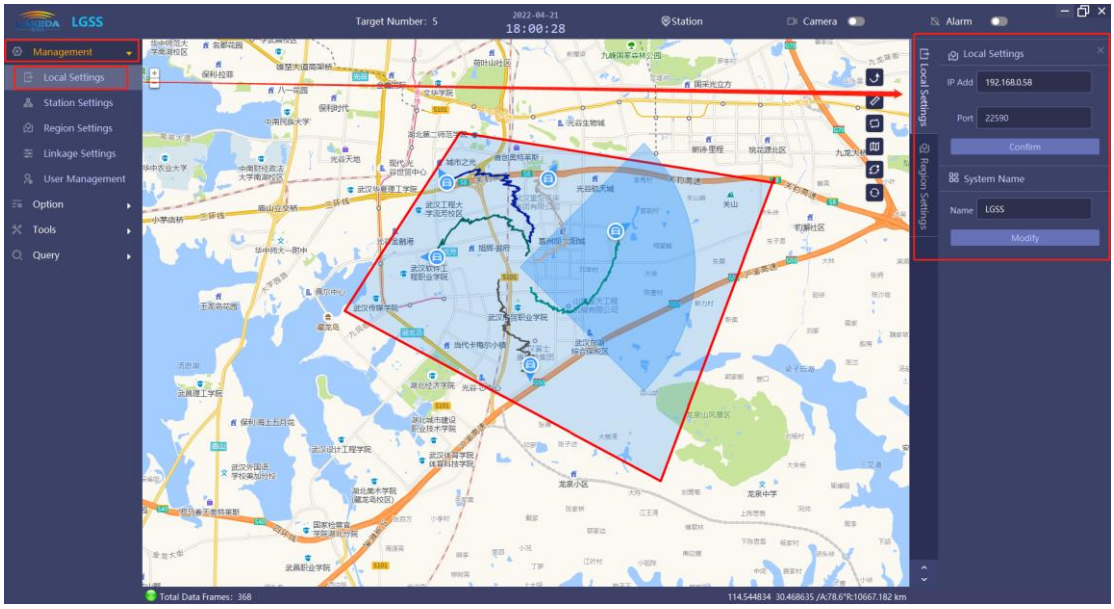


Figure 14 Local settings

3.2. Site settings

Management - site setting: after entering the page, click the "add" button, and the option of adding a new site is displayed at the bottom of the interface. You can enter the site name and longitude and latitude information; As shown in Figure 15:

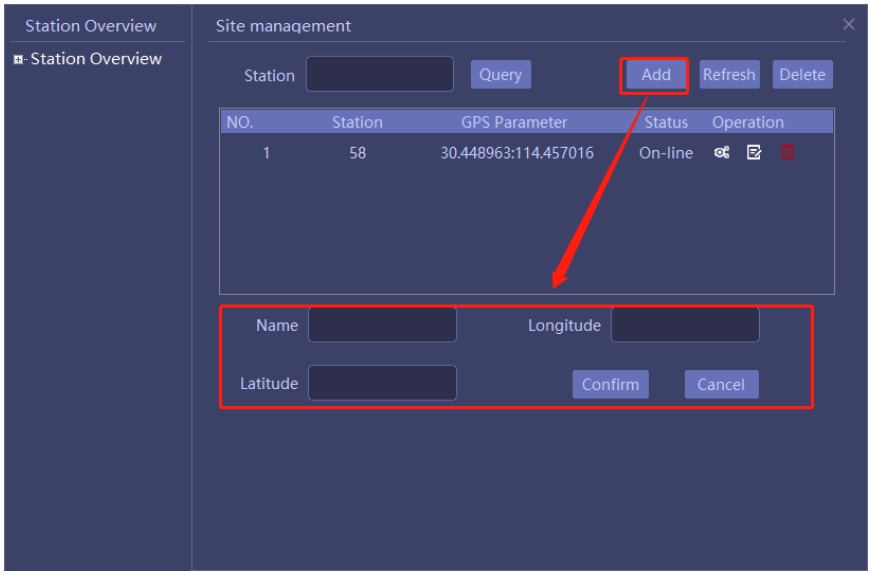


Figure 15Adding site information

After entering the station name, longitude and latitude, click the "OK" button, and the station display box displays the station name, GPS information, station status, etc; As shown in Figure

Figure 16 site information display

Click the site in the site display box with the mouse. After the site information changes to a blue background, click the delete icon after the site information or the delete button  on the site management page to delete the selected site, which is not displayed in the site display box; As shown in Figure 17.

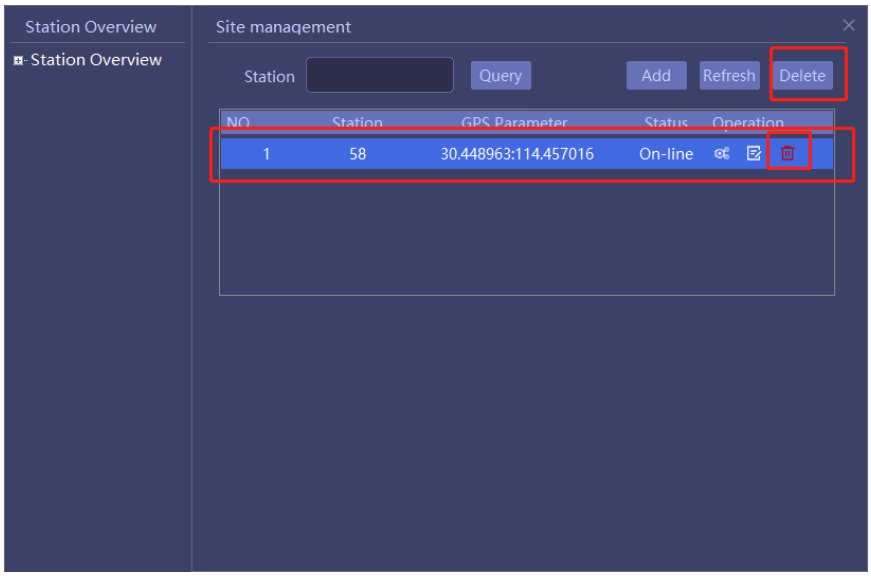


Figure 17 Deleting a site

Click the site in the site display box with the mouse. After the site information

changes to the blue background, click the edit icon  after the site information. The interface displays the site name and longitude and latitude information, and you can modify the parameters; As shown in Figure 18

Figure 18 site editing

3.3. Equipment management

Management - site settings - select a site and click the device management icon  after the site information: you can enter the device management page; As shown in Figure 19.

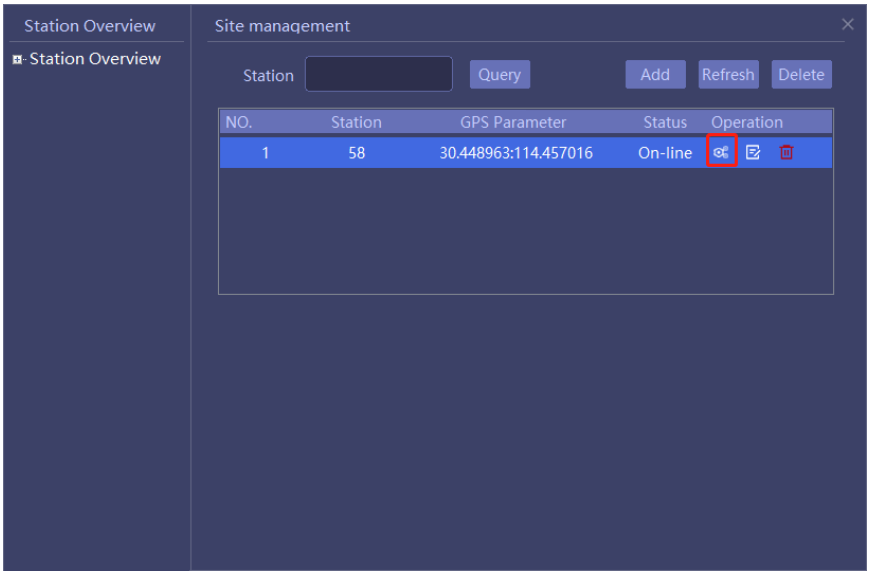


Figure 19 entering device management

After entering the equipment management interface, click the "add" button on the upper right to display the equipment addition information at the lower part of the interface. You can choose to add radar, photoelectric and other equipment. Click OK after adding, and the equipment status information can be displayed in the equipment display box; As shown in Figure 20

