



# **ZCLOG VALIDATION**

Wireless Verification System software

Version: 2.2

Users Manual

ZHICE-ELEC

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## Users Tips

1. If the software interface is not fully displayed, you can try to solve the problem by adjusting the display resolution. Go to Desktop - Display Settings - Zoom - Change the zoom ratio to 100%
2. This software requires manual downloading of the adapter driver for logger pairing.
3. Before use, it is recommended to go through this manual in detail and follow the relevant instructions.
4. Please note that the abbreviation "ZCLOG-VS" is used instead of the software in this article.

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## Chapter 1 Installation & Uninstallation

### 1.1 Software installation

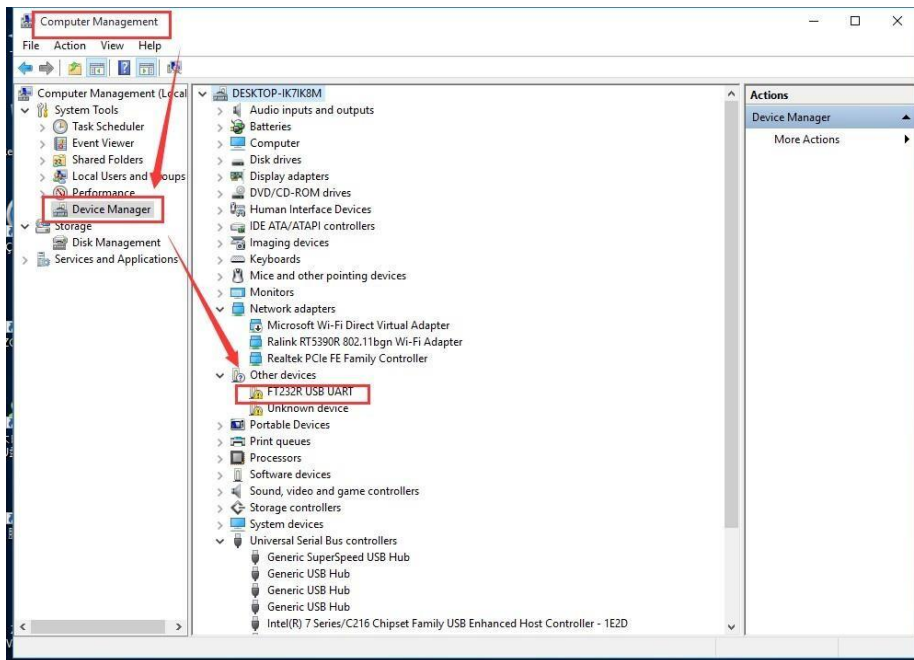
This software only supports Windows 10 and later operating systems. The following software installation instructions are Win10 operating system as an example. This software installation U disk will generally contain the following files:

File Name	Date Modified	Type	Size
Adapter Driver for Win10-11	2023-09-05 17:24	文件夹	
SunClient Remote Control.exe	2019-05-13 16:35	应用程序	5,726 KB
ZCLOG VALIDATION_V2.2_setup_x64.exe	2023-09-05 17:22	应用程序	176,818 KB
ZCLOG-VS_V2.2 software operating manual.pdf	2023-09-05 16:16	Adobe Acrobat ...	3,272 KB

#### 1.1.1 ZCLOG IF-01 adapter communication interface driver software installation

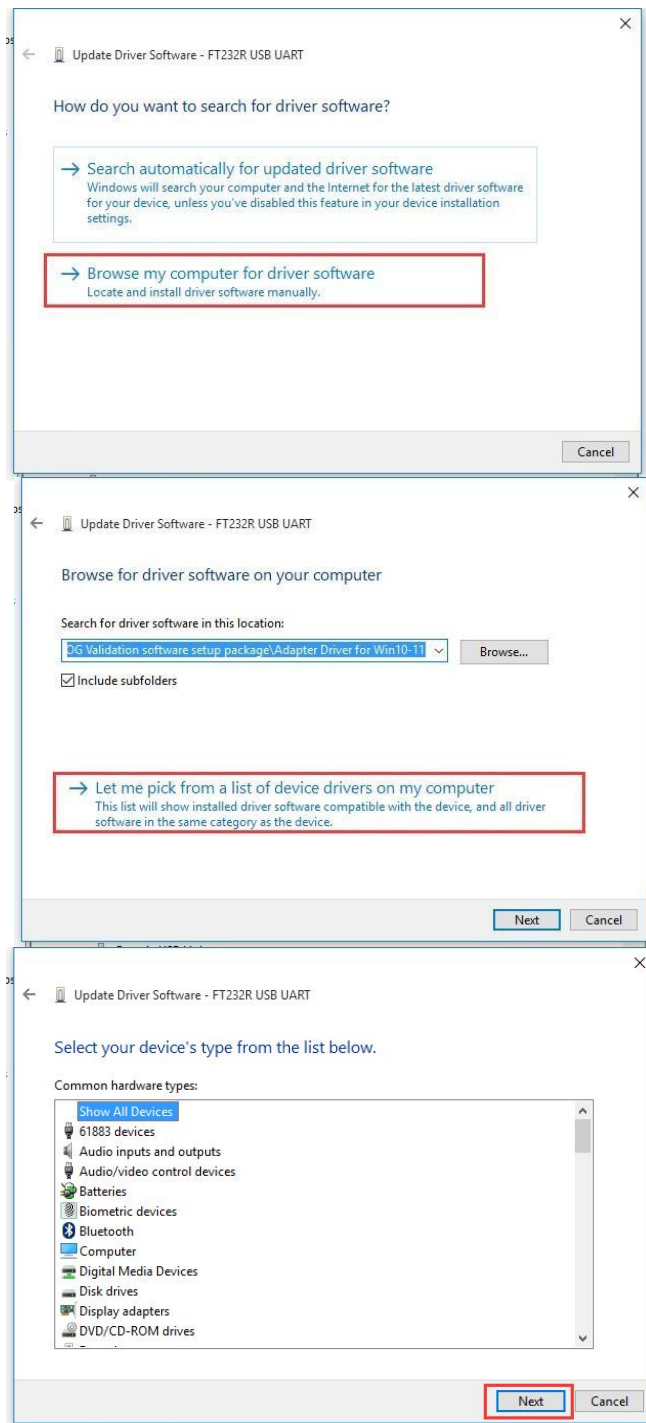
**Step1:** Unpack the adapter and install necessary components;

**Step2:** Use the USB communication cable of the adapter to connect the USB port of the computer and the port of the adapter. When the adapter driver is not installed for the first time, the "FT232R USB UART" identifier as shown in the following picture will be displayed in the device manager of the computer.



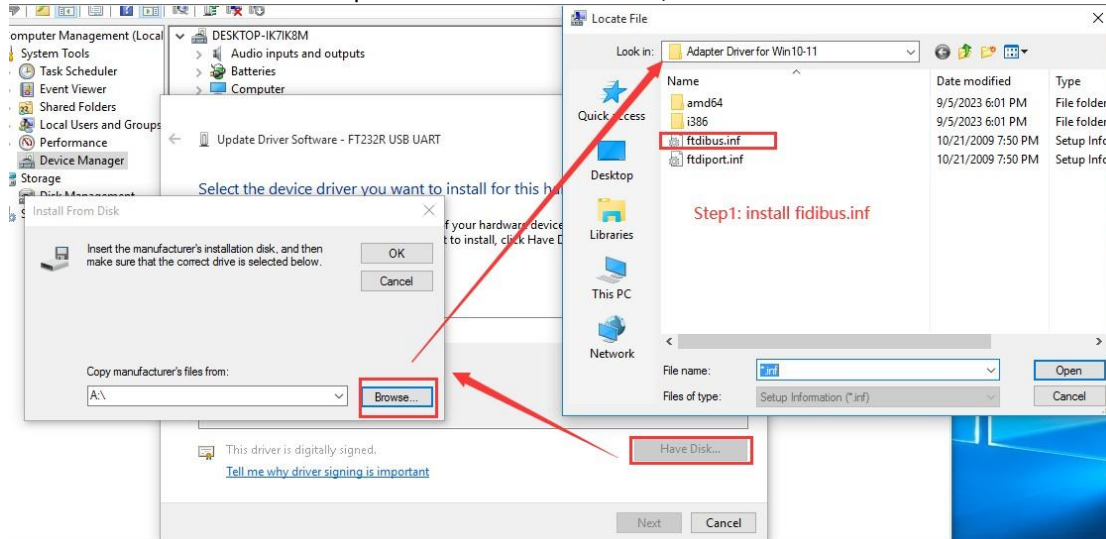
**Step3:** Insert the USB flash drive into the USB port of the computer, browse and find the driver folder in the installation USB flash drive according to your computer operating system;

**Step4:** In the interface of device manager, right-click "FT232R USB UART" and select "Update Hardware

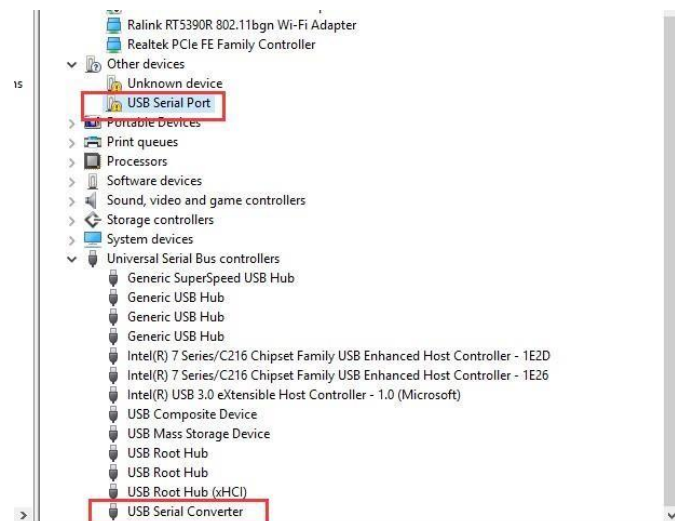


名称	修改日期	类型	大小
amd64	2016-07-29 11:06	文件夹	
i386	2016-07-29 11:06	文件夹	
ftd2xx.h	2008-10-29 16:59	C/C++ Header	23 KB
ftdibus.cat	2009-11-03 13:33	安全目录	12 KB
ftdibus.inf	2016-05-28 10:27	安装信息	4 KB
ftdiport.cat	2009-11-03 13:33	安全目录	11 KB
ftdiport.inf	2016-05-28 10:27	安装信息	6 KB
LogoVerificationReport.pdf	2009-11-03 14:22	Adobe Acrobat ...	42 KB

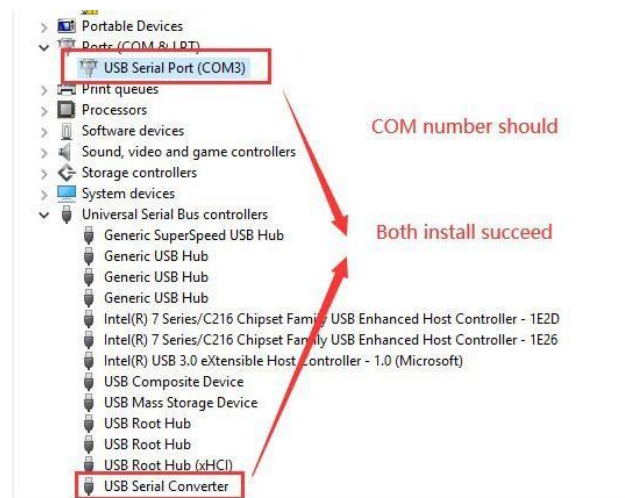
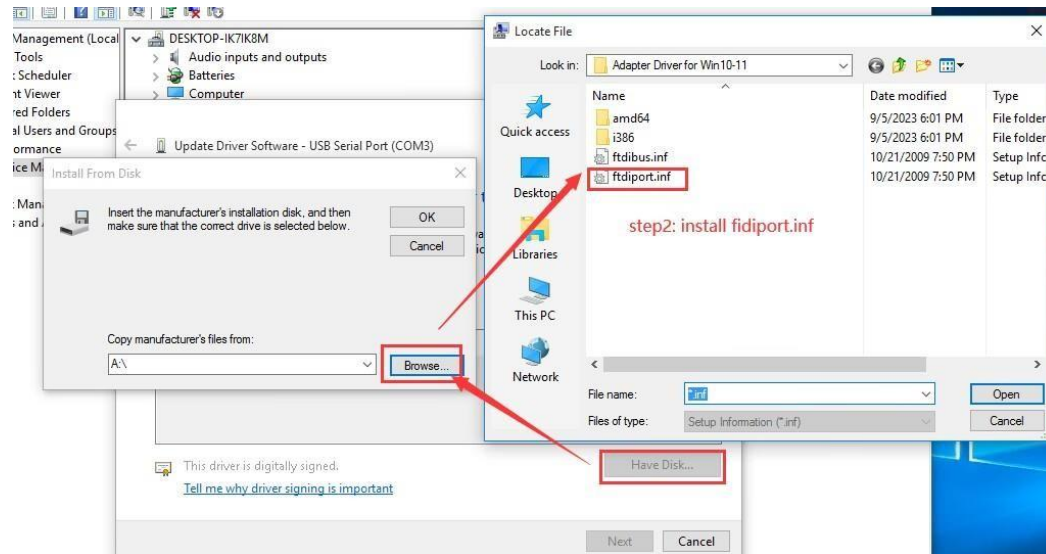
driver" to find the driver in step3. First install "ftdibus.inf",



Close the dialog box after the prompt is successful, and the device Manager interface will refresh, as shown below!



**Step5:** Repeat step4 after successful installation, update the driver, install "ftdiport.inf", after successful setting the device manager to correctly identify the adapter model as shown in the following figure.



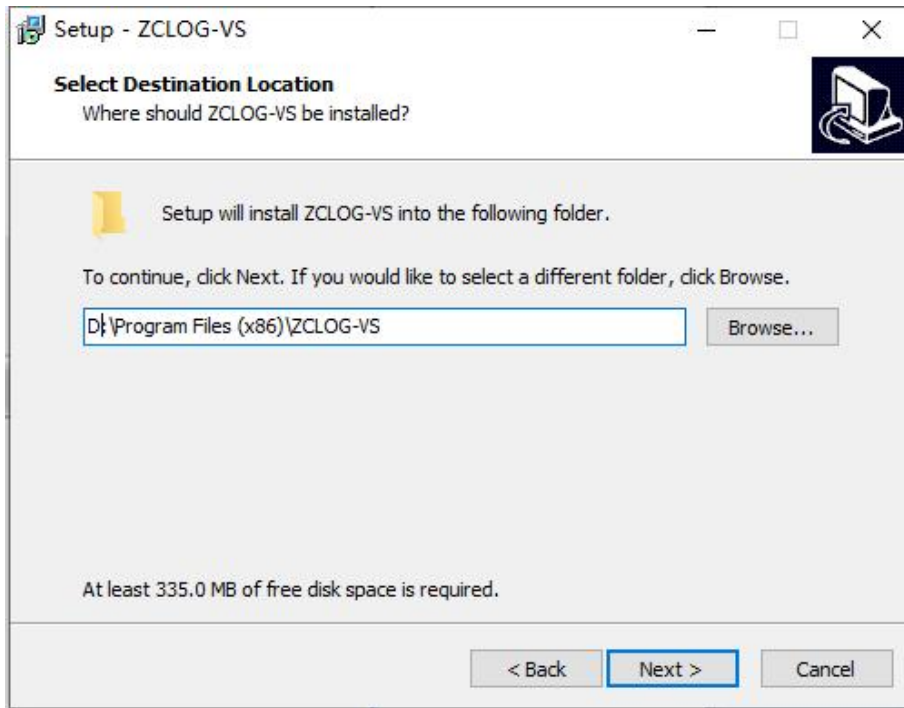
Additional note: The driver of the adapter contains two parts, the device manager interface corresponding to the "universal bus controller" and "port", the corresponding driver files of these two hardware parts are the "ftdibus.inf" and "ftdiport.inf" two files in the driver folder, So the driver of the adapter is divided into the above two parts when installing, and finally only the two parts are successfully installed, on behalf of the adapter driver installation complete. Ordinary users in the first installation of the driver may encounter installation failure, you can contact us in time.

#### 1.1.2 The 'ZCLOG VALIDATION' program is installed

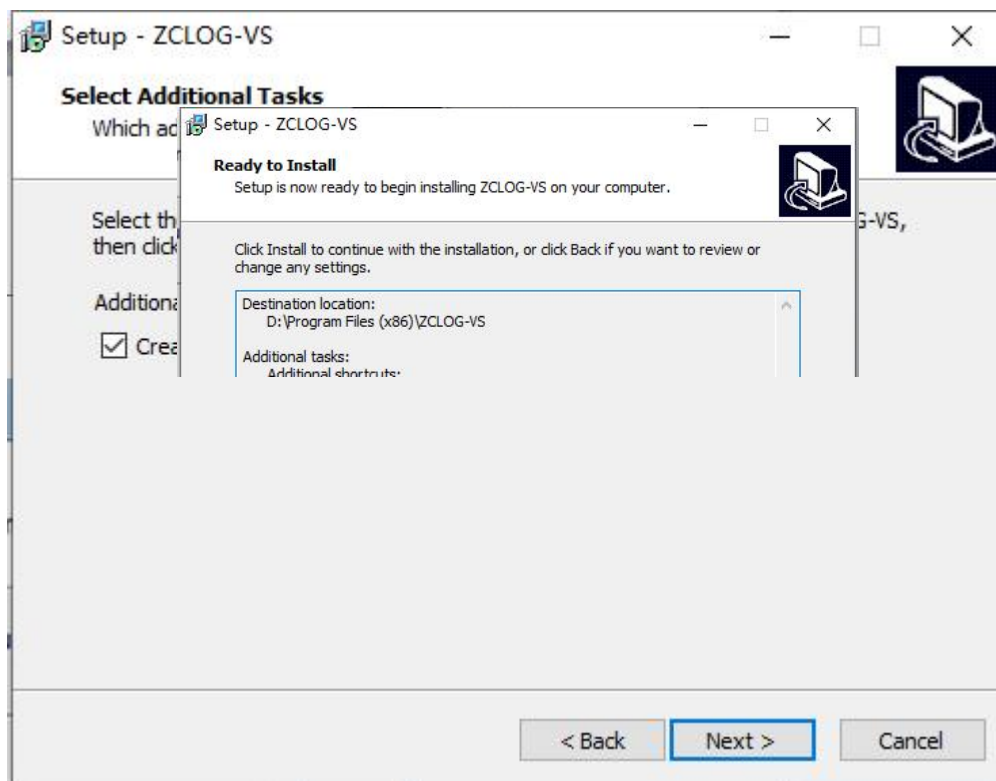
Find the "ZCLOG VALIDATION\_V2.2\_setup\_x64.exe" program, double-click it and complete the installation according to the following picture.

The file directory can be modified, or you can use the default, it is recommended to change to the D disk location, and then click 'Next'!





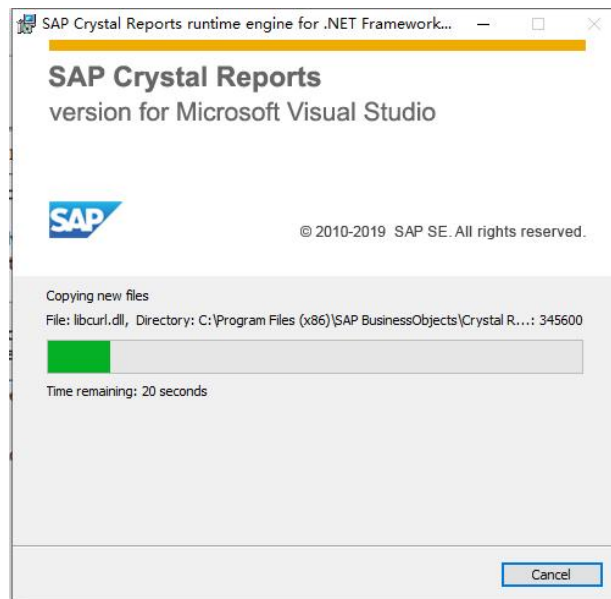
You are advised to select the Create Desktop Icon option and then click Next.



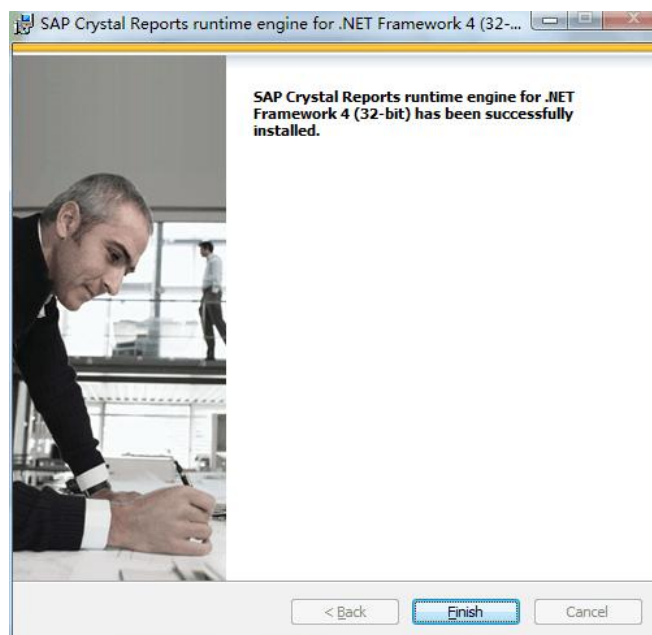
Select "Install" to install;

After the main program is installed, some components required by this program will be installed immediately ".NET FramWork 4.0 "and" Crystal Report "and" Microsoft SQL 2008R2 ".

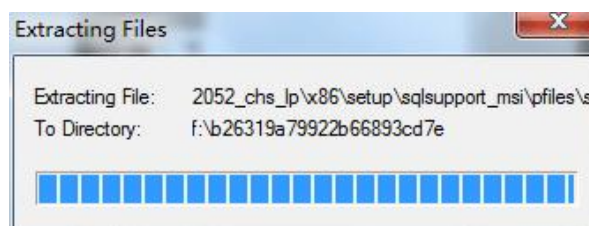
The next step will be the installation of the "Crystal Report" component, which is necessary for the survival report function. After selecting "Install", the interface is shown as the following figure, indicating that the component is being installed.



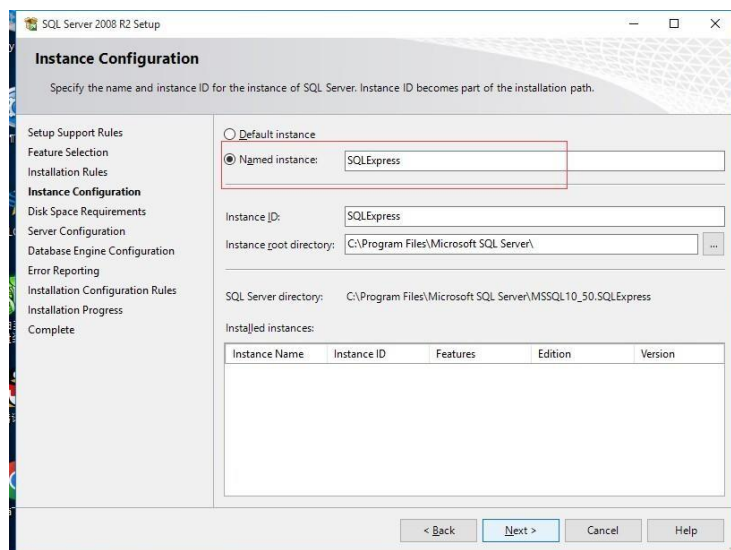
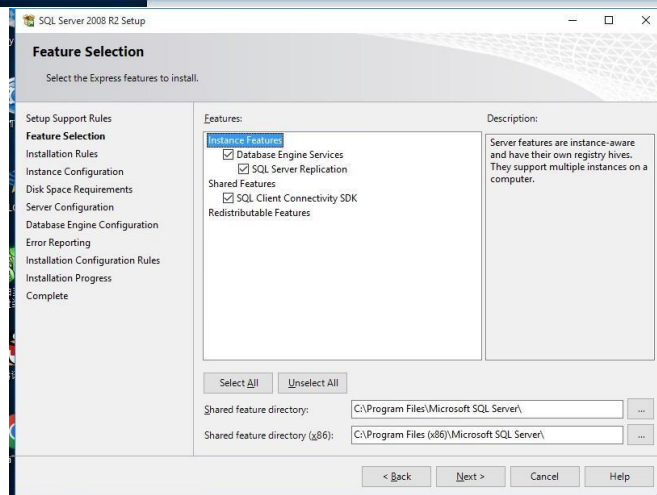
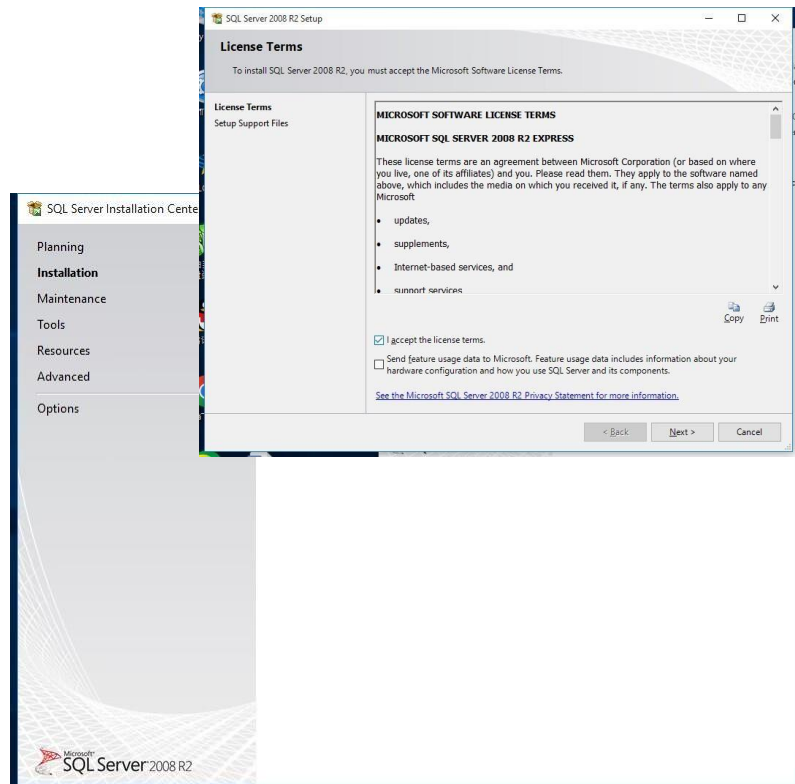
Then click "Finish" and the installation of the component is complete.



The next step is to install "SQL Server 2008", which is a must-have component for the software to save data; If you have previously installed SQL Server2008 on your computer and installed the instance "SQLEXPRESS", you can directly close the SQL Server installation page and skip this step. The normal installation procedure is as follows. Note: If your computer has a low configuration, it may be slow to install SQL Server, just wait for the pop-up prompt.



After the "SQL Server Installation Center" screen below pops up, select the "Install" function on the left and the first "Fresh Install or add features to existing installation" on the right; Select "Accept license terms" and then "Next" after the following interface pops up;

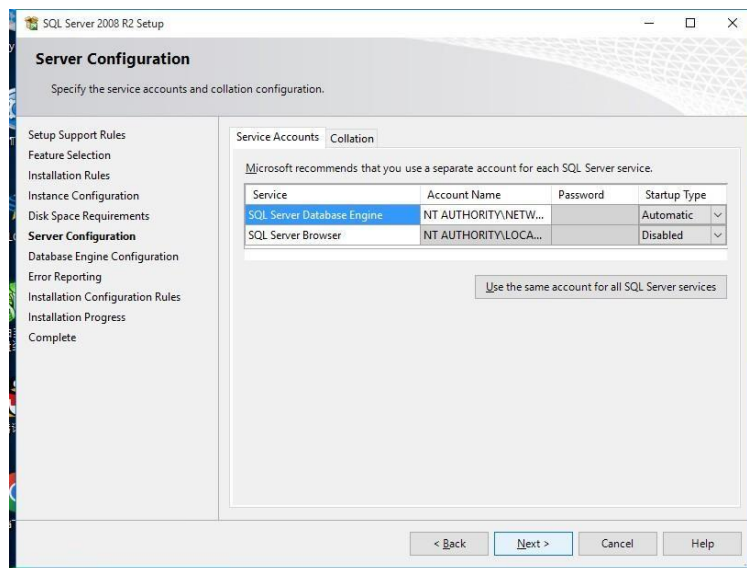


The installation process of this version of the database is slow, and so on the pop-up window below, select

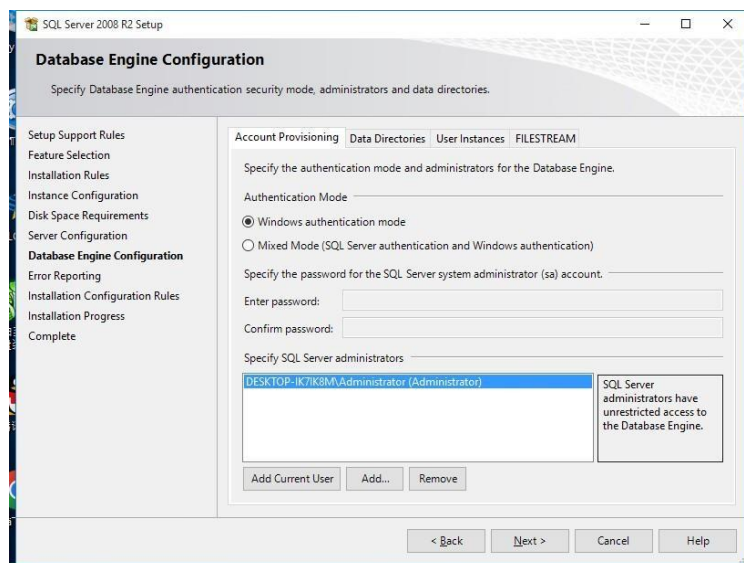
"select all" instance function, and then click "Next", the file directory can be modified by itself or the default path.

In the following figure, if you have installed SQL2008 or later and installed an instance named "SQLExpress", it will be displayed in box 2. At this time, you only need to click "Cancel" to skip this step and go directly to the last step of "Database Attach". If you have not installed the database as shown in the picture below, click "Next";

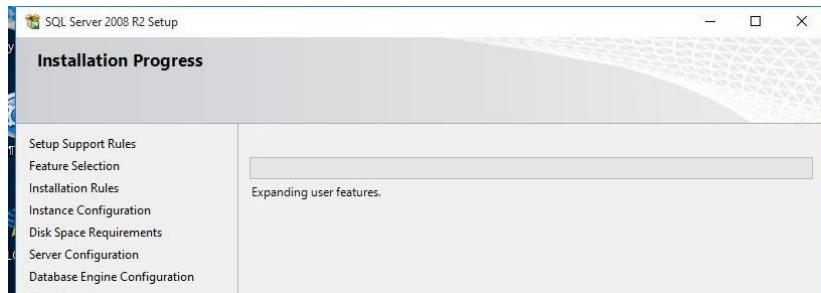
If you have installed SQL2008 or later, you must first uninstall the earlier version of the database and its instances, and then restart the computer before you can install this software! The following steps according to the previous computer has not installed any version of the database SQL Server as an example: pop up the following window according to the order of the label on the way, first click "use the same account for all SQL Server services"; Then in the pop-up dialog box, click "Browse"; Select the account name "NT AUTHORITY\SYSTEM", no password; Then click "OK"; Click "Next" after closing the dialog box.



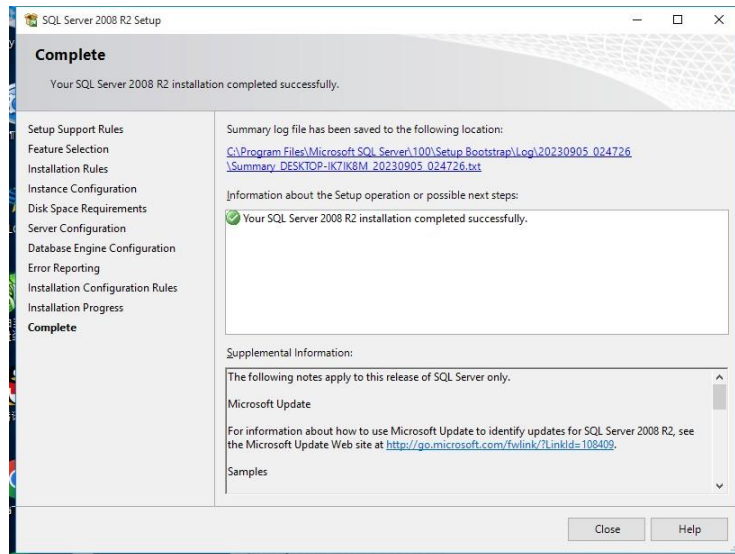
If it is empty under "Specify SQL Server Administrator," click "Add Current User," then click "Next."



Proceed to the installation process and wait for the database components to be installed;



Click "Close" when the display is complete;

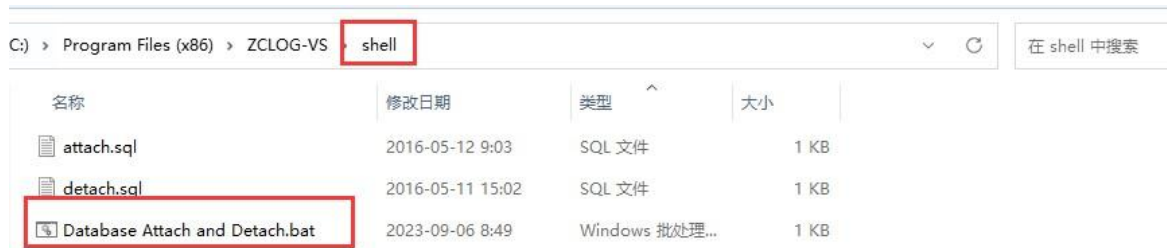


Click "Finish" after the dialog box below pops up, and the program installation of the software main body is completed.