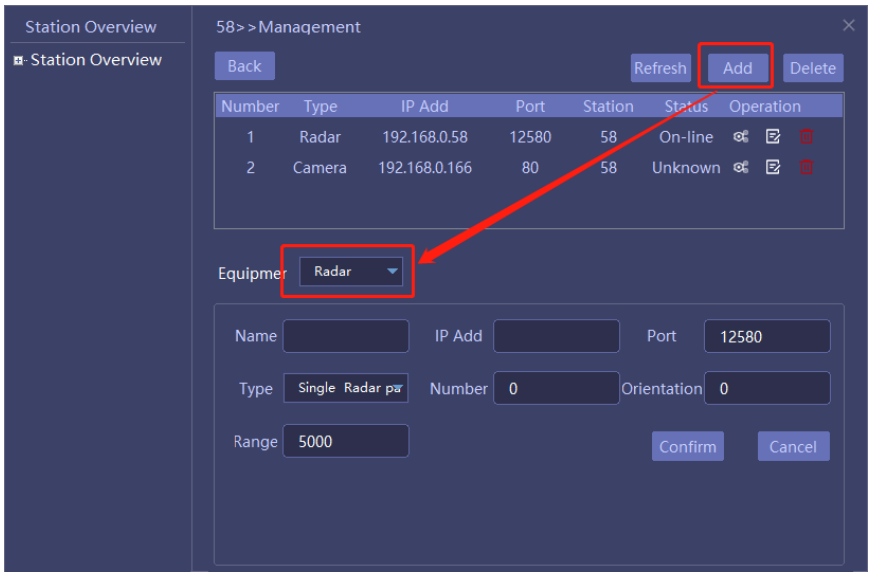


Figure 20 Equipment information operation in the site

Management - site setting - equipment management page: click the equipment list parameter configuration icon  , and the array parameter information is displayed at the bottom of the interface: including GPS information setting, array transmission switch setting, array threshold, working mode, working frequency point setting, etc. As shown in Figure 21:

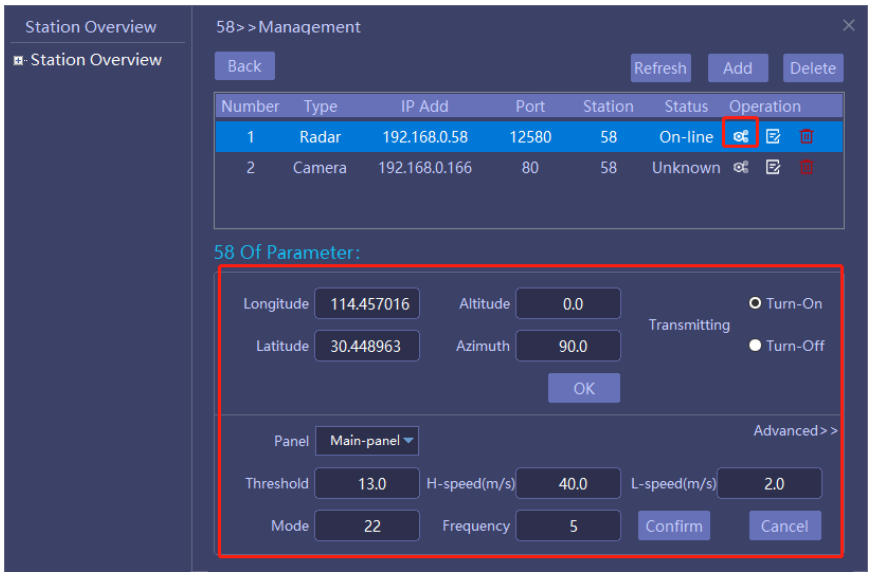


Figure 21 Radar parameter configuration

In the equipment list, select a equipment and click the edit icon behind the equipment. The equipment information of the selected radar is displayed at the bottom of the interface: including radar name, IP address, port number, etc. after modifying the parameters, click OK to save the modified radar parameters; As shown in Figure 22

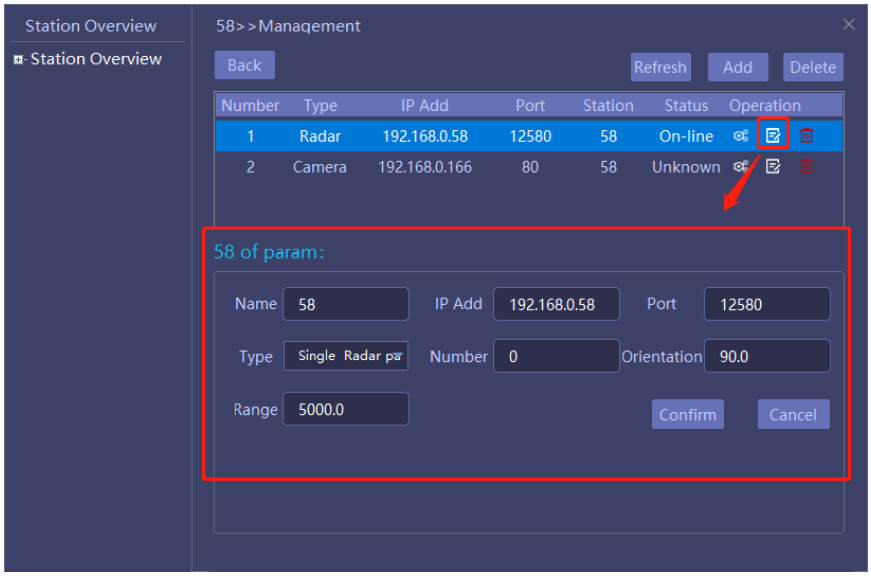


Figure 22 Equipment parameters

In the device list, select a device, click the Delete Icon behind the device, and the interface will prompt whether to delete the device. Click OK. The device is not displayed in the device normal deletion list. Select Cancel to return to the device

list interface, and the device is still displayed in the list; As shown in Figure 23

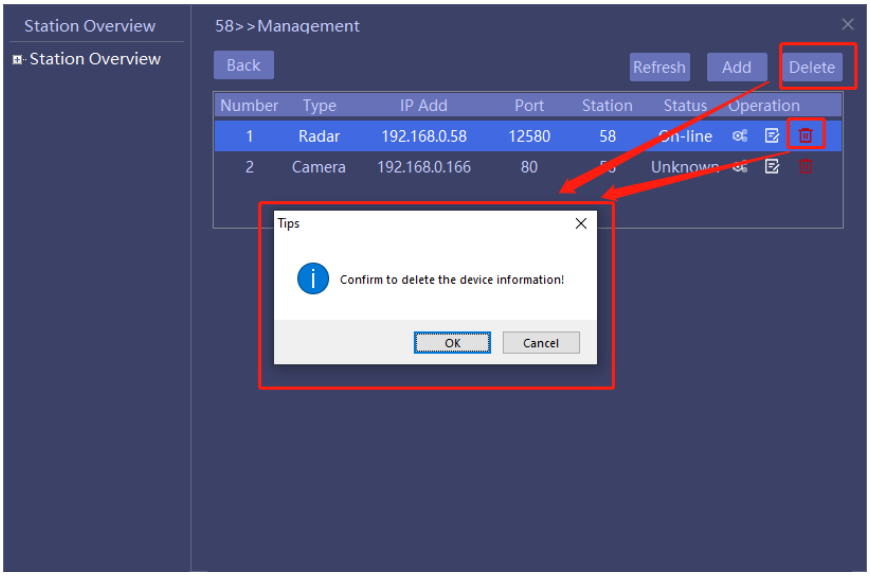
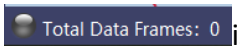