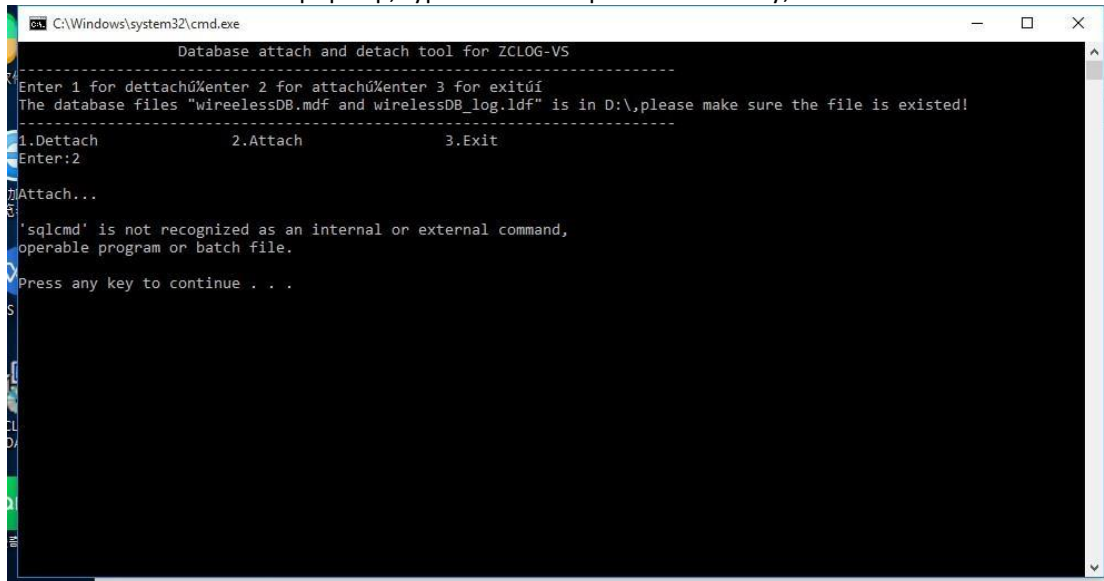


### 1.1.3 The software database file is attached

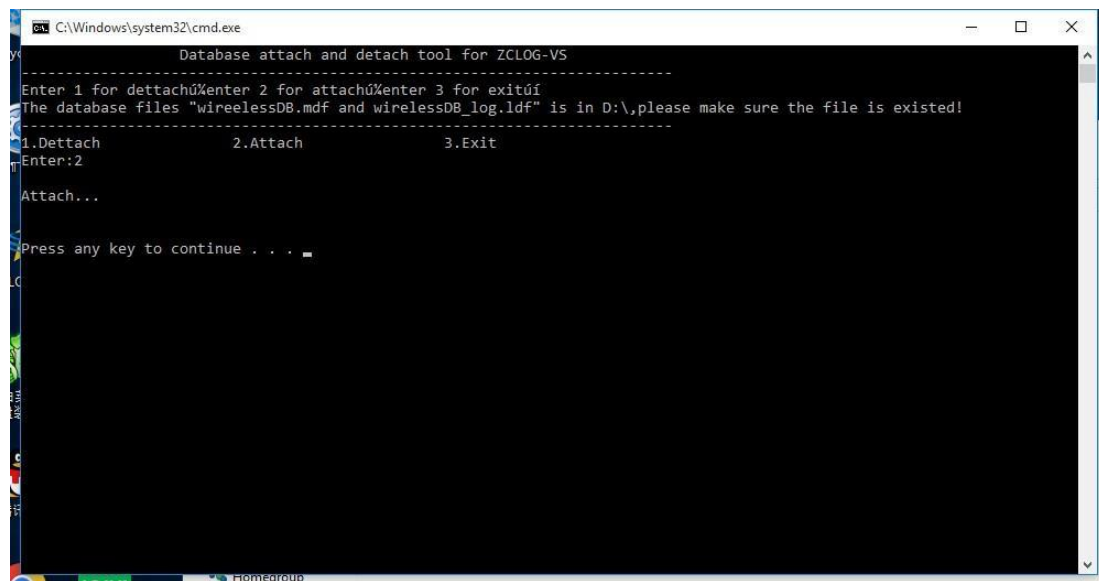
The database files are automatically saved to the root directory of disk D during software installation: WirelessDB.mdf and WirelessDB\_Log.ldf. However, the software also needs to manually attach the database file to the installation of SQLServer 2008. First of all, open the software installation package, open the "database Add-on tool" folder, and then open the "Wireless verification software database separation add-on program", find the red file in the picture below, double-click;



When the window below pops up, type 2 and then press "enter" key;

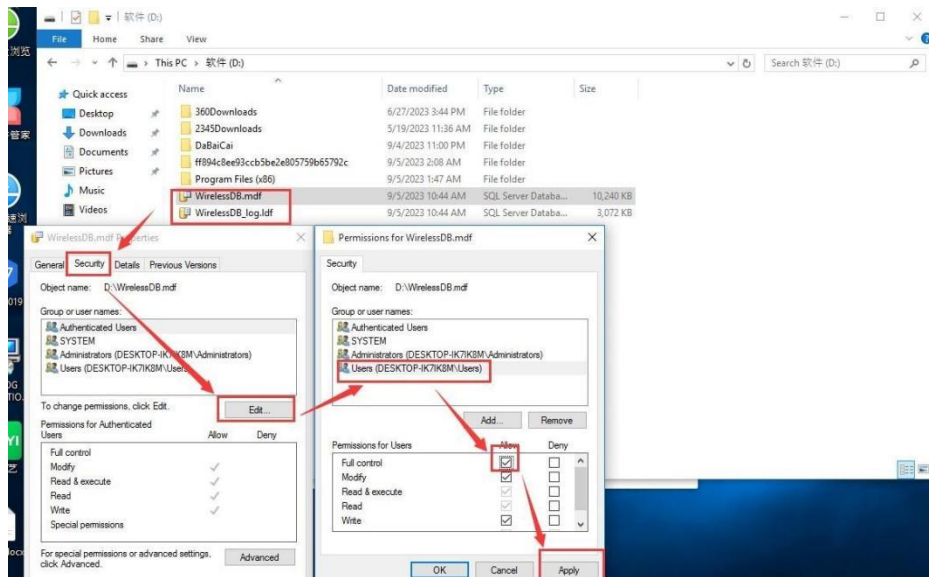


There is no error in the following picture, but you can exit the window by any key.



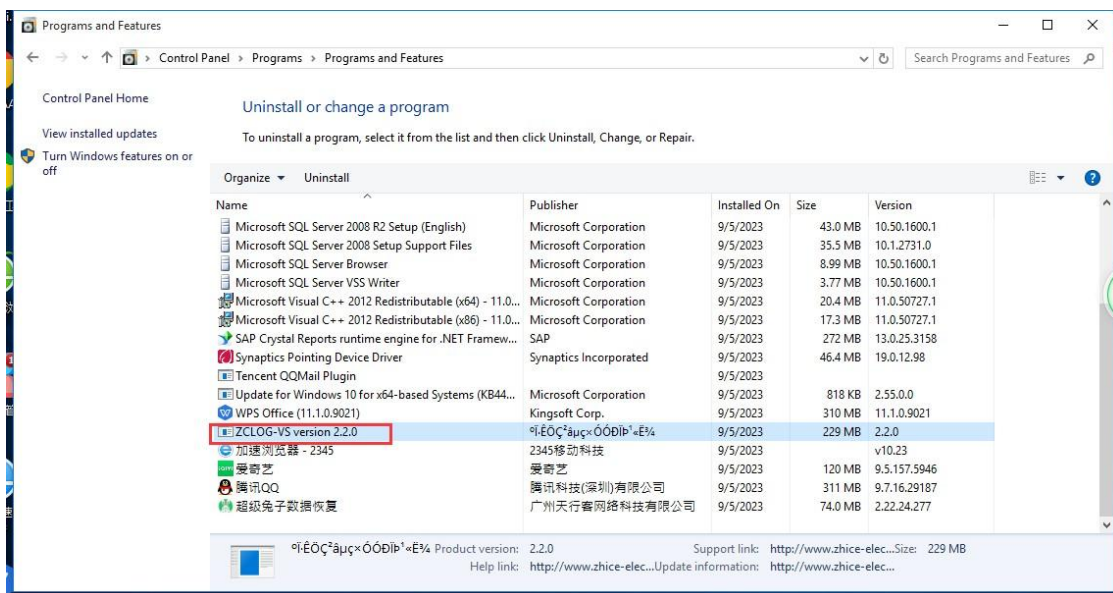
If an error message such as "sqlcmd is not a valid command" is displayed, please restart the computer and attach it again. If an error message such as "Access Denied" is displayed, manually add the full control rights of the Users account to the two database files WirelessDB.mdf and WirelessDB\_Log.ldf in the root directory of disk D,

and then attach the database.



## 1.2 Software uninstallation

Computer - right - "control panel", "program", "program uninstall", find "ZCLOG - VS", select the right "delete/uninstall".



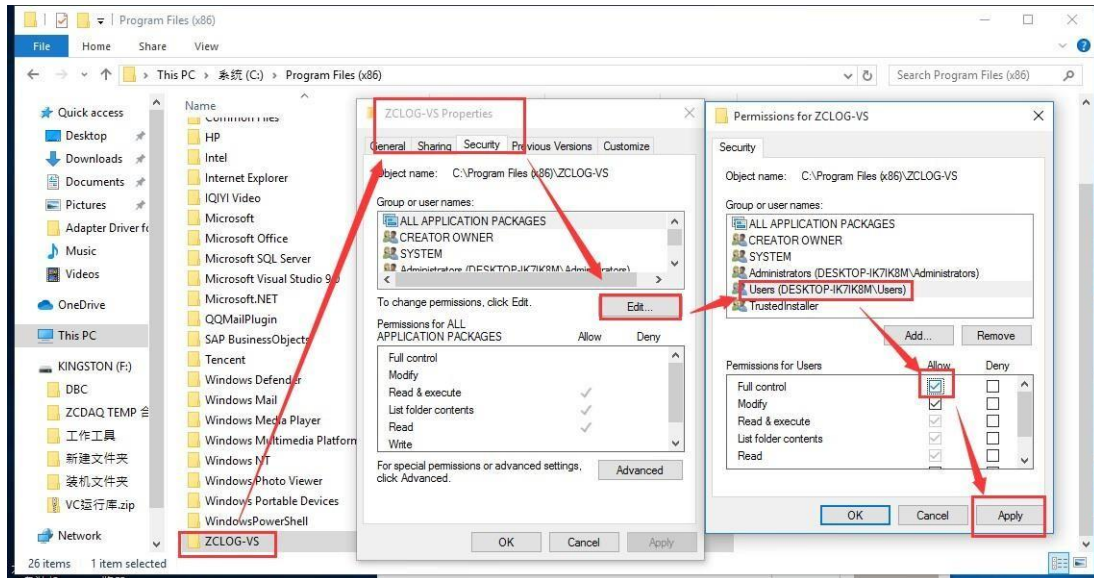
Note: This uninstall process does not uninstall the related components that were added during installation: .Net Framework 4.0, Crystal Report, and SQL Server; If you need to uninstall the related components, you can uninstall each component separately.

Note: The loggers and models supported by this software are listed below Temperature recorder model: ZC01/02TS

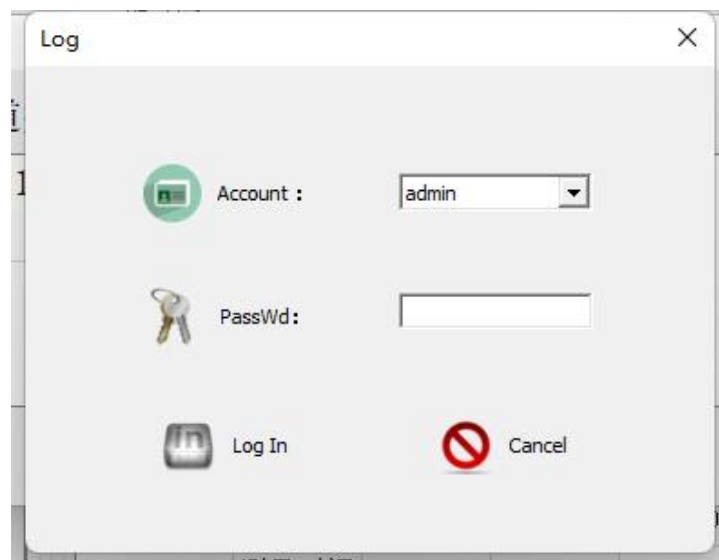
Temperature and humidity recorder model: ZC01/02THS Temperature and pressure recorder model: ZC01/02TPS

## Chapter 2 Software Run

Before using the software for the first time, you also need to set the permissions of the software installation directory, and add the full control rights of the "Users" account to the software installation directory folder. The operation method is the same as the previous database file to add permissions.



Once the setup is complete, double-click the desktop software icon to open the software. If 'Generate Desktop shortcut' is not checked during installation, you will need to find *ZCLOGVALIDATION* from the Start menu - All Programs. The initial user name of the software is admin and the password is 1; In the initial state, the account will be automatically locked if the password is entered incorrectly for four times. Please update the user password and other parameters after login. The login interface of the software is shown in the following picture.





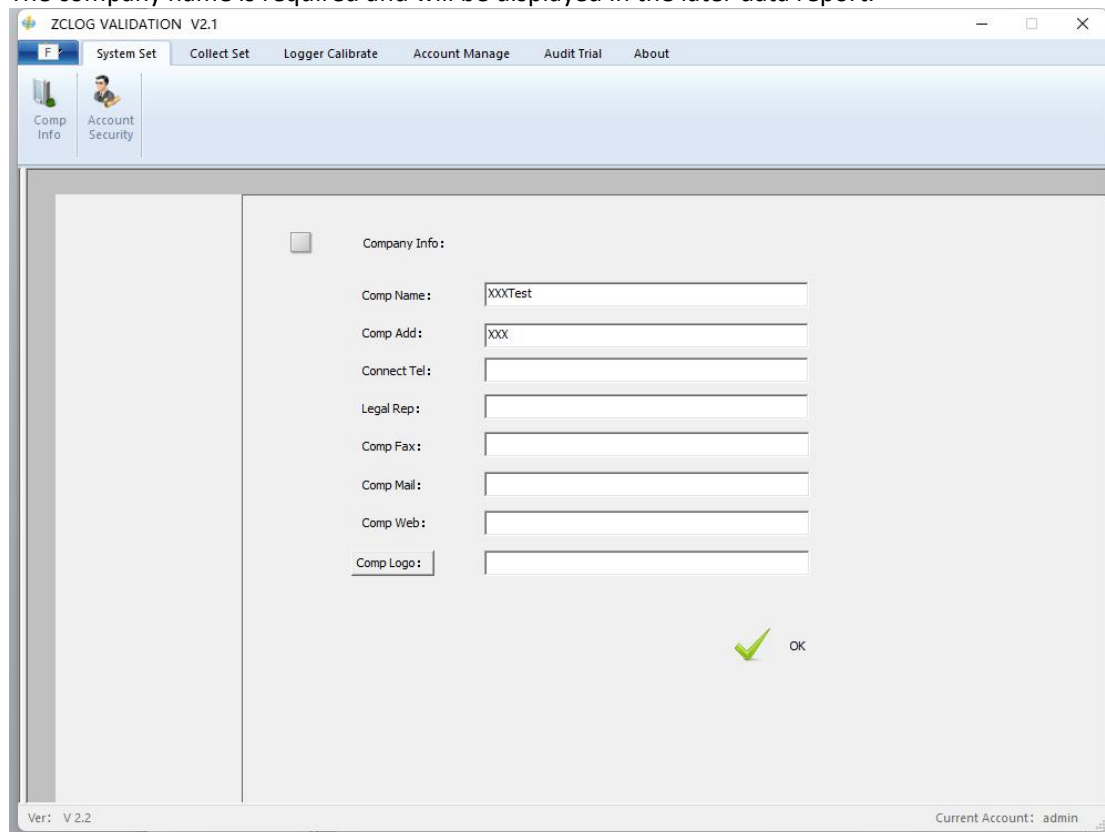
## Chapter 3 Function module introduction

### 3.1 System Settings

#### 3.1.1 Company properties

Enter "System Settings" and "Company Properties", enter relevant information in the edit box, and click "OK" button. The basic information will be saved to the created database file and displayed in the data report.

The company name is required and will be displayed in the later data report.

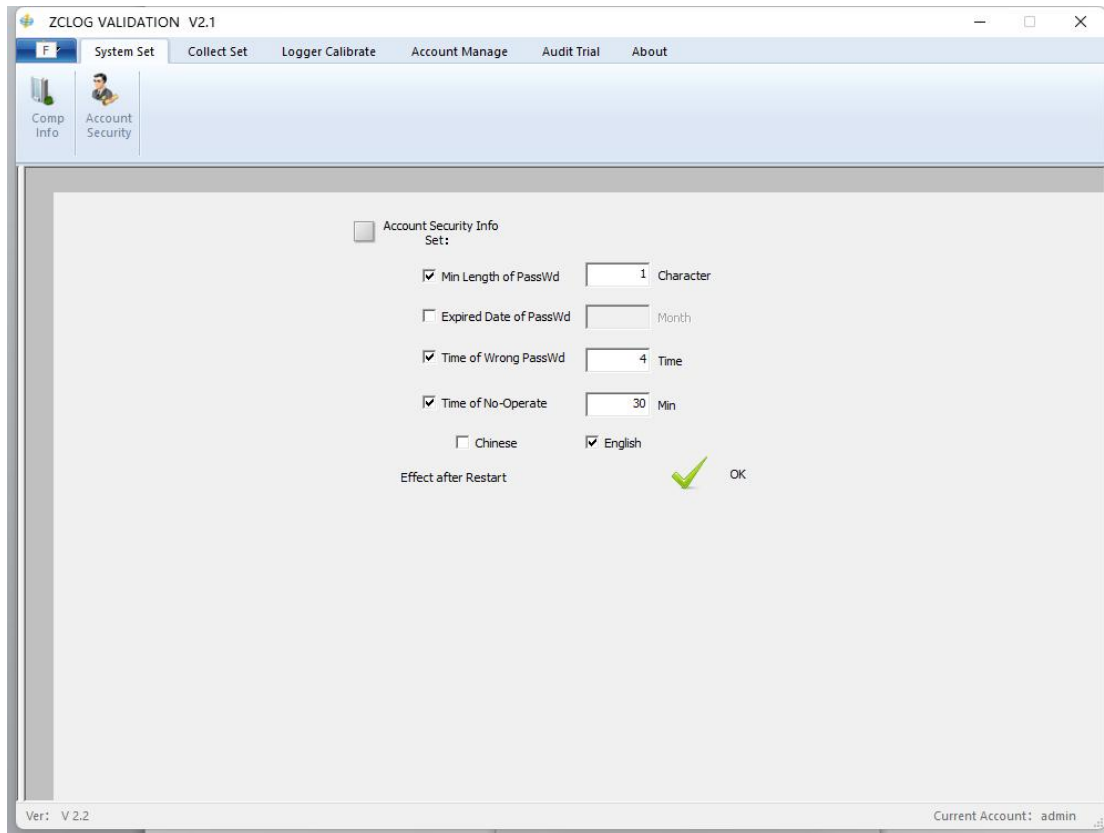


The screenshot displays the 'ZCLOG VALIDATION V2.1' application window. The title bar includes the application name and standard window controls. The menu bar contains 'System Set', 'Collect Set', 'Logger Calibrate', 'Account Manage', 'Audit Trial', and 'About'. The left sidebar has 'Comp Info' (selected) and 'Account Security'. The main area shows the 'Company Info' section with a checkbox and several text input fields:

- Company Name: XXXTest
- Comp Add: XXX
- Connect Tel:
- Legal Rep:
- Comp Fax:
- Comp Mail:
- Comp Web:
- Comp Logo:

An 'OK' button with a green checkmark icon is located at the bottom right of the form area. The status bar at the bottom left shows 'Ver: V 2.2' and the bottom right shows 'Current Account: admin'.