Figure 23Deleting the device

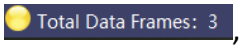
3.4. Device status display

When the device is successfully added and there is data transmission, the status light 

in the lower left corner of the main interface is green, and the total number of data frames will increase all the time;

When no equipment is added or there is no data transmission, the status light 

is gray, and the total number of data frames will not change;

Add multiple radar devices. When some devices are not online, the status light is displayed in yellow 

, but the total number of data frames will increase all the time;

3.5. Linkage setting

Management - linkage setting: the interface pops up to configure the turntable

and other equipment linked by the radar, as well as the corresponding tracking mode, as shown in Figure 24:

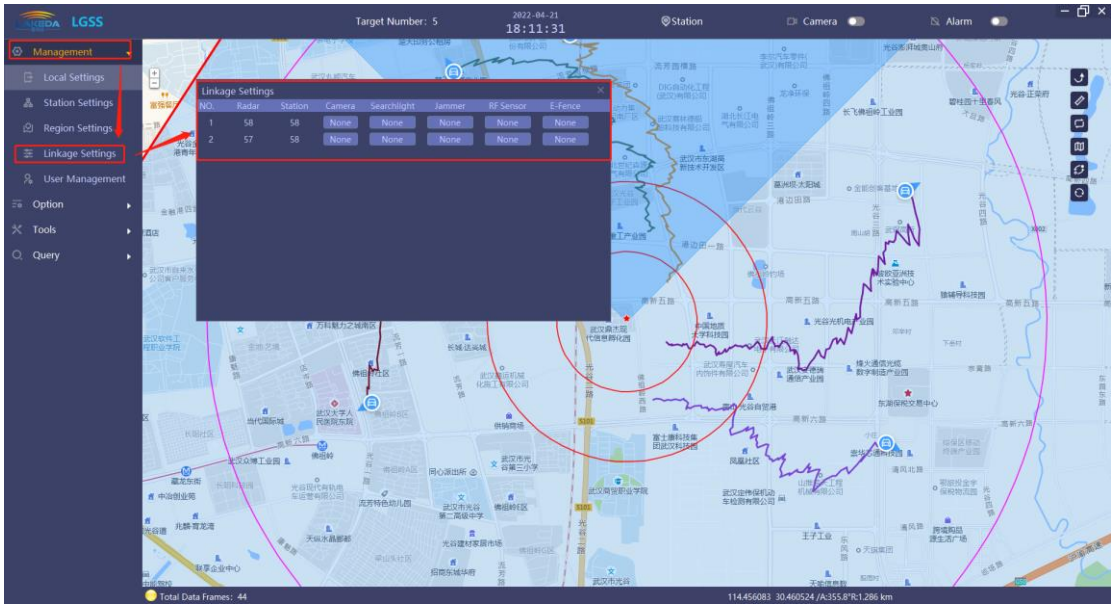


Figure 24Linkage configuration

At the same time, you can also click the "five pointed star" on the map to make detailed linkage settings for each device, as shown in Figure 25

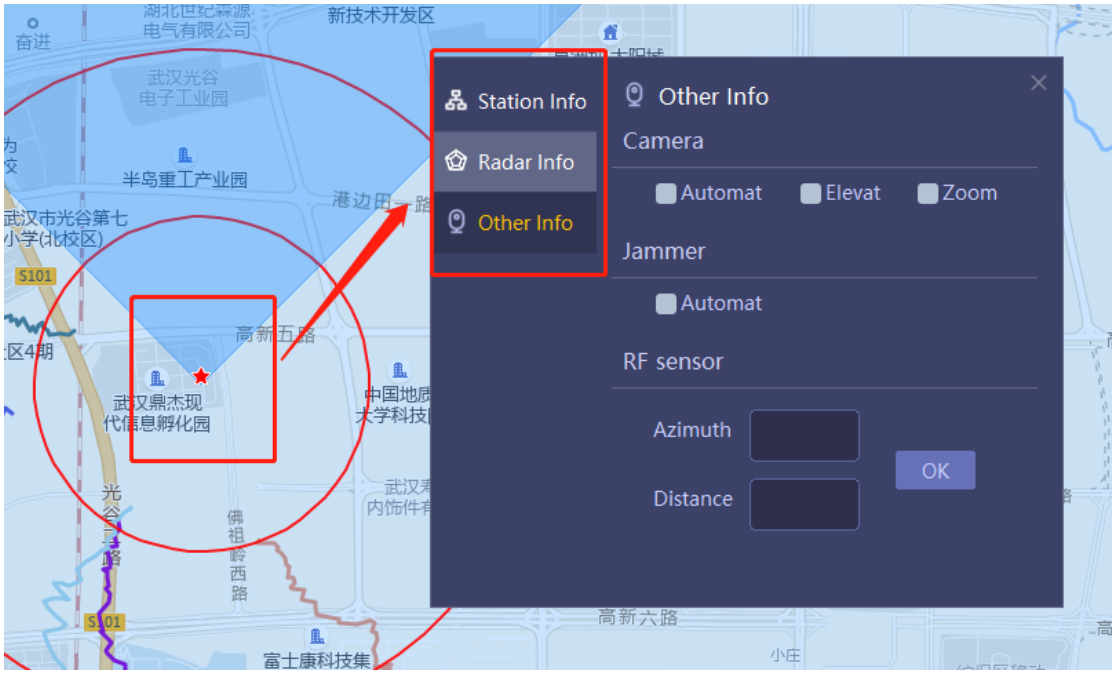


Figure 25 detailed configuration of linkage

3.6. User management

Management - user management: enter the password of the current login user in

the old password and the password to be modified in the new password (the two items of setting the new password must be consistent). After setting, click Modify to modify the login password of the current login user. As shown in Figure 26:

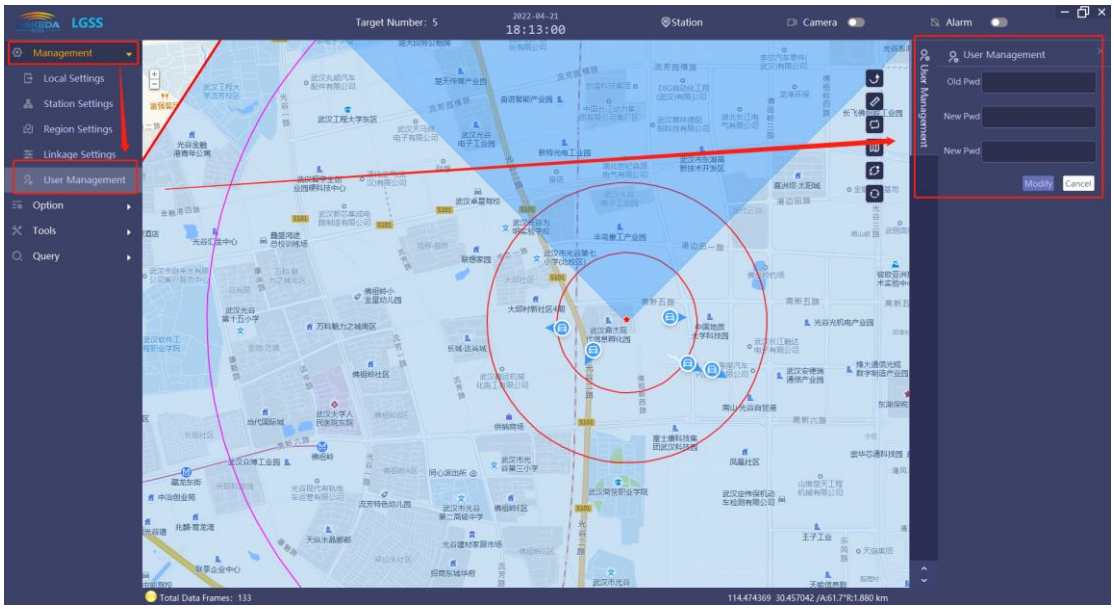


Figure 26 User password modification

3.7. Alarm mode

Option - alarm mode: in the alarm mode interface on the right, you can filter the conditions for the target to trigger the alarm. After setting, click the OK button. When the target triggers the alarm between the set parameter values, the alarm sound will be output, as shown in Figure 27:

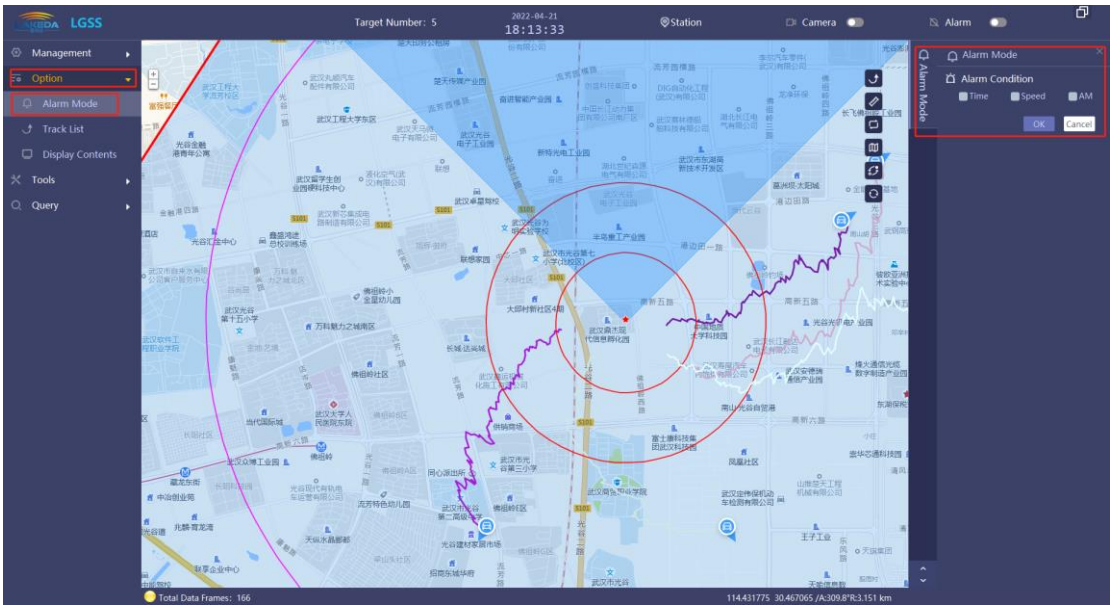


Figure 27 alarm configuration

3.8. Track list

Click option - Track list or the right track shortcut key to display the effective target information in the current map interface. As shown in Figure 28 below:

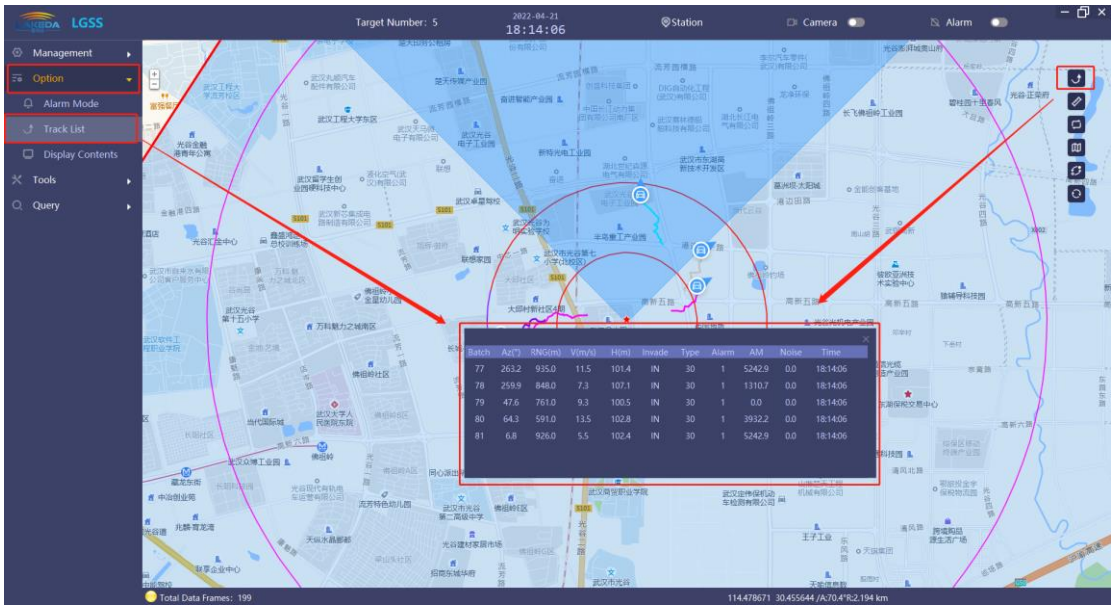


Figure 28 Track list

3.9. Measurement

Tools - measure, or the map shortcut key on the right, you can select two points on the map as the starting point and ending point. After the measurement is completed, place the mouse on the start point or end point icon to display the linear distance and orientation between two points. As shown in Figure 29below:

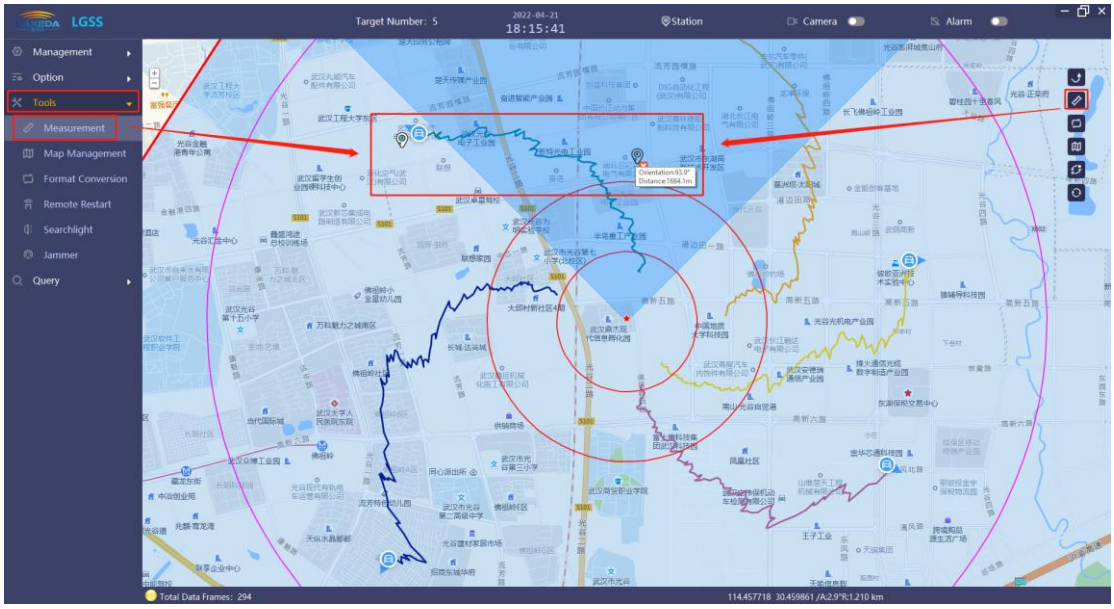


Figure 29 Measurement

3.10. Map management

Tools - map management, the map management interface will pop up on the right, as shown in Figure 30. Among them, the right map shortcut key can quickly select the map type to be displayed.

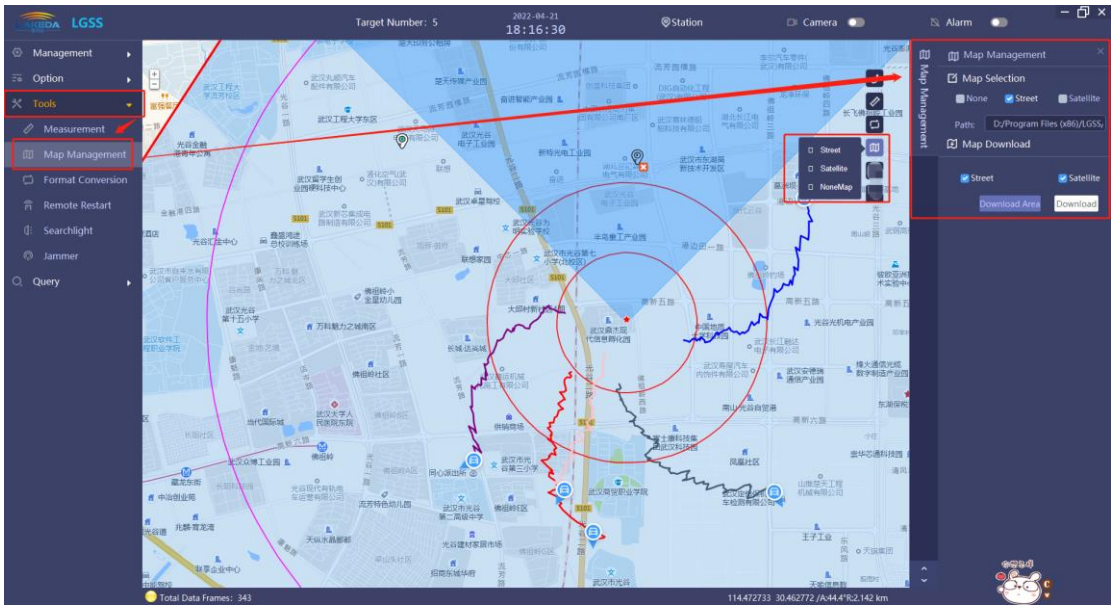


Figure 30 Map management

3. 10. 1 Map type selection

LGSS software supports street map and satellite map, or it cannot use map.

3. 10. 2 Online map download

LGSS software supports satellite map and street map download (Gaode map). Before downloading, ensure that the computer is connected to the Internet. Select download street map / satellite map in the map download option, click "download area", draw the map download area on the map display interface (refer to the drawing area), double-click the left mouse button, save the drawn download area, and click "download" to start downloading. Suggestion: do not close the software until the map download is completed.

In the path information bar, you can view the saved location after map download and display the map download progress;

After downloading the map, you can select satellite map, street map and no map

in map selection;

3.11. Format conversion

Tools - format conversion, the format conversion function menu will pop up on the right, mainly GPS calculation conversion, which is divided into unit conversion and coordinate conversion. As shown in Figure 31

After selecting the option to be converted in unit conversion, enter the longitude and latitude respectively, and click the conversion button to obtain the corresponding conversion index;

On the left - select the option to be converted, enter the longitude and latitude data, and click the conversion button to normally obtain the corresponding parameters;

Figure 31 Format conversion

3.12. Remote Reboot

Tool - Remote restart: if the radar is equipped with a relay and has the function of

remote restart, the corresponding IP can be configured on this interface and the relay function can be restarted remotely;

The main function is to control the switch of each channel of each relay:

(1) The new button is to add the relay to the above list. After adding, the relay will be automatically connected. If the connection is successful, the channel switch button will be automatically added to the status bar;

(2) Double click the position to be modified on the interface to modify the content. Then click the "save" button.

(3) When the network is unavailable due to network interruption or other reasons, click the refresh button to reconnect the relay after reconnecting the network.

3.13. Searchlight

You need to add a searchlight device in the station setting - equipment setting, and the radar calls the searchlight device in the linkage setting. On this premise, you can enter the tool - searchlight for control:

In the searchlight function interface, select the down button  to select the searchlight equipment to be controlled, as shown in Figure 32; After selection, select the direction key, and the searchlight can rotate according to the operation of the direction key.

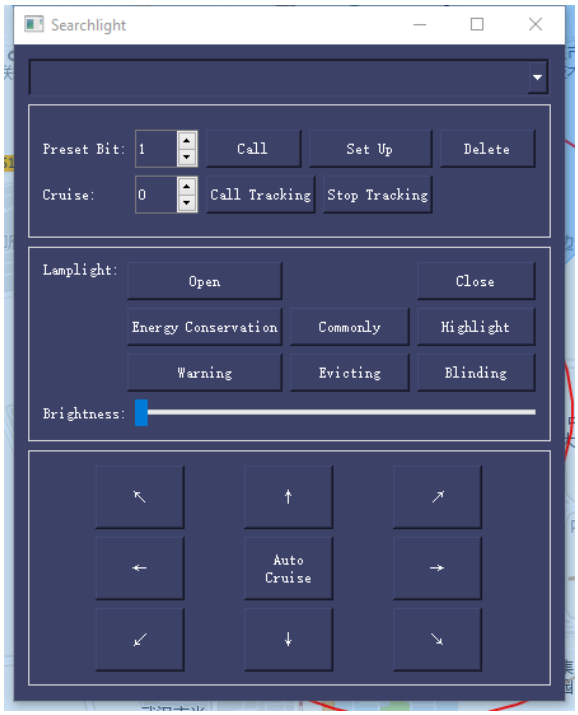


Figure 32 Searchlight function

3.14. Jammer

Jamming equipment needs to be added in station setting - equipment setting, and radar calls jamming equipment in linkage setting. On this premise, you can enter tool jamming for control. The interface can display the control status of jamming equipment;

When a UAV is found on the map interface, click the up triangle button  on the interface, double-click the left mouse button in the equipment display column, and select the jammer equipment to be called; As shown in Figure 33:

Figure 33 Jamming function

1. Click the icon on the left to force the UAV to return;

2. Click the icon on the right to force the UAV to make a forced landing;

3.15. Passive RF Sensor

You need to add passive equipment in site settings - equipment settings - to enter linkage settings: after selecting radar to call passive equipment, when there is a UAV flying nearby, the map interface can display the UAV icon, and conduct target fusion according to the detailed settings of radar linkage.

3.16. Track playback

Query - track playback: select the start time and end time of the track to be played back.

3.16.1 Playback track information in the current alarm area

By default, click "start" to start playback of the track that appears in the current alarm area at the corresponding time and display the time of the corresponding track, as shown in Figure 34:

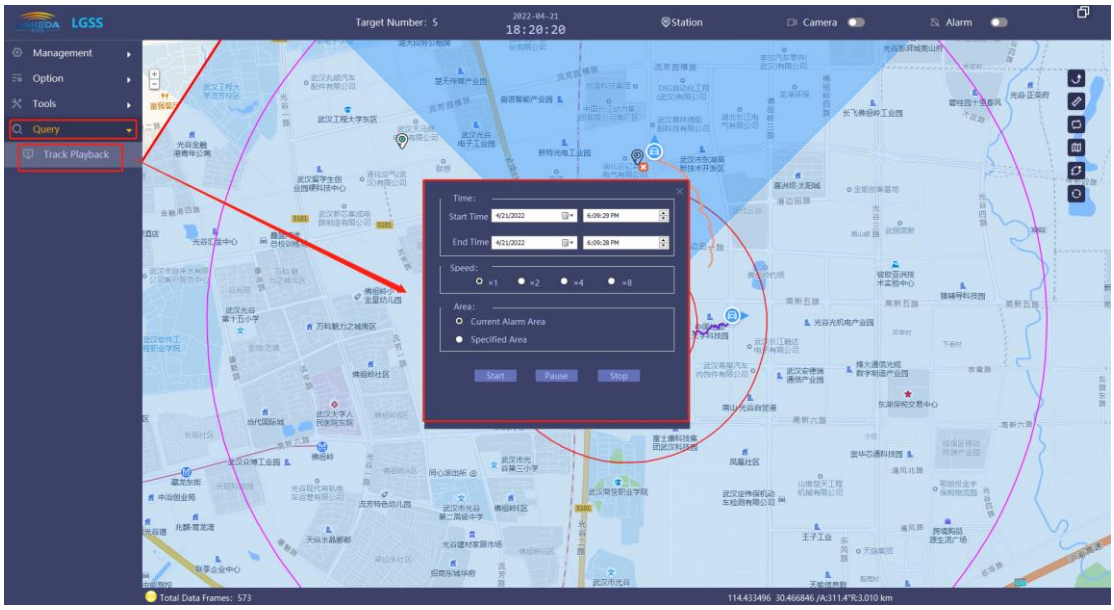


Figure 34 Track playback in current alarm area

3.16.2 Playback track information in the specified area

Select "playback the target in the specified area", then click the "start drawing area" button, and then draw the area on the map. After drawing, double-click the left mouse button to save the drawing area, click "finish drawing", and then click "start" to play back the video in the area, as shown in Figure 35:

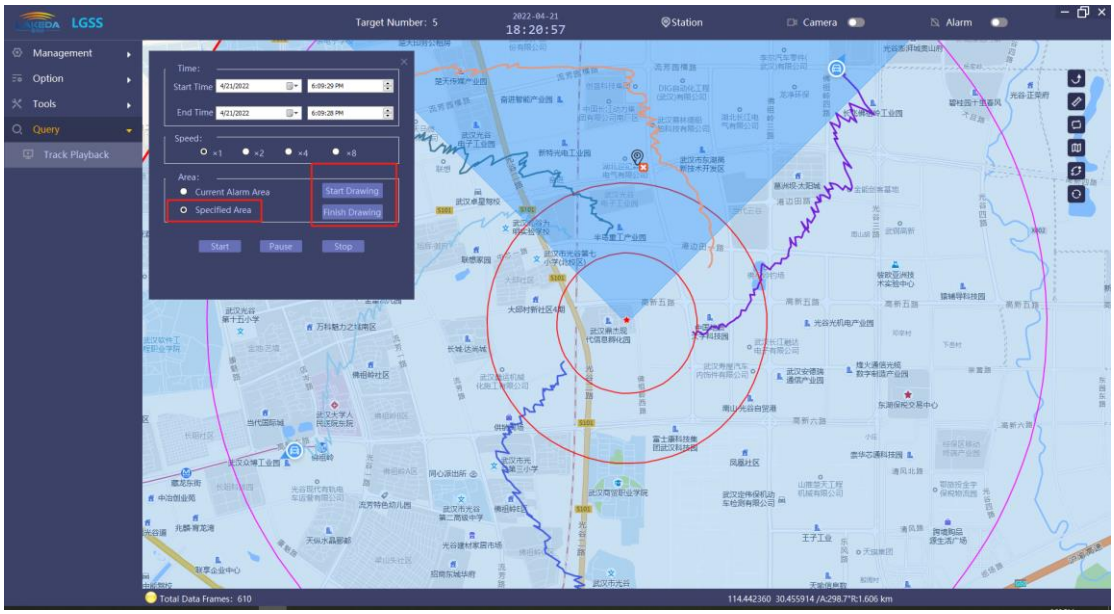


Figure 35 Track playback in designated alarm area

3.17. Display single track information

Left click the track information of the track target or track list, and the track information of the selected target will pop up in the lower left corner, as shown in Figure 36 below.

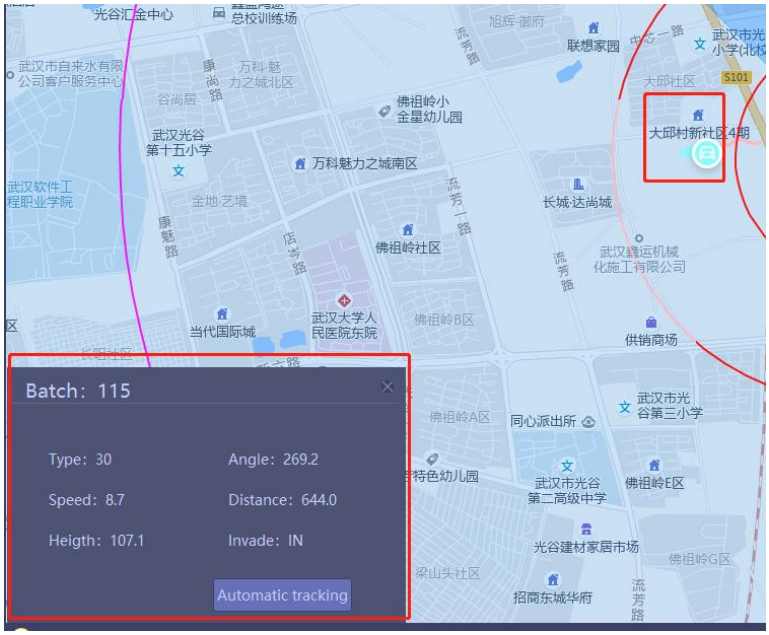


Figure 36 Track information

3.18. Automatic tracking

Click "automatic tracking" on the track information in the lower left corner. Before the target disappears, photoelectric will be called for forced tracking. During this time, the target color turns light green. As shown in Figure 37:

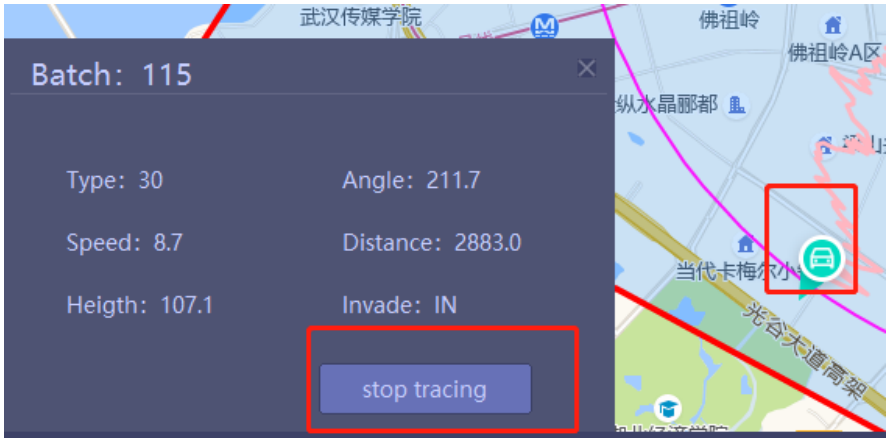


Figure 37Photoelectric automatic target tracking

3.19. Clear all

Right map shortcut key, click "Refresh" button to clear all targets on the map and track information on the track list.

3.20. Site location

Move the cursor to the site at the top of the interface, select the site to be located, and left click to move the map to the site, as shown in Figure 38:

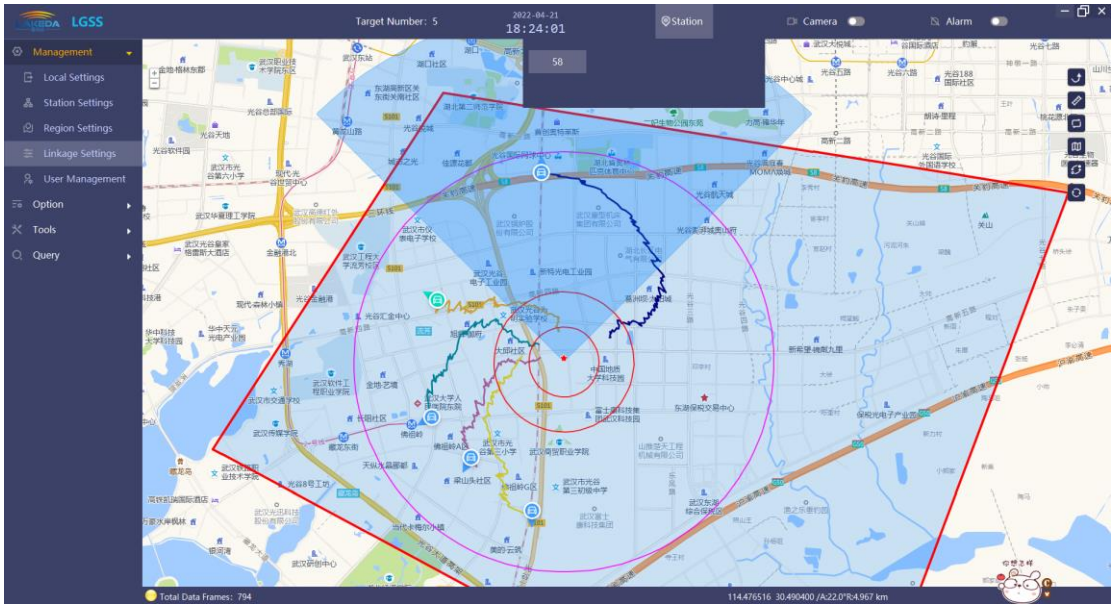


Figure 38 Site location

3.21. Device information shortcut settings

The radar in the map is marked by a red five-pointed star. Click the radar and relevant information will pop up in the upper left corner, as shown in Figure 39. Select the radar information to set the corresponding radar information, including radar name, detection threshold, speed threshold and radar connection status.