### 3.1.2 User Security

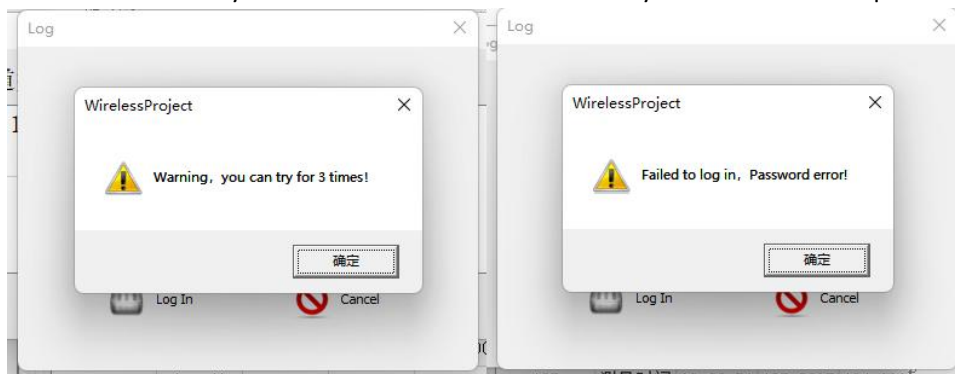


According to relevant FDA regulations, the software must have relevant password protection measures to ensure the security and reliability of the software. Go to 'System Settings' User Security 'and set the user security information.

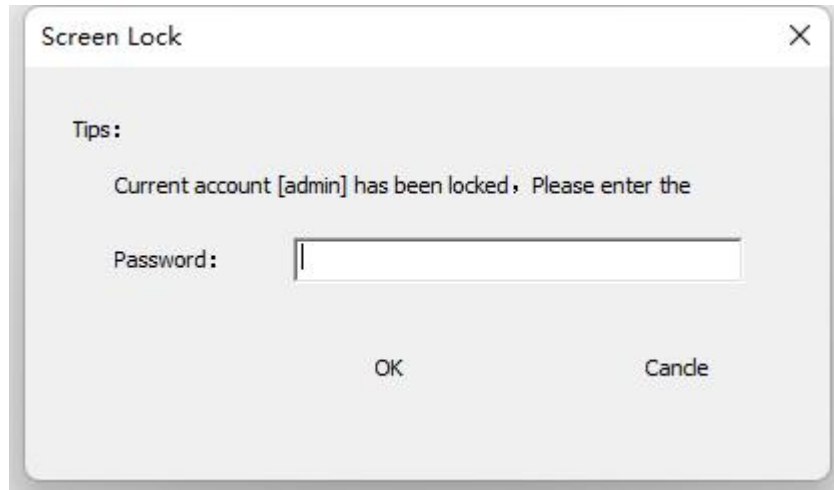
Minimum length of password: After being checked, when creating a new user, the password length of the new user will be added to the judgment;

Password expiration duration: After this parameter is selected, it will judge whether the user's password is updated in time when logging in to the software. If not, a pop-up will be displayed when logging in.

Incorrect password input times: When checked, the number of incorrect password input times will be increased when logging in. When the number of consecutive incorrect password input times reaches this set value, the account will be locked immediately. The initial admin account is the highest administrator permission and can unlock any other account. Once the admin account is locked, you can only contact our company personnel to remotely unlock it. So be sure to remember your admin account password.



No operation screen lock time ', the software will lock the software after no mouse or keyboard operation specified time, the user needs to re-enter the password to access. To prevent the user from leaving the software for a long time after others operate the software, resulting in data uncertainty. This setting takes effect after the next startup of the software. Click the [OK] button when finished. The relevant information will also be automatically saved to the created database file.



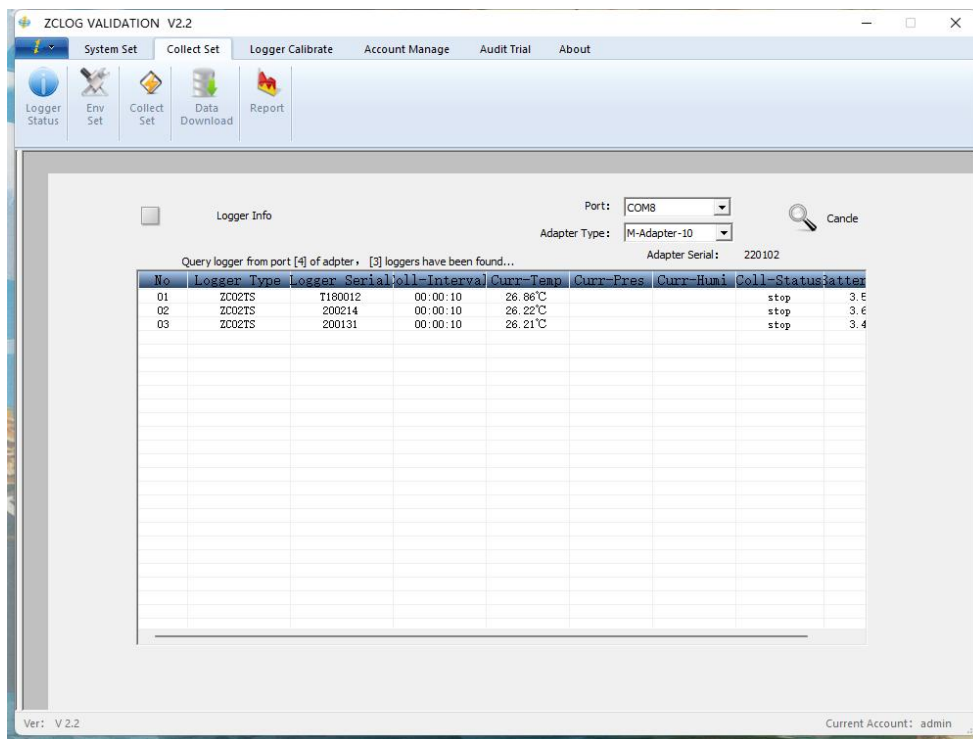
## 3.2 Data collection

### 3.2.1 Device Status

Before setting the probe, please configure the port and adapter type in this interface first, and then perform other Settings after the query is normal. To ensure that the probe status and communication are normal.

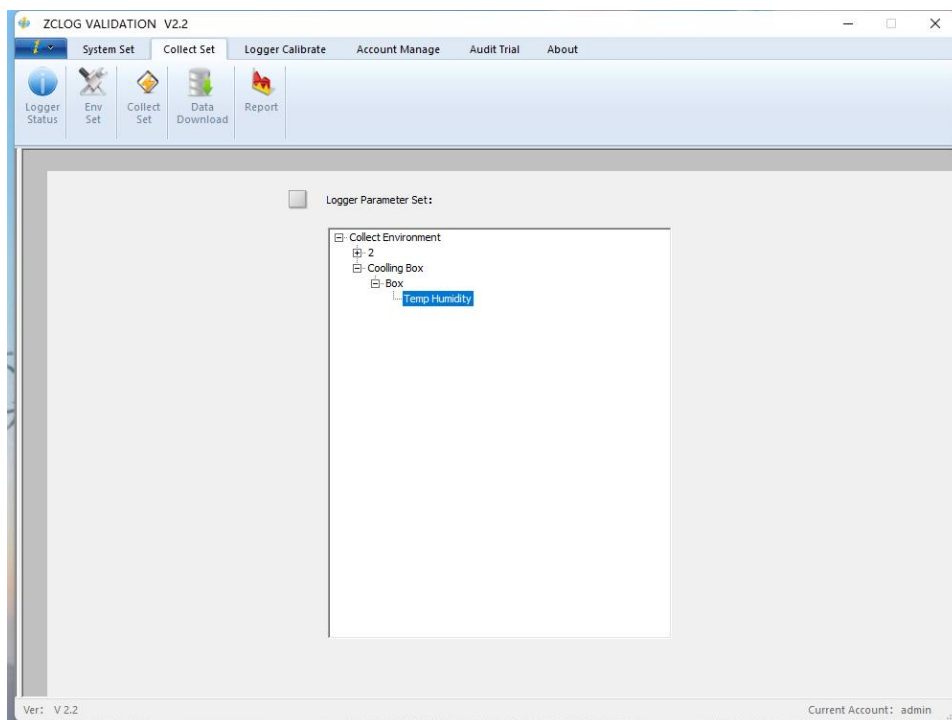
Serial port: The drop-down box will display the serial port recognized by the current computer, please check the device manager of the computer to determine the port number used by your adapter (port number  $\leq 16$ );

Adapter type: we have three types of adapters, single-channel adapter, multi-channel -8 adapter and multi-channel -10 adapter, single channel can be inserted a probe at the same time, multi-channel -8 can be inserted 8 probes at the same time, these two kinds of adapters are the corresponding adapters of ZC01 series recorders; Multiway-10 is the adapter corresponding to the ZC02 series of recorders, which can be plugged into 10 recorders at a time. Click the query button, the successful connection will display the information of the current recorder, if the query fails, please check the recorder connection. (Note: It is recommended to query each item before setting it!) Check whether the probe information is normal, such as the battery status if the battery power is lower than 2.7V, it will affect the probe at high temperature or low temperature data collection, please contact our company's after-sales personnel for battery replacement.

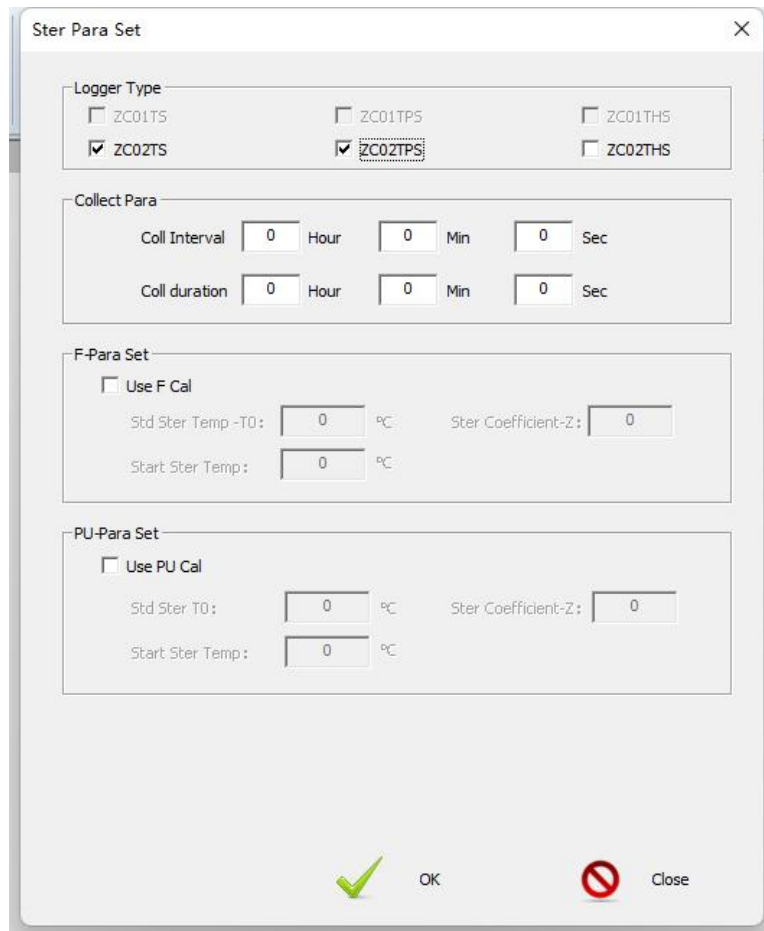
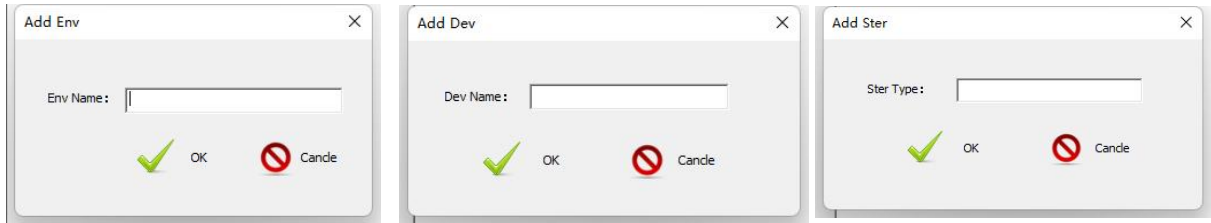


### 3.2.2 Environment under test

Enter "Data Collection" and "tested environment", you can view the existing environment and new environment, and the level of the tested environment: environment - equipment - sterilization type. After finishing, click [OK] button. The basic properties of the logger will be saved to the created database file. "Environment", "Equipment", "Sterilization type" can be added or removed by right-clicking



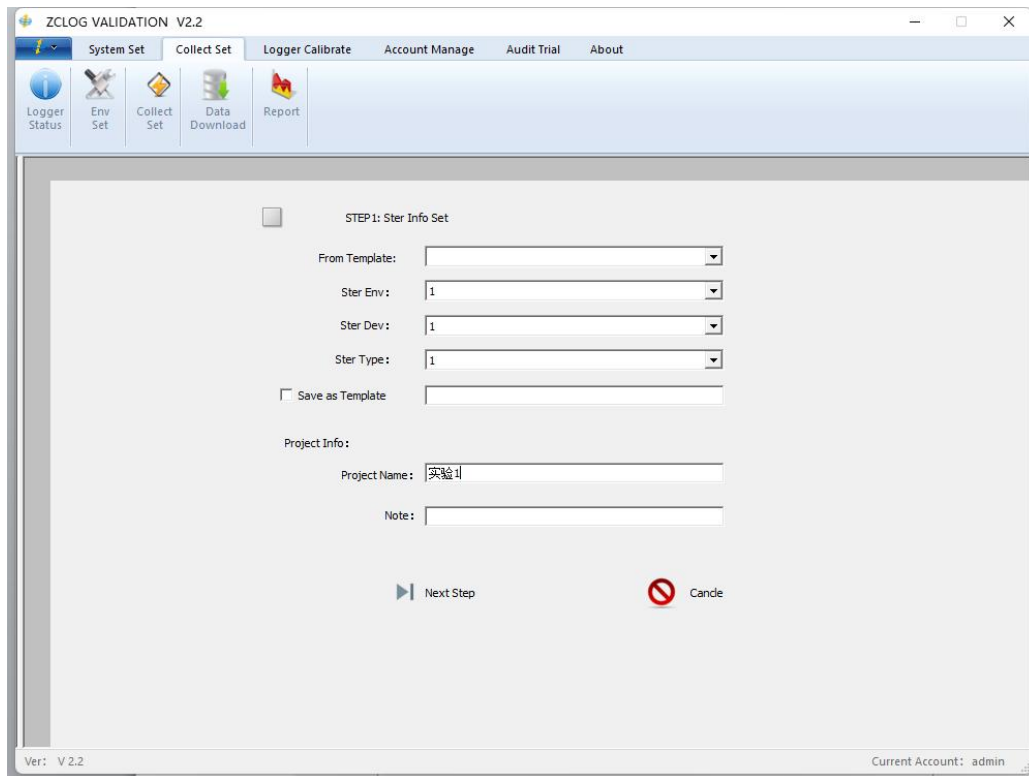
"Sterilization Type" can be edited by right-clicking to set information such as the type of recorder allowed to be used, collection interval and collection duration. "Allowed Recorder Type" : you can select up to two recorders at the same time; 'Collection Interval' : Set the interval for recorder to collect data; 'Collection duration' : set the total time for recorder to collect data;



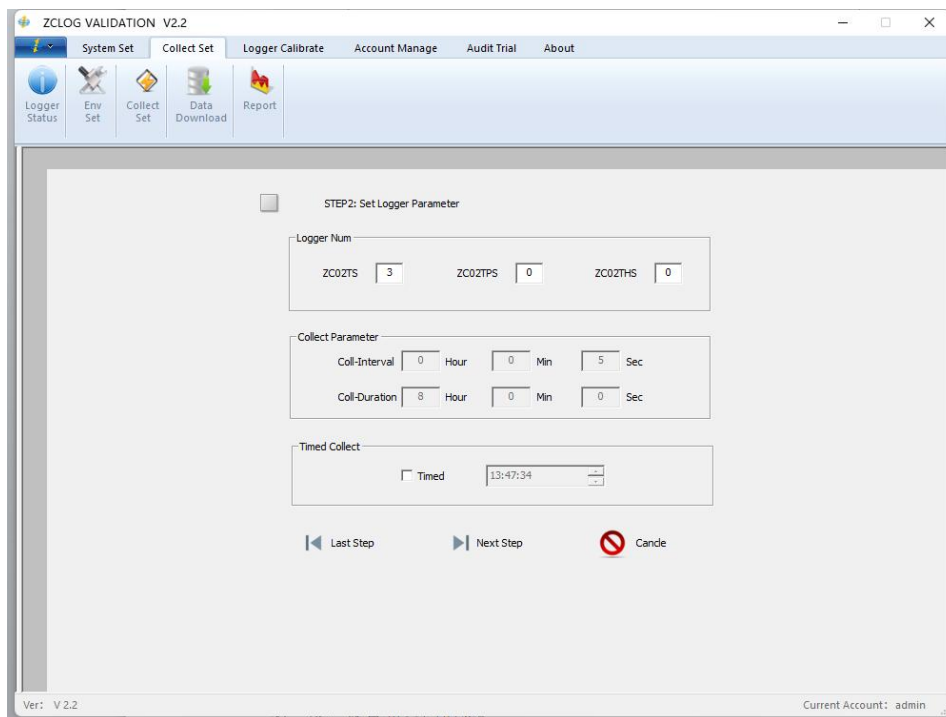
### 3.2.3 Collection Settings

**Note: Before setting collection, it is necessary to check the communication and connection of the adapter and recorder to prevent the interruption of the setting process due to abnormal communication.**

Step 1: Sterilization environment Settings, select the environment information set in 3.2.2, you can also use the template to create an environment.