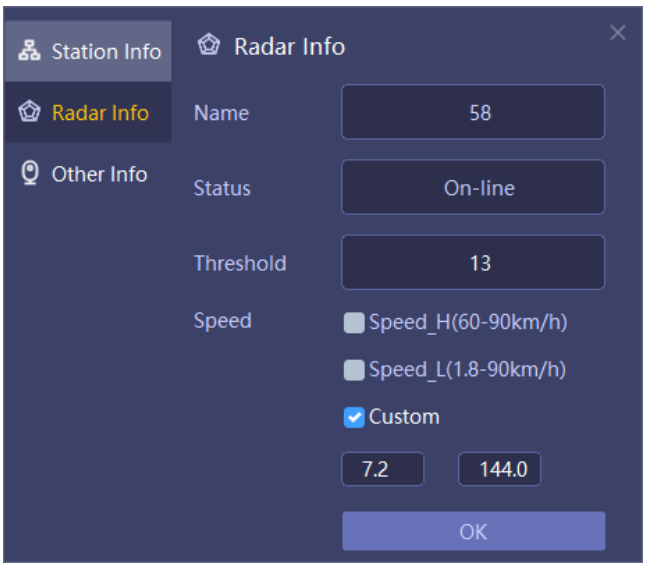


Figure 39 quick setting of radar

Note: the detection threshold and speed range are set for all arrays.

By switching the vertical menu, you can view other information under the station corresponding to the radar. As shown in Figure 40:

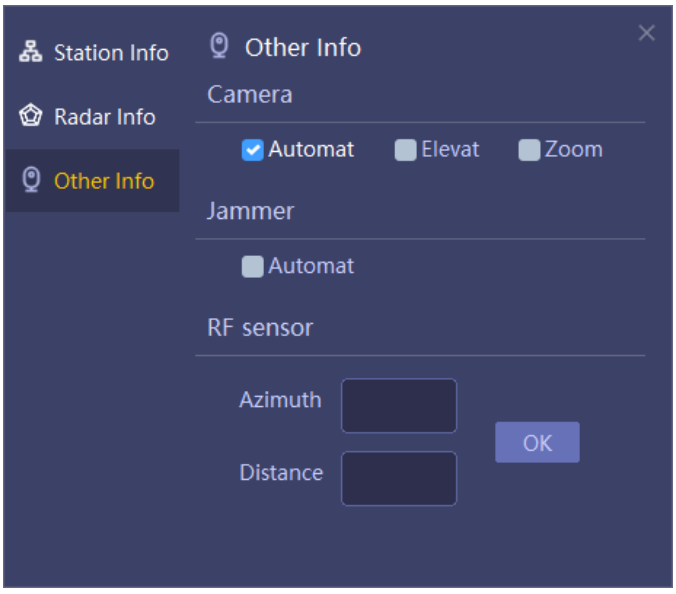


Figure 40 Other equipment information of the station

This interface can set photoelectric automatic tracking (pitch, zoom, etc. searchlight and photoelectric are called together), automatic jamming and set the fusion difference between UAV target detected by passive spectrum and target detected by radar (all stations are the same).

3.22. Drag to set radar GPS information

Right click the red five-pointed star of the radar. When the five-pointed star turns blue, you can drag it with the left button. After dragging, right-click the pentagram again, and the color returns to red to complete the GPS setting.

3.23. Call photoelectric interface

Click the "video" switch at the top of the interface to pop up the photoelectric interface, as shown in Figure 41:

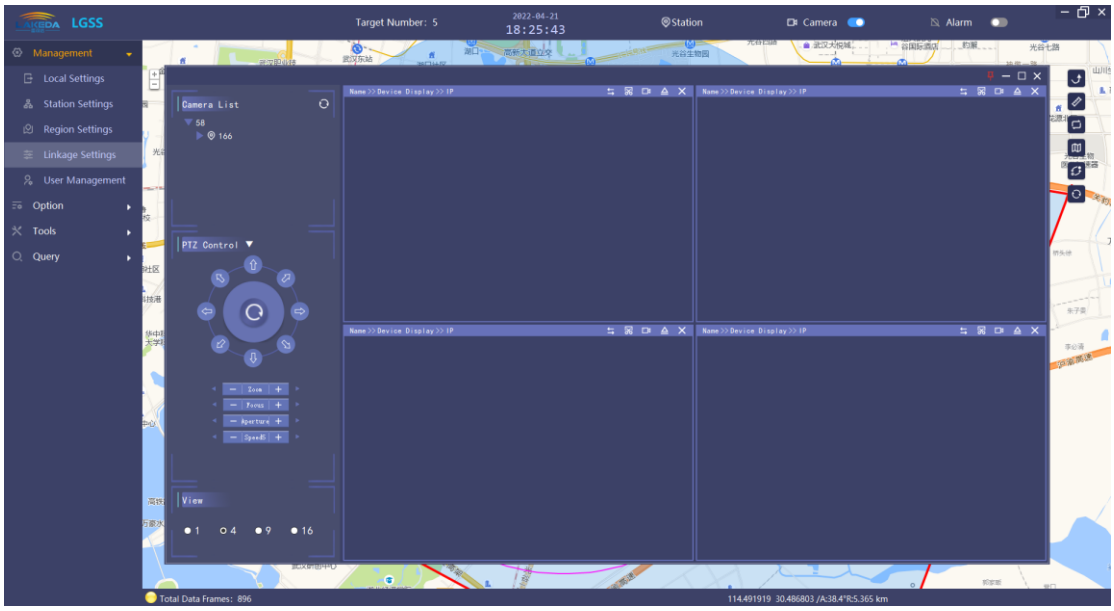


Figure 41 photoelectric main interface

3.23.1 Introduction to photoelectric main interface

The main interface distribution is shown in Figure 42:

Figure 42 distribution of photoelectric main interface

(1) When the photoelectric interface is opened, it is in the top setting state by default. You can click  to cancel the top setting in the upper right corner of the photoelectric interface.

(2) The left side of the interface is the operation area and the right side is the video playback display area.

(3) All connected optoelectronics are displayed in the optoelectronic list. You can double-click  or drag from the list to the video playback area to play the camera video. If there is a new photo to the configuration file, you can click the button to read it again.

(4) The PTZ control area mainly controls the photoelectric camera. Just click the video you want to operate in the video playback area to control the photoelectric camera in the PTZ control area.

(5) The view area mainly controls the split screen playback of the video playback

area, as shown in the following figure: the current selection is "4", the video playback area on the right is divided into split screens, and different photoelectric cameras have been displayed, and so on.

3.23.2 Photoelectric playing interface

(1) The title of the video playback interface. The photoelectric camera information of the current window is displayed on the left and the operation button is on the right.

(2) The button  is used to switch the current photoelectric channel, such as from "visible light" to "thermal imaging".

(3) The button  is a screenshot function, which captures the current window. The screenshot is stored in \ imagevideo \ image under the root directory of the software.

(4) The button  is a video recording function. After clicking, the button turns red to be recording. Click again and the button turns white to complete the recording. The storage location of the recording is \ imagevideo \ video under the root directory of the software. If the video is still being recorded after 5 minutes, there will be a prompt box to prompt that it has been recorded for 5 minutes. If you record for 20 minutes, you will be forced to stop recording. As shown in Figure 43, the storage location of screenshots and videos:

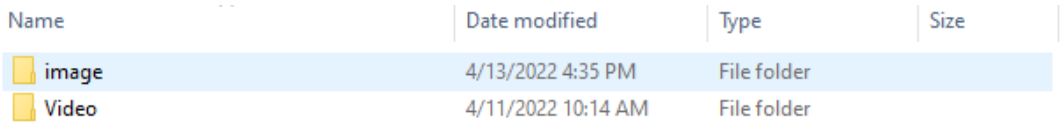


Figure 43Screenshot and video storage location

(5) The button  is to pop up this window and put it on the top. See "3.23.1" for

details of the pop-up window.

(6) Button  to close the video content of the current window.

3. 23. 3 Photoelectric pop-up window top setting interface

This window is the main interface playing window. Click  to pop up the video. Only when there is video in the current window for playing can it pop up. Up to four windows can pop up. The pop-up interface is shown in Figure 44:

Figure 44Video pop-up page

(1) You can control the current photoelectric camera to rotate "up, down, left, right" by clicking the mouse at the four arrows on the video interface or by holding it for a long time.

(2)  Zoom,  the focusing,  aperture,  speed, the left is -, the right is +.

(3) The title bar button is the same as the button in 3.23.2.

3.23.4 Photoelectric calibration configuration

1>, open fy.xlsx under ini folder in the software；

When the photoelectric is powered on, the self-check turns to 0 degrees. Through the directional instrument or mobile phone APP, the photoelectric Angle is roughly north at this time. Write the "photoelectric orientation Angle" and click save fy.xls.

You can also calculate the approximate photoelectric Angle by taking the Angle of radar orientation plus the Angle between the photoelectric Angle and the radar.

After saving, the photoelectric will automatically turn according to the modification.

Gradually fine-tune the "photoelectric orientation Angle" in fy.xlsx table, the value becomes smaller, photoelectric will be to the right, and vice versa. Click save fy.xlsx, photoelectric update data in real time, until the target can continue in the horizontal center of the photoelectric picture, you can think that the fine tuning of photoelectric orientation Angle is finished.

2> Reference for pitch and doubling during automatic tracking

A 2-coordinate radar provides azimuth and range, but not pitch and multiplication for photovoltaics. In order to accurately track the target, photoelectric information such as pitch and multiplication is required. After on-site investigation, the precise tracking of photoelectric can be completed by presetting the fy.xlsx database；

1. Number of effective directions

The radar detection area is not completely flat, and the photoelectric call pitch and zoom values will be different in different azimuth ranges. Multiple valid azimuth intervals can be set here. For example, "4" represents four valid intervals, the first 0 ~ 90, the second 90 ~ 180, the third 180 ~ 270 and the fourth 270 ~ 360. Note: the effective range can be set in different sizes in order.

2. Valid serial number of each bearing

"7" means that each effective interval contains 7 gears of data, each gear corresponds to different target distances, and the pitch and zoom values of each distance are also different. For example, lgss shows that when the target is in the azimuth range of 0~90 degrees and runs at a distance of 0~200 meters, the photoelectric call pitch is -15 degrees and the zoom factor is 1. When running at a distance of 200 ~ 500m, the photoelectric call pitch is - 5 degrees and the magnification factor is 5.

3. Above pitch (minimum) below (maximum), zoom minimum and maximum, which represents the value range of right pitch and zoom coefficient. When the pitch or zoom value on the right side is less than the corresponding minimum value, the minimum value will be referenced when photoelectric calls pitch and zoom; When the pitch or zoom value on the right side is greater than the corresponding maximum value, the maximum value will be referenced when photoelectric calls pitch or zoom.

3>. the relationship between the call of multiple stations and the automatic tracking of Optoelectronics

Multiple stations call photoelectric linkage, adopt the corresponding relationship of 1 to 1, and the protection mechanism has been set, as shown in Figure 45:

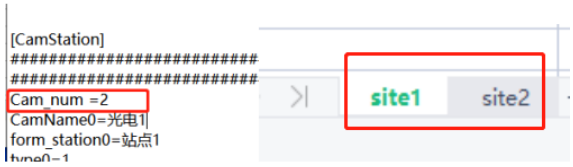


Fig. 45corresponding relationship of multi site calibration

lkd-config. Ini, the total number of photoelectricity Cam_num， is set in [camstation], one photoelectric corresponds to one sheet.

4. Display contents

Note: this section should be used with caution by non professionals.

4.1. Dot trace display

In the left menu bar "options" > > "display content", set the time of dot trace display. When it is 0, dot trace will not be displayed. As shown in Figure 46:

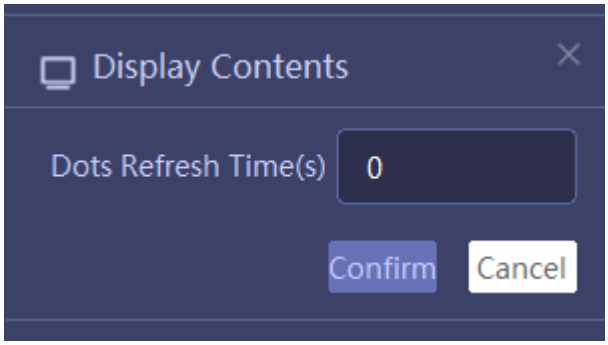


Figure 46 Dot trace display time

4.2. Display contents

In the left menu bar "options" > > "display content", set the track icon type and the distance scale circle of the radar in the station. As shown in Figure 47:

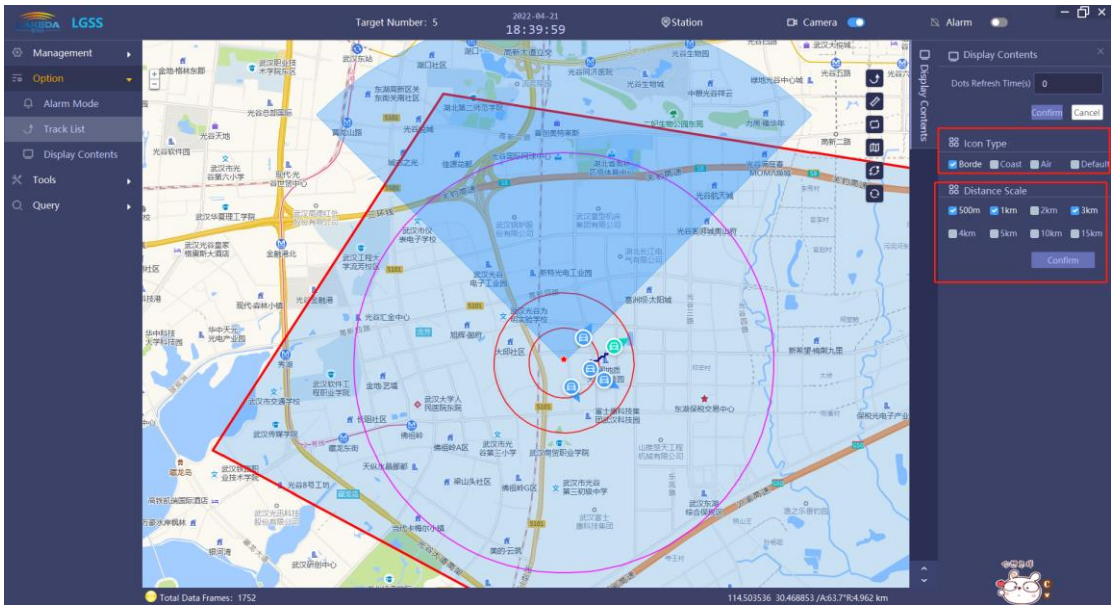


Figure 47 Display interface

The border defense is mainly composed of car and pedestrian icons, which are distinguished by speed.

Haiphong is a ship icon.

Air defense is the UAV icon.

The default is the type icon transmitted from radar data.