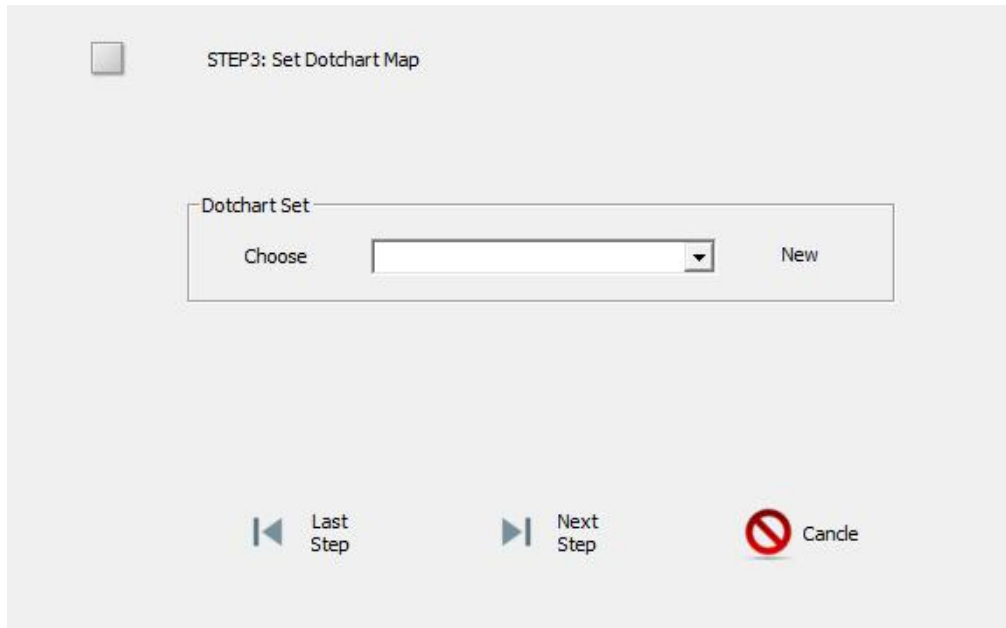


Step 2: Recorder related parameter setting: set the number of recorders used in this project and the time to start collection. When "timed collection" is checked, the set time should exceed the current computer time by 5min, and no more than 23:59:59 of the day, the recorder will start collection in accordance with the set time after successful setting; If it is not checked, the data collection will start immediately after the setting is successful.

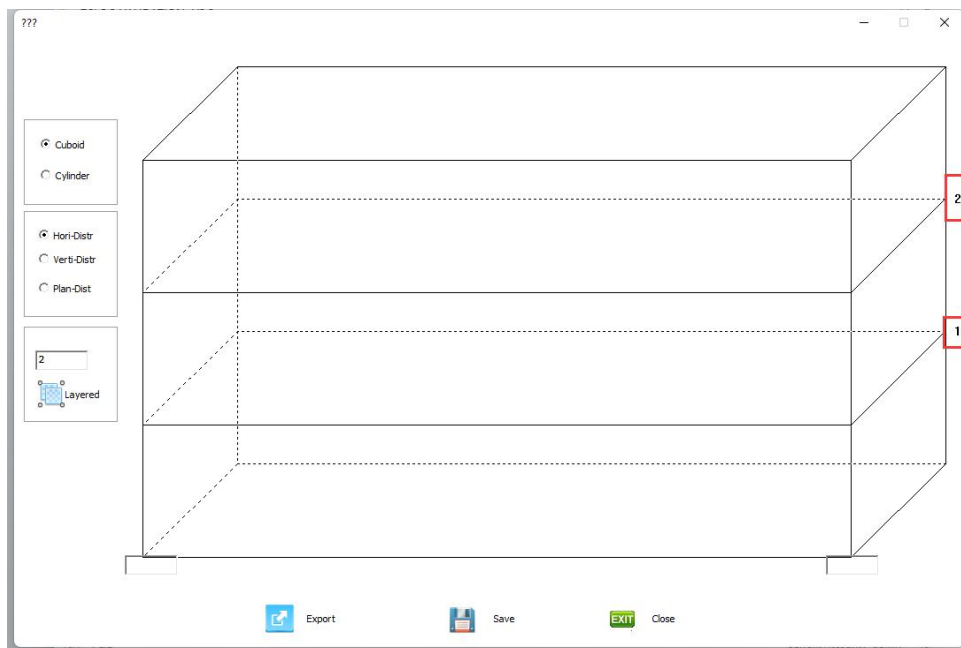


**Note: TPS and THS adapters cannot be used at the same time, if the software is checked, an error message will pop up.**

### Step 3: Set the layout information

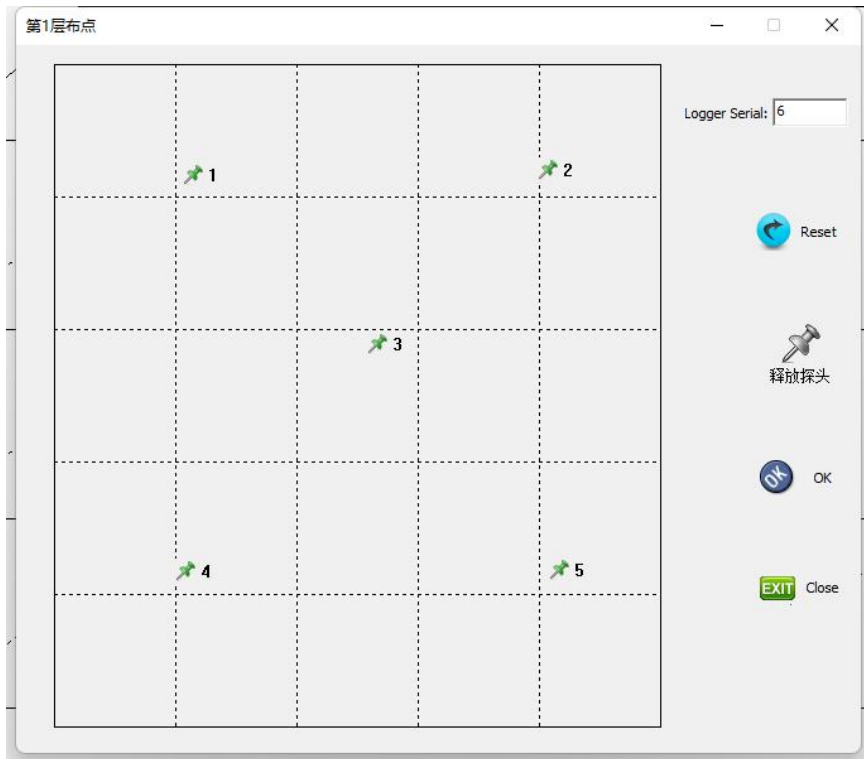


If it has been set before, you can select it by dropping it down from the drop-down list, if not, you can click the "New" button to set the layout. After creating a new layout, the following interface is displayed

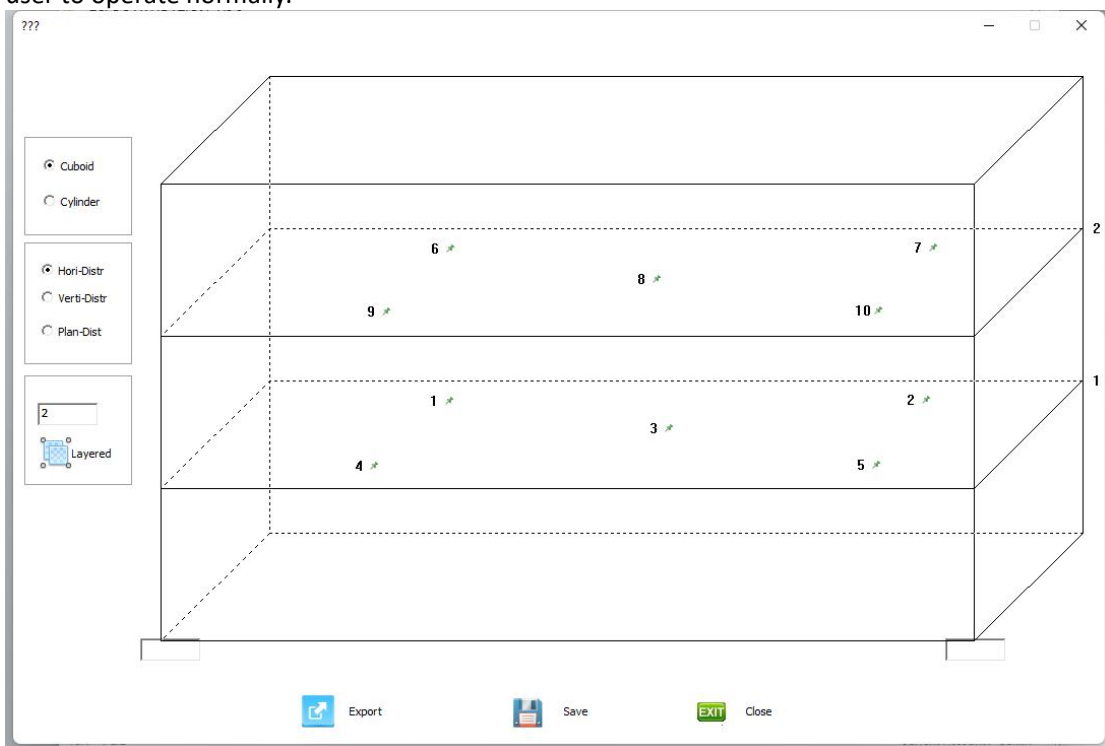


In the left part of the figure above, you can set the shape style, distribution mode and layering number of the device. After layering, click the layer number button on the right to enter the probe layout setting interface of the layer as shown in the following figure. In the flat layout setting interface of each layer, you can set the probe numbering information. After the layer is set, click

OK to enter the next layer of the cloth point setting.



After all the Settings are set, as shown in the picture below, just click the Save button. If you need to use other, you can export the layout. Note: If there is no response to click Save or export button here, it means that your software installation directory folder does not have permission to add, resulting in image caching failure. Add permissions to the software installation directory folder under the full control of the "Users" user to operate normally.

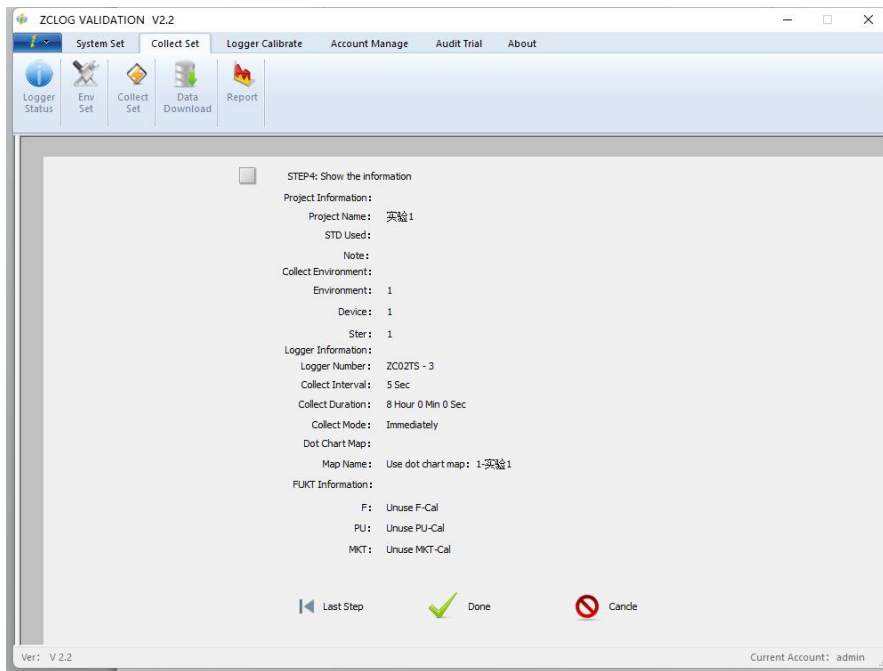




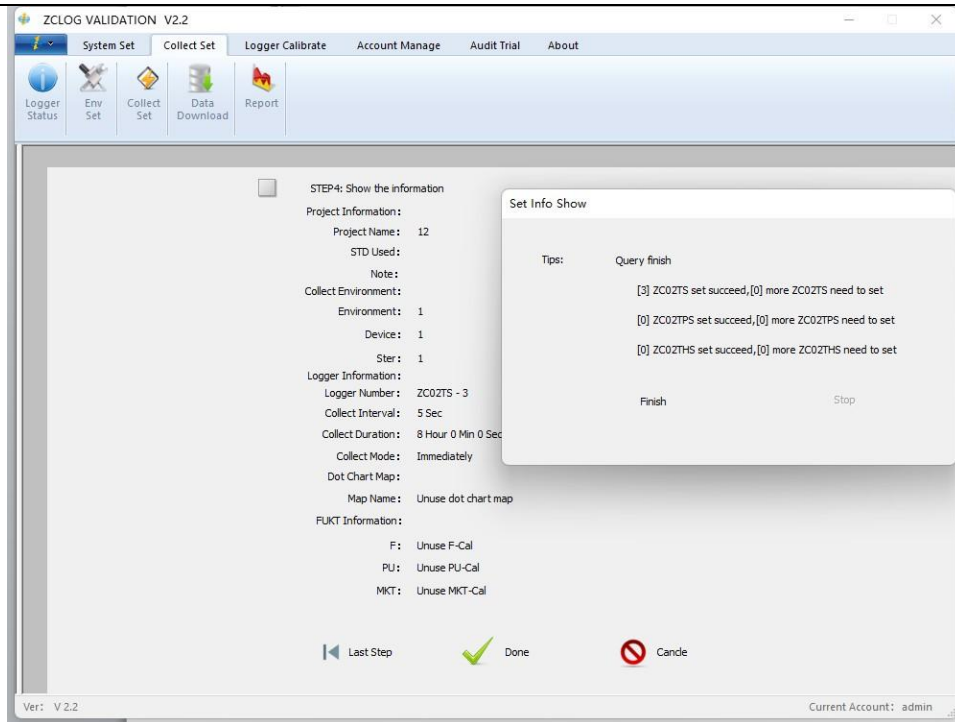
After the configuration is successfully saved, select the corresponding layout from the drop-down list in the following figure.



#### Step 4: Display the setting information



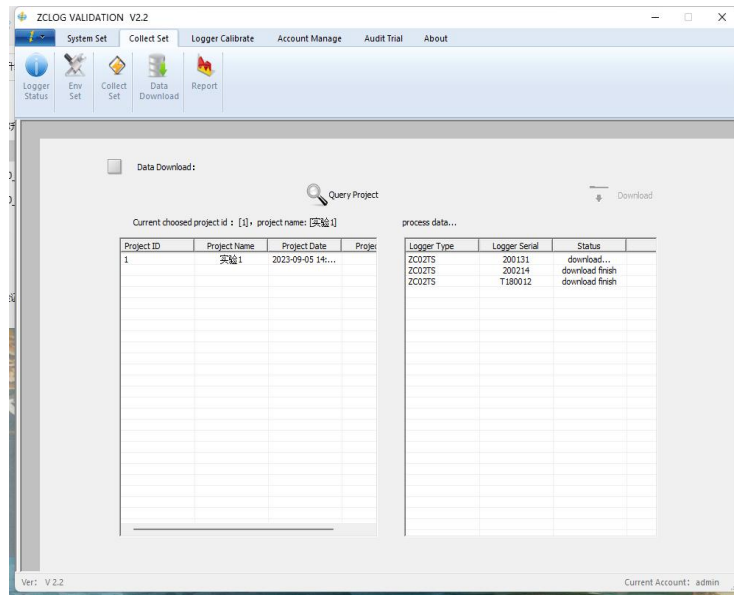
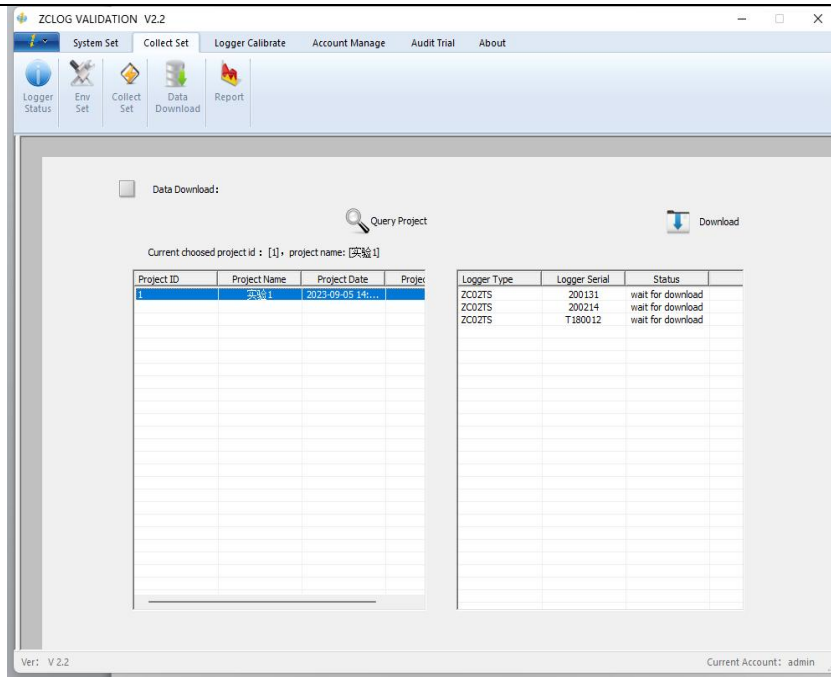
Click the "Finish" button, the following window will pop up, showing the setting- up progress information of the recorder, after all the recorder Settings are completed, click the "Finish" button



Note: If the prompt setting fails, check that the logger is connected correctly, then click Continue until the prompt is complete!

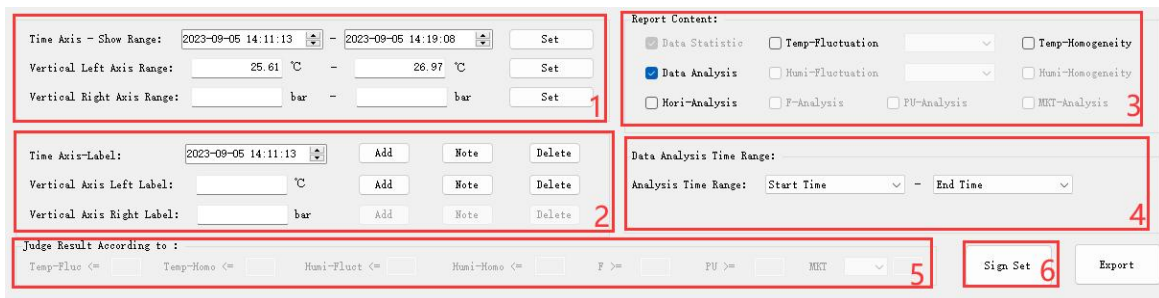
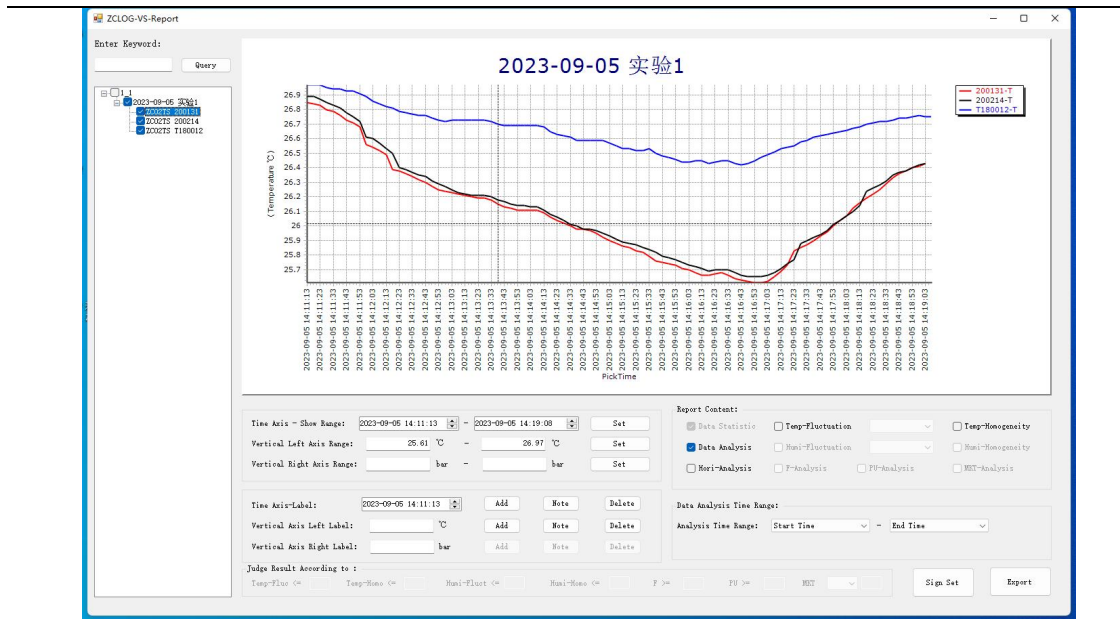
### 3.2.4 Data Download

After the successful setup of Step 3.2.3, the test data of the project will be displayed on the page to the left of the data download, indicating that this data remains inside the logger and has not been downloaded to the database by the software. Select the item in the left list box and click Download, you can save the data to the database for the subsequent report function.



### 3.2.5 Data Analysis

Query box in the upper left corner, support keyword query, if not input is to query all the items in the database. Right-click on the left side after selecting the project, you can view the data of a single or multiple loggers under the same project at a time, do not support to view more than two projects at the same time.

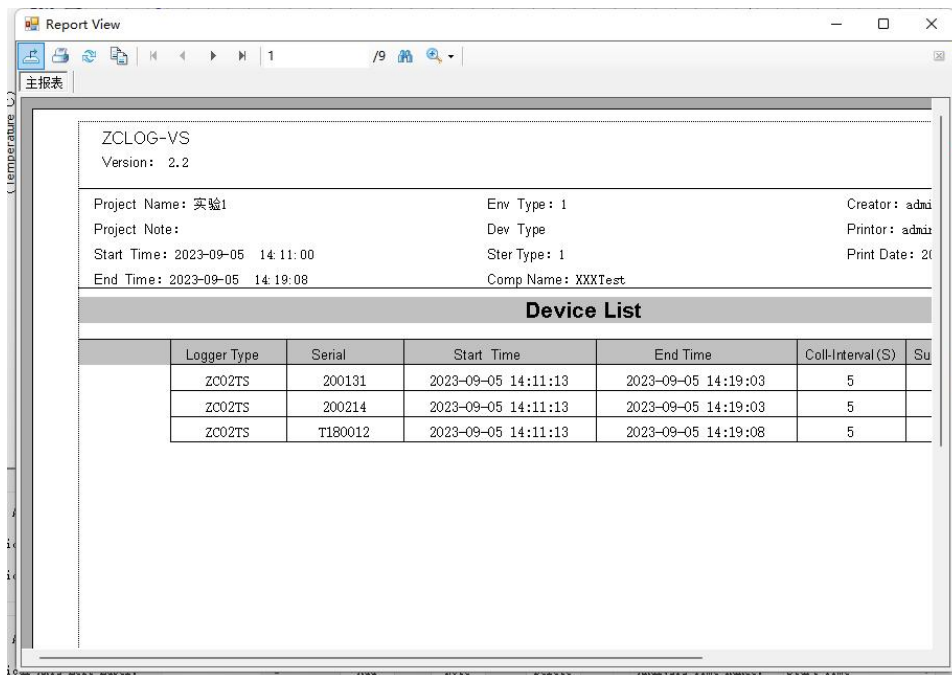


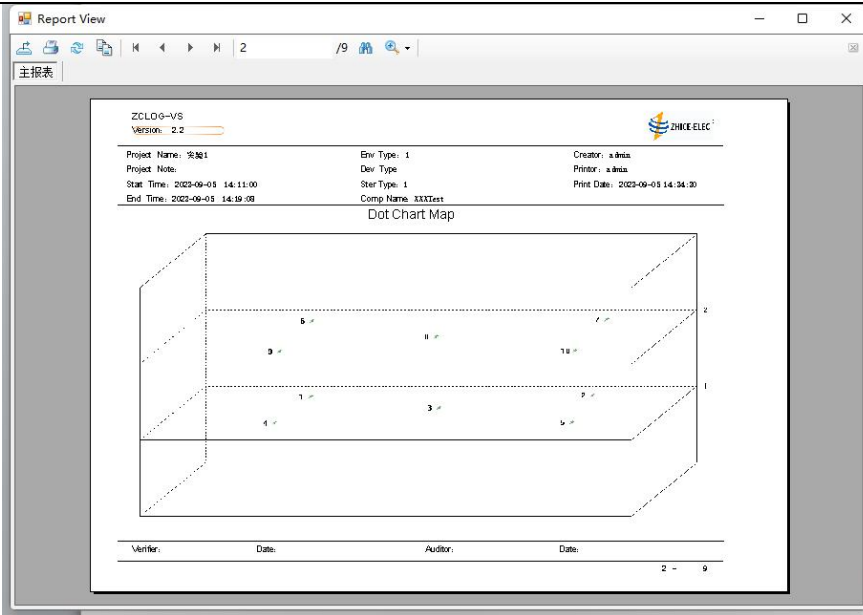
#### Report module related function introduction:

1. Display range setting area: this function box can set the horizontal and vertical coordinates of the icon, if there is a TPS or THS recorder, the left side shows the vertical coordinates of temperature, the right side will show the corresponding pressure or humidity coordinates; TPS and THS recorder will not exist in the same project at the same time, when the THS recorder is used, the value axis bar setting will be changed to %RH setting.
2. Mark line setting: The time axis mark line allows 6 time marks to be added. Mark line can be used to set the time range in area 4 after adding remarks; Temperature and pressure or humidity are allowed to add a maximum of two marks.
3. Report select function area: After the corresponding function is selected, the generated report will display the corresponding analysis data.
4. Report analysis time setting: the default is the start collection time and the end collection time, you can select other time through the drop-down box, but only after adding remarks in the time label line of function area 2, the drop-down box here will display the corresponding remarks information.
5. Verification basis: Input the corresponding parameters to determine whether the data is qualified.
6. Signature setting: The following dialog box will pop up after clicking, if not set, the default is manual signature - full signature. When "Manual signature - First and last page signature" is checked, the report will only display the signature line on the home page and the last page. When "Electronic Signature" is selected, you need to add signature information at the bottom. Select the signature information of the corresponding account from the drop-down box. The signature information is the name added by the user when creating the user. Electronic signature requires password authorization, select which signature, you need to enter the password of the corresponding user. Only when the password is matched, can the signature information be used. After the password is successfully set, the signature information and time information are automatically filled in the signature line at the bottom of the report.



Click the "Generate report" button, the preview interface of the report will pop up, as shown in the picture below





Report View

主报表

ZCLOG-VS  
Version: 2.2

Project Name: 实验1  
Project Note:  
Stat Time: 2023-09-05 14:11:00  
End Time: 2023-09-05 14:19:08

Env Type: 1  
Dev Type:  
Ster Type: 1  
Comp Name: XXXTest

Creator: a.bina  
Printer: a.bina  
Print Date: 2023-09-05 14:34:30

Data Sheet

Parameter:

Stat Time: 2023-09-05 14:11:12  
End Time: 2023-09-05 14:19:08  
采样频率: 5S

PickTime	200113-T	200254-T	118002-T
2023-09-05 14:11:12	26.93	26.89	26.97
2023-09-05 14:11:23	26.94	26.89	26.97
2023-09-05 14:11:29	26.92	26.87	26.97
2023-09-05 14:11:35	26.90	26.85	26.95
2023-09-05 14:11:41	26.90	26.85	26.94
2023-09-05 14:11:47	26.76	26.51	26.84
2023-09-05 14:11:53	26.71	26.33	26.82
2023-09-05 14:12:00	26.80	26.52	26.93
2023-09-05 14:12:06	26.98	26.61	26.99
2023-09-05 14:12:12	26.94	26.60	26.98
2023-09-05 14:12:18	26.92	26.57	26.94
2023-09-05 14:12:24	26.49	26.50	26.82
2023-09-05 14:12:30	26.39	26.40	26.72
2023-09-05 14:12:36	26.78	26.40	26.79
2023-09-05 14:12:42	26.85	26.49	26.78
2023-09-05 14:12:48	26.94	26.57	26.77
2023-09-05 14:12:54	26.92	26.55	26.76
2023-09-05 14:13:00	26.93	26.54	26.76
2023-09-05 14:13:06	26.93	26.54	26.76
2023-09-05 14:13:12	26.93	26.54	26.76
2023-09-05 14:13:18	26.93	26.54	26.76
2023-09-05 14:13:24	26.93	26.54	26.76
2023-09-05 14:13:30	26.93	26.54	26.76
2023-09-05 14:13:36	26.93	26.54	26.76
2023-09-05 14:13:42	26.93	26.54	26.76
2023-09-05 14:13:48	26.93	26.54	26.76
2023-09-05 14:13:54	26.93	26.54	26.76
2023-09-05 14:14:00	26.93	26.54	26.76
2023-09-05 14:14:06	26.93	26.54	26.76
2023-09-05 14:14:12	26.93	26.54	26.76
2023-09-05 14:14:18	26.93	26.54	26.76
2023-09-05 14:14:24	26.93	26.54	26.76
2023-09-05 14:14:30	26.93	26.54	26.76
2023-09-05 14:14:36	26.93	26.54	26.76
2023-09-05 14:14:42	26.93	26.54	26.76
2023-09-05 14:14:48	26.93	26.54	26.76
2023-09-05 14:14:54	26.93	26.54	26.76
2023-09-05 14:15:00	26.93	26.54	26.76
2023-09-05 14:15:06	26.93	26.54	26.76
2023-09-05 14:15:12	26.93	26.54	26.76
2023-09-05 14:15:18	26.93	26.54	26.76
2023-09-05 14:15:24	26.93	26.54	26.76
2023-09-05 14:15:30	26.93	26.54	26.76
2023-09-05 14:15:36	26.93	26.54	26.76
2023-09-05 14:15:42	26.93	26.54	26.76
2023-09-05 14:15:48	26.93	26.54	26.76
2023-09-05 14:15:54	26.93	26.54	26.76
2023-09-05 14:16:00	26.93	26.54	26.76
2023-09-05 14:16:06	26.93	26.54	26.76
2023-09-05 14:16:12	26.93	26.54	26.76
2023-09-05 14:16:18	26.93	26.54	26.76
2023-09-05 14:16:24	26.93	26.54	26.76
2023-09-05 14:16:30	26.93	26.54	26.76
2023-09-05 14:16:36	26.93	26.54	26.76
2023-09-05 14:16:42	26.93	26.54	26.76
2023-09-05 14:16:48	26.93	26.54	26.76
2023-09-05 14:16:54	26.93	26.54	26.76
2023-09-05 14:17:00	26.93	26.54	26.76
2023-09-05 14:17:06	26.93	26.54	26.76
2023-09-05 14:17:12	26.93	26.54	26.76
2023-09-05 14:17:18	26.93	26.54	26.76
2023-09-05 14:17:24	26.93	26.54	26.76
2023-09-05 14:17:30	26.93	26.54	26.76
2023-09-05 14:17:36	26.93	26.54	26.76
2023-09-05 14:17:42	26.93	26.54	26.76
2023-09-05 14:17:48	26.93	26.54	26.76
2023-09-05 14:17:54	26.93	26.54	26.76
2023-09-05 14:18:00	26.93	26.54	26.76
2023-09-05 14:18:06	26.93	26.54	26.76
2023-09-05 14:18:12	26.93	26.54	26.76
2023-09-05 14:18:18	26.93	26.54	26.76
2023-09-05 14:18:24	26.93	26.54	26.76
2023-09-05 14:18:30	26.93	26.54	26.76
2023-09-05 14:18:36	26.93	26.54	26.76
2023-09-05 14:18:42	26.93	26.54	26.76
2023-09-05 14:18:48	26.93	26.54	26.76
2023-09-05 14:18:54	26.93	26.54	26.76
2023-09-05 14:19:00	26.93	26.54	26.76

Verifier: \_\_\_\_\_ Date: \_\_\_\_\_ Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

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Report View

主报表

ZCLOG-VS  
Version: 2.2

Project Name: 实验1  
Project Note:  
Stat Time: 2023-09-05 14:11:00  
End Time: 2023-09-05 14:19:08

Env Type: 1  
Dev Type:  
Ster Type: 1  
Comp Name: XXXTest

Creator: a.bina  
Printer: a.bina  
Print Date: 2023-09-05 14:34:30

Data Sheet

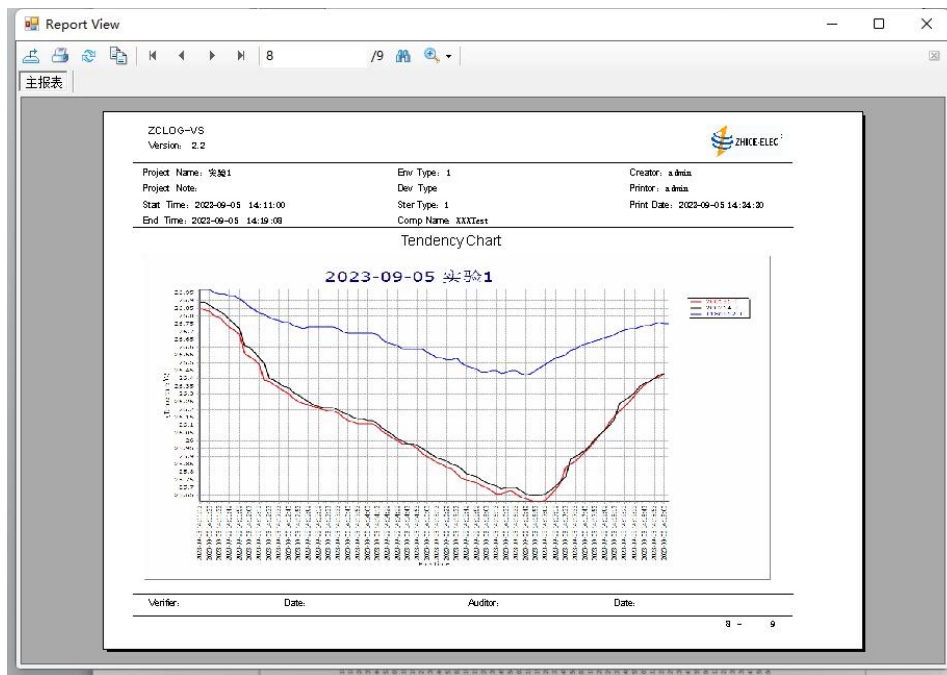
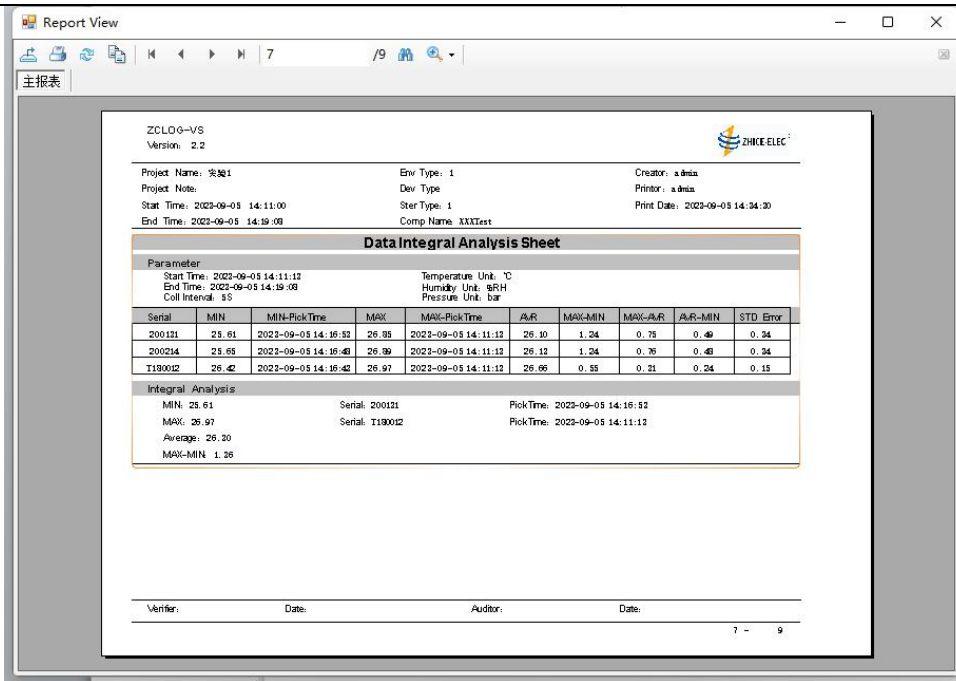
Parameter:

Stat Time: 2023-09-05 14:11:12  
End Time: 2023-09-05 14:19:08  
采样频率: 5S

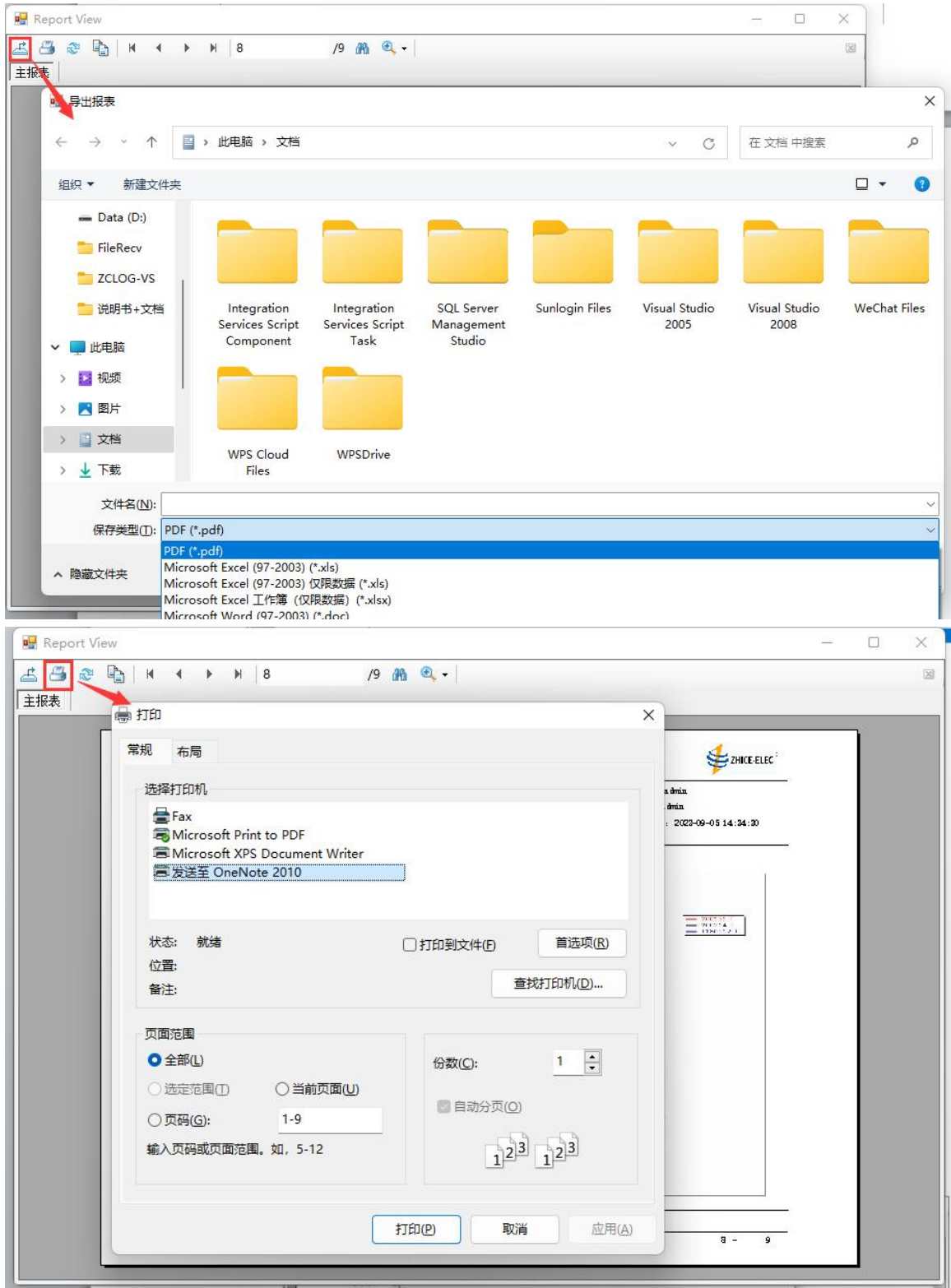
PickTime	200113-T	200254-T	118002-T
2023-09-05 14:15:52	25.72	25.77	26.45
2023-09-05 14:15:58	25.71	25.77	26.45
2023-09-05 14:16:04	25.70	25.72	26.44
2023-09-05 14:16:10	25.69	25.72	26.44
2023-09-05 14:16:16	25.66	25.71	26.43
2023-09-05 14:16:22	25.66	25.69	26.43
2023-09-05 14:16:28	25.67	25.70	26.44
2023-09-05 14:16:34	25.68	25.70	26.43
2023-09-05 14:16:40	25.66	25.70	26.43
2023-09-05 14:16:46	25.64	25.68	26.43
2023-09-05 14:16:52	25.62	25.66	26.42
2023-09-05 14:16:58	25.62	25.65	26.43
2023-09-05 14:17:04	25.61	25.63	26.43
2023-09-05 14:17:10	25.61	25.63	26.43
2023-09-05 14:17:16	25.62	25.66	26.49
2023-09-05 14:17:22	25.63	25.68	26.51
2023-09-05 14:17:28	25.63	25.68	26.51
2023-09-05 14:17:34	25.63	25.68	26.51
2023-09-05 14:17:40	25.63	25.68	26.51
2023-09-05 14:17:46	25.63	25.68	26.51
2023-09-05 14:17:52	25.63	25.68	26.51
2023-09-05 14:17:58	25.63	25.68	26.51
2023-09-05 14:18:04	25.63	25.68	26.51
2023-09-05 14:18:10	25.63	25.68	26.51
2023-09-05 14:18:16	25.63	25.68	26.51
2023-09-05 14:18:22	25.63	25.68	26.51
2023-09-05 14:18:28	25.63	25.68	26.51
2023-09-05 14:18:34	25.63	25.68	26.51
2023-09-05 14:18:40	25.63	25.68	26.51
2023-09-05 14:18:46	25.63	25.68	26.51
2023-09-05 14:18:52	25.63	25.68	26.51
2023-09-05 14:18:58	25.63	25.68	26.51
2023-09-05 14:19:04	25.63	25.68	26.51
2023-09-05 14:19:10	25.63	25.68	26.51
2023-09-05 14:19:16	25.63	25.68	26.51
2023-09-05 14:19:22	25.63	25.68	26.51
2023-09-05 14:19:28	25.63	25.68	26.51
2023-09-05 14:19:34	25.63	25.68	26.51
2023-09-05 14:19:40	25.63	25.68	26.51
2023-09-05 14:19:46	25.63	25.68	26.51
2023-09-05 14:19:52	25.63	25.68	26.51
2023-09-05 14:19:58	25.63	25.68	26.51
2023-09-05 15:00:04	25.63	25.68	26.51

Verifier: \_\_\_\_\_ Date: \_\_\_\_\_ Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

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The report header and the report tail will be displayed on each page. The data in the middle is displayed according to the items selected in Function Area 3 above. There are export, print and other buttons in the toolbar above the preview window. The export button can export the report to PDF, word, excel three formats; Print button



can select the printer for document printing.



---

### 3.3 Instrument calibration

Calibration process introduction: The calibration of wireless recorder is mainly through the acquisition of the standard value of the set temperature point and the actual acquisition value, through the relevant formula calculation, the correction parameters are burned into the recorder chip. The actual acquisition value is downloaded and read after the acquisition project of setting the recorder, and the standard value is read by the standard recorder. This software provides the data calibration of ZC02 series recorder, including temperature, humidity, pressure three parameters calibration. The temperature calibration supports manual and automatic two modes; Humidity and pressure can only be used in manual mode. Standard support: 1621A-BLE, ZCTB-R, ZC-713A, manual; Temperature field: Support ZCTB series oil bath, manual; The following takes the automatic calibration process of temperature calibration as an example (1621A+ZCTB oil bath) :

- (1) Set up the recorder acquisition items -- put the recorder into the temperature field equipment (such as ZCTB-20DL);
- (2) Set the calibration item information and determine the calibration temperature point;
- (3) Start the automatic calibration process: 1621A connects the software via Bluetooth to read the temperature in real time; The ZCTB oil bath is connected to the software via USB communication cable to control the temperature and read the oil tank status in real time. After the temperature of the calibration point is stabilized, a reading of 1621A is obtained for a period of time as the standard value of the current calibration point, and then the oil bath is controlled to set the temperature of the next calibration point. And so on, after all the calibration points run, the software will automatically record the corresponding time and standard value of each calibration point.
- (4) The end of the automatic calibration process -- data download interface, download wireless recorder data;
- (5) Enter the calibration interface -- obtain the collected value interface -- select the collection item -- select the calibrated recorder serial number, and the software automatically obtains the collected value at the corresponding standard value moment;
- (6) "Start Calibration" -- After the calibration is successful, you can enter the certificate interface to view the calibration information and generate the calibration certificate.
- (7) If after the calibration of the recorder, it is found that the temperature of the recorder is corrected successfully during the verification, and the deviation is still more, the recorder can be "cleared calibration" on this interface, and the correction parameters on the bottom of the recorder can be cleared for secondary calibration.

#### **Calibration note:**

- (1) The 1621A device realizes the communication connection with the software through Bluetooth low power, which requires the user's computer to be Win10 operating system, and the computer side has a Bluetooth adapter, and has passed Bluetooth in advance in the device management of the computer  
Add the 1621A device;
- (2) The oil bath temperature field equipment needs to check that the internal circulation program

---

of the oil tank is disconnected before connecting the software communication, and the oil bath type. Ensure that the display is on the outermost layer of the device. Do not enter the setting screen; otherwise, the device cannot communicate.

(3) The software generally reads a set of standard values 2min before the stable end of each calibration temperature point and records the time

Therefore, in order to ensure the full stability of the recorder, the stability time is recommended to be set above 10min.

(4) When using the ZCTB-R reference recorder as the temperature standard, ensure that the standard channel of the oil bath is correctly connected for reference

Recorder and ensure that the parameters of the reference recorder are correctly entered.

(5) When using 1621A as the temperature standard, the reference recorder parameters will generally be set at the factory, if you need

To modify the parameters of the reference recorder, please contact our technicians for technical guidance.

### 3.3.1 Calibration item setup

Calibration item Settings:

Calibration item Name:

Calibration mode selection:

Calibration type selection:

Lower limit of temperature range:

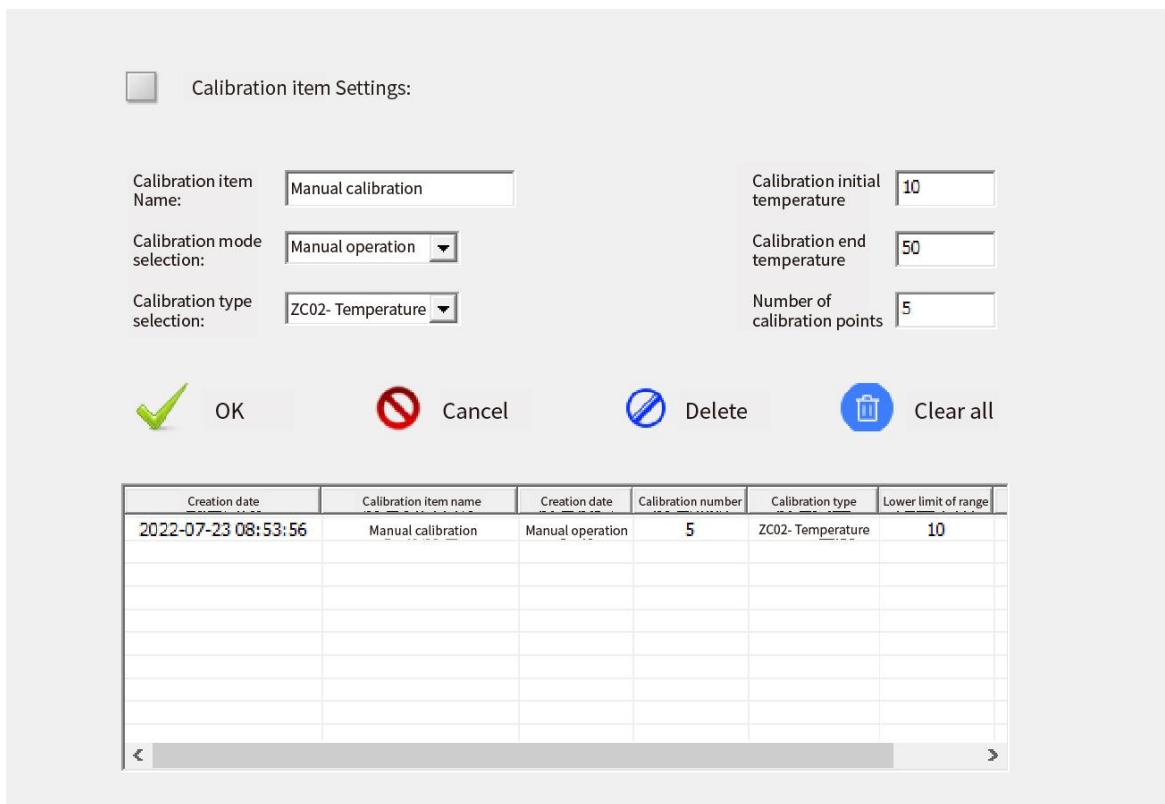
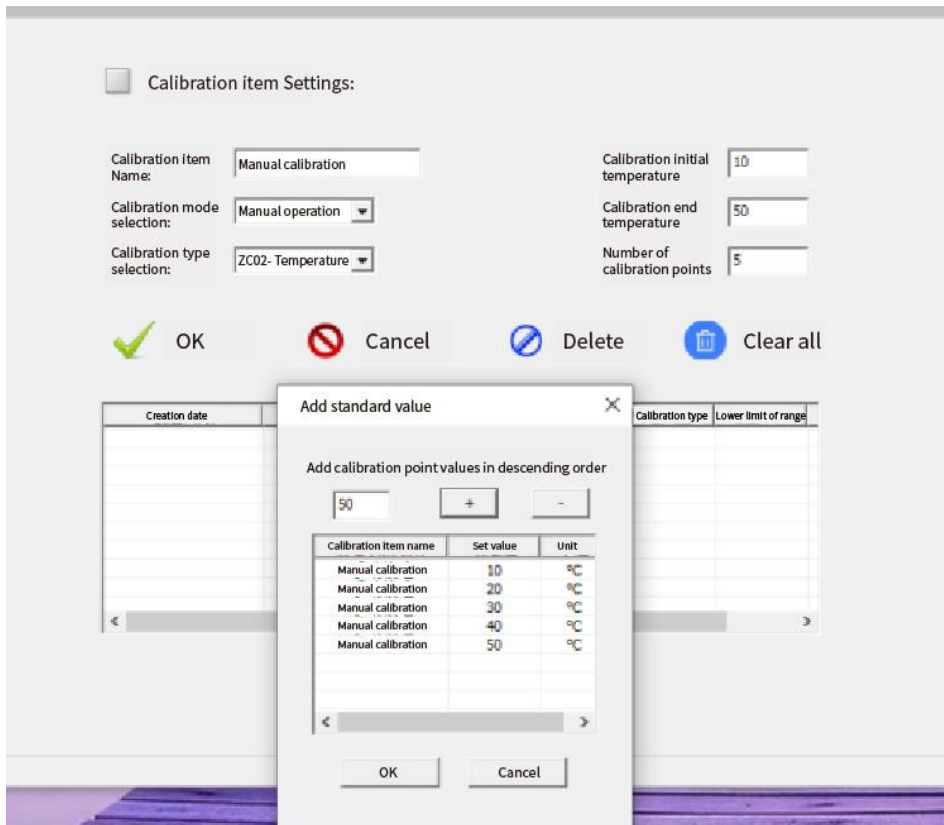
Upper temperature range:

Number of calibration points:

OK    Cancel    Delete    Clear all

Creation date	Calibration Item name	Calibration mode	Calibration number	Calibration type	Lower limit of range

The calibration project setting interface is shown in the figure above. After entering the project information, click OK to pop up the following window, in the sub-window Add calibration point values.



Once the Settings are complete, the calibration item information is displayed in the list above.

---

The user can select and delete a certain item in the list Project, or clear all project information.

Calibration mode: Manual/automatic

(1) Automatic: 713A, 1621A/ZCTB-R type standard equipment will be used in the process of calibrating the recorder equipment

As well as ZCTB bath temperature field equipment, the common combination type is 1621+ second class standard platinum resistor +ZCTB (or ZCTB-R + second class standard platinum resistance +ZCTB tank temperature field), the calibration process will be carried out in this combination mode in the following paper Introduced. Parameters such as the standard value and the actual value required for calibration are automatically obtained by the software.

(2) Manual: In the case of limited conditions of standard acquisition equipment, manual calibration can be used. At this point, the software will not be needed

For control communication with the acquisition equipment, the standard values of each calibration point need to be manually entered into the software interface; In addition, pressure Pressure calibration of the sensor also requires manual calibration. Under manual conditions, the temperature field device also supports self

Dynamic control or manual control. When the standard is manual and the temperature field is automatically controlled, it is equivalent to "semi-automatic"

Situation.

Calibration type selection: Currently only the ZC02 series of recorder parameter calibration is supported!

(1) ZC02- Temperature: Temperature calibration, as the main calibration function of the recorder, is used most frequently. The ZC02 series

The recorder needs to be calibrated for the corresponding indicators before leaving the factory, and will be calibrated regularly according to the product performance

Quasi work to ensure data reliability of the recorder. Currently, temperature adjustment supports the adjustment of [4,20] temperature points.

(2) ZC02- Pressure: For the use of ZC02TPS type recorder, manual calibration mode is adopted, manual calibration process

Input the standard reading of the pressure calibrator, and then complete the pressure calibration after calculation according to the actual value of the recorder itself

Quasi-functional. Pressure calibration and temperature calibration are similar in that the least square linear fitting algorithm is used to carry out parameters

Calculate, the number of all set points is [4,20].

(3) ZC02- Humidity: The humidity calibration adopts manual mode, the user manually input the standard value and the collected value, due to the humidity correction

The  $kX+B$  method is adopted, so the number of humidity calibration points is fixed at 2 points.

### 3.3.2 Recorder calibration

The module mainly realizes three functions: obtaining standard value, obtaining actual acquisition value, and recorder calibration.

Obtain standard value: Enter the recorder calibration interface, and first perform "Obtain standard value". Select a calibration item from the drop-down box

According to the type of calibration item, the software will pop up the corresponding device setting interface, as shown in the following figure.

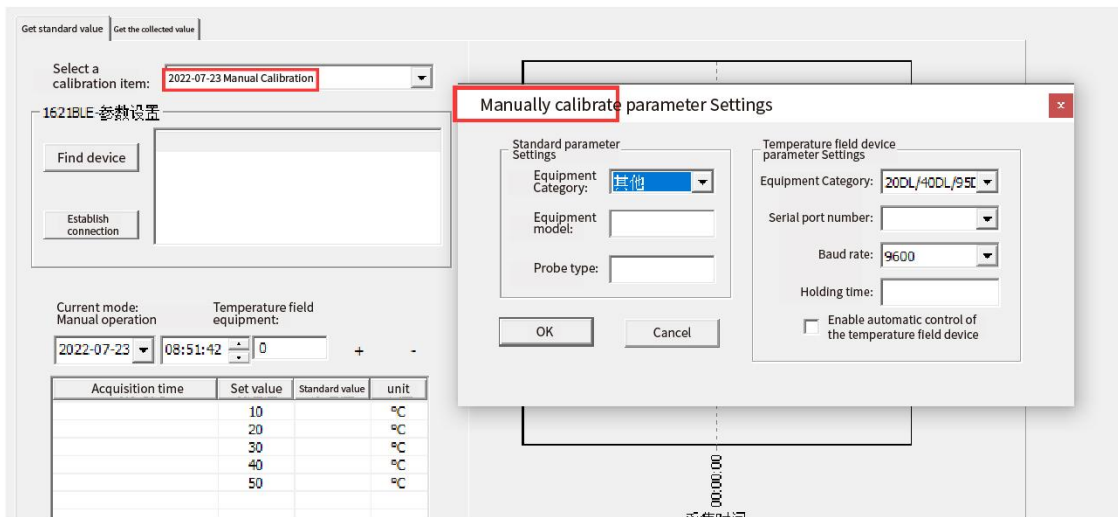
(1) Manual mode: If the selected calibration item is manual mode, the following dialog box will pop up, requiring user input

Basic device information, and configure the communication parameters of the temperature field device. If the temperature field device is not enabled, the software will not

Need to communicate with any equipment, just after the temperature field equipment stable for a certain period of time to view its reading value,

And enter the corresponding time point in the dialog box interface (manual mode, this time can be filled at will, do not need to be accurate) and temperature value, click the line to select the corresponding standard value, and then click the "+" button to complete the standard value

The addition of If the input is incorrect, click to select the corresponding standard value line and press the "-" button to delete it.



If the selected calibration item has been interrupted before due to special reasons, and the recorder is still collected in the item's setting

You can choose to continue the calibration. Continuing calibration will set the temperature field device from a subsequent temperature point that has not been calibrated, if selected Restart, then the reference standard value before the calibration item will be overwritten.

1621BLE- Parameter setting

Find device

Establish connection

Equipment	Mac address

Current mode: Manual    Temperature field equipment: Stop calibration

2022-07-23    09:48:27    OFFLINE    +    -

Acquisition time	Set value	Standard value	unit
2022-07-23 09:22:35	10	10.01	°C
2022-07-23 09:35:35	20	20.01	°C
2022-07-23 09:45:35	30	30.01	°C
2022-07-23 09:56:35	40	40.01	°C
	50		°C

**Warning**

⚠ The current project is not completed, select "Yes" to continue, "No" to start again!

00:00:00  
Acquisition time

Get standard value    Get the collected value

Select a calibration item: 2022-07-23 Manual Calibration

1621BLE- Parameter setting

Find device

Establish connection

Equipment	Mac address

Current mode: **Manual operation**    Temperature field equipment: **Manual control**

2022-07-23    09:56:35    40.01    +    -

Manual control	Set value	Standard value	unit
2022-07-23 09:22:35	10	10.010	°C
2022-07-23 09:35:35	20	20.010	°C
2022-07-23 09:45:35	30	30.010	°C
2022-07-23 09:56:35	40	40.010	°C
	50		°C

Start calibration    Clear calibration

(2) Automatic mode: After selecting the automatic calibration item, the "Automatic Calibration Settings" dialog box will pop up, and all parameters must be entered.

Get standard value    Get the collected value

Select a calibration item: 2022-07-23 Manual Calibration

1621BLE- Parameter setting

Find device

Establish connection

Current mode: Auto    Current state: Wait to start

2022-07-23    08:51:42    0    Standard value

Acquisition time	Set value	Standard value	unit
	10		°C
	20		°C
	30		°C
	40		°C

✅ initiate    ❌ stop

**Automatic calibration setting**

ZC02- Standard parameter Settings

Equipment Category:

Equipment model: 1621A

Probe model: 5609

Probe type: PRT-ITS90

Temperature field device parameter Settings

Equipment Category:

Serial port number:

Baud rate: 9600

Equipment model: ZCTB-20DL

Holding time: 10 min

00:00:00  
Acquisition time

Start calibration    Clear calibration

If the automatic mode, the standard is selected 1621A, because the 1621A device through Bluetooth low power to achieve communication with the software connection, this function requires the user computer must be Win10 or above operating system, and the computer side has a Bluetooth adapter,

And the 1621A device has been added in advance through Bluetooth in the device management of the computer;

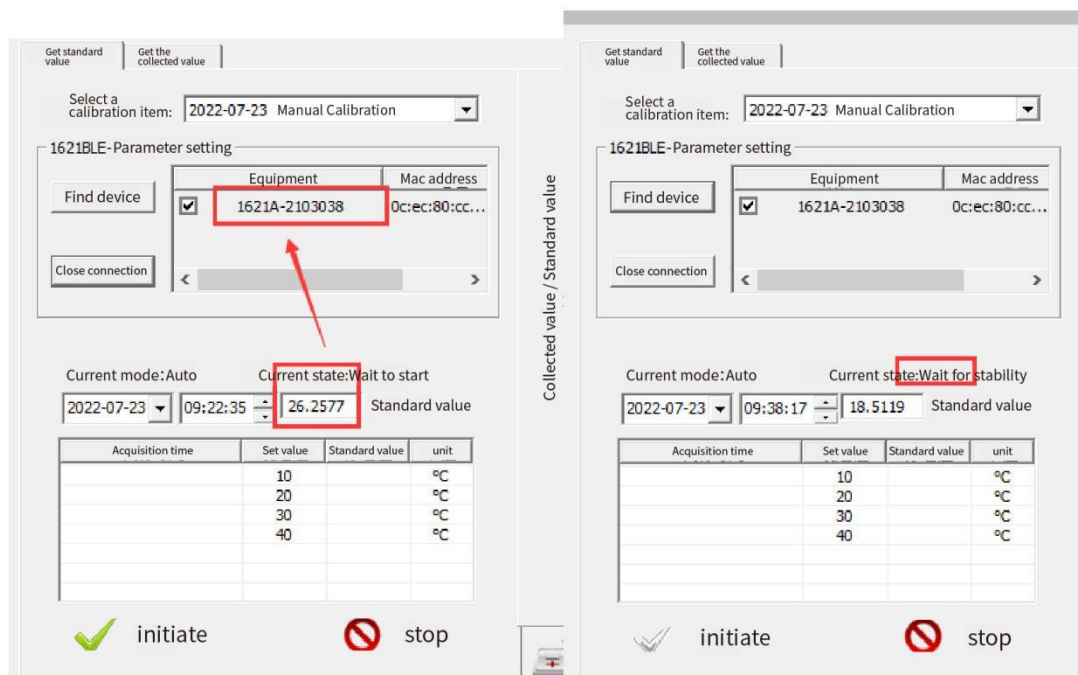
After the above Settings, in the following picture of the interface

In the "1621BLE- Parameter Settings" section, click the "Find Device" button first, and after finding a valid 1621 device, it will be displayed

To the right of the list displayed, then click Select list 1621 device row, then click the "Establish connection" button, software

Will connect to the 1621A device via Bluetooth, and read the 1621A reading in real time, and then refresh the reading displayed in this interface

"Standard Value" edit box.



After the 1621A device is connected, click the "Start" button, the software will automatically control the temperature field device and refresh the current status information in real time. After the temperature field device is stable,

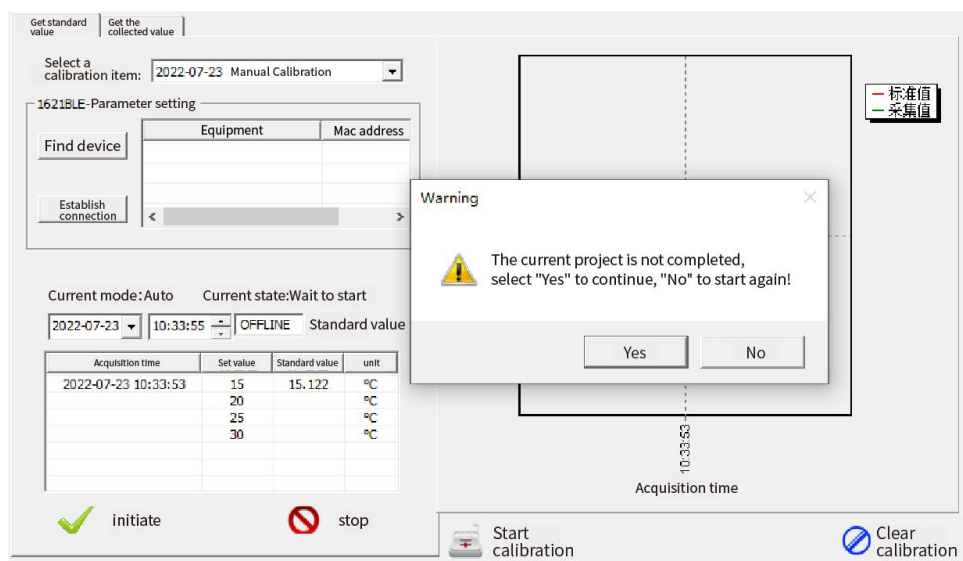
Two minutes before the end of the stabilization time, the current standard value is read as the temperature reference value of the time point.

If the selected calibration item is interrupted due to special reasons, you can choose to continue the calibration if the recorder is still in the setting collection of the item.

Continued calibration will continue from obtaining the standard temperature point

Set the temperature field device, if you choose to restart, then the reference standard value

before the calibration item will be overwritten.



After all the standard values are obtained, the process of automatic calibration process control collector and temperature field equipment is over.

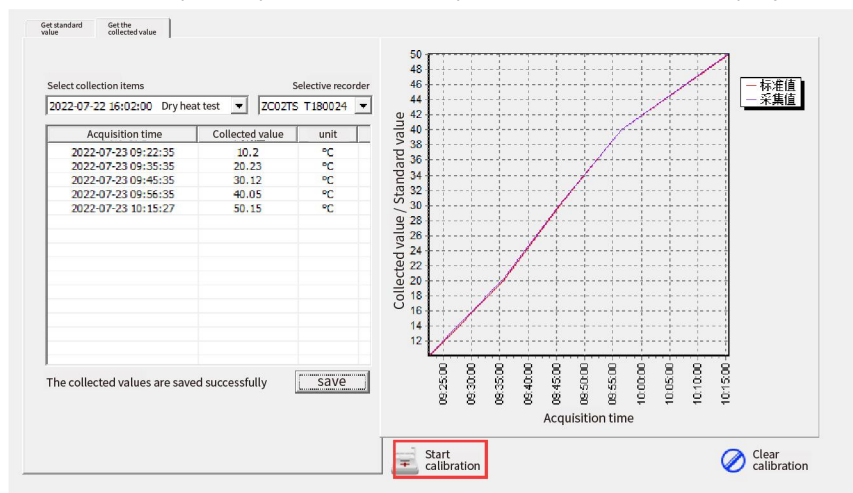
In this case, you can shut down the corresponding device, disconnect the device, and download the data of this collection item on the data download page.

Obtain collection value: Switch to the Obtain Collection Value page, select the corresponding collection item, and then select the current need

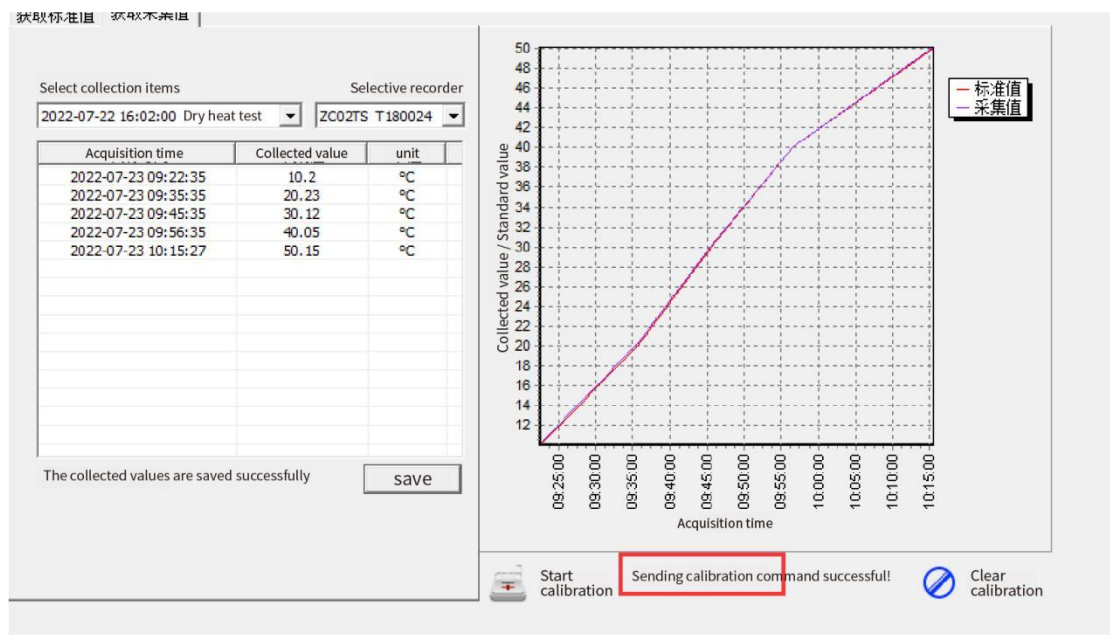
Calibrate the recorder serial number in manual calibration mode,

Please manually enter the acquisition value for each calibration point as shown in the figure below

(It is necessary to open the data report of this collection project first, and then find the







After the value, click Save button, save successfully, you can carry out calibration work. If it is an automatic calibration item, drop down

When selecting the recorder, the software will find the actual acquisition value of the corresponding time point in the recorder according to the time point of the standard value.

(Note:

At this point, the adapter and recorder must be connected, and only one recorder will be calibrated per calibration!)

After obtaining the acquired value, you can click the "Start Calibration" button on the right side of the interface.

Calibrate the currently selected recorder and will be prompted after completion. (Note: The adapter and recorder must be connected at this time, and only one recorder will be calibrated per calibration!)

If you need to clear calibration data, you can ignore the previous steps of setting calibration items, obtaining standard values, obtaining collected values, etc., directly enter the "obtain collected values" interface, select the recorder, and then click the "Clear calibration" button. The manual mode for humidity and pressure calibration is similar to the manual mode for temperature calibration.

### 3.3.3 Certificate viewing

Click "Click Query" button to view all calibrated information, drop down to select the corresponding recorder serial number,

The calibration parameters are displayed in the list box below.

The list box on the left shows calibration data for each temperature point.

The device information in use is displayed on the right. Click the "Generate certificate" button to generate a calibration certificate in pdf format. If the current recorder is a TPS type and has pressure calibration data, it will be required to fill in the reference pressure gauge information to generate the certificate.

No.	Standard value	Original value	unit	coefficient	value
1	10.01	10.20	°C	AT0	0.13959363
2	20.01	20.23	°C	AT1	0.94711422
3	30.01	30.12	°C	AT2	0.00228450
4	40.01	40.05	°C	AT3	-0.00002683
5	50.00	50.15	°C		

The certificate is generated as shown in the following figure:

## 3.4 User Management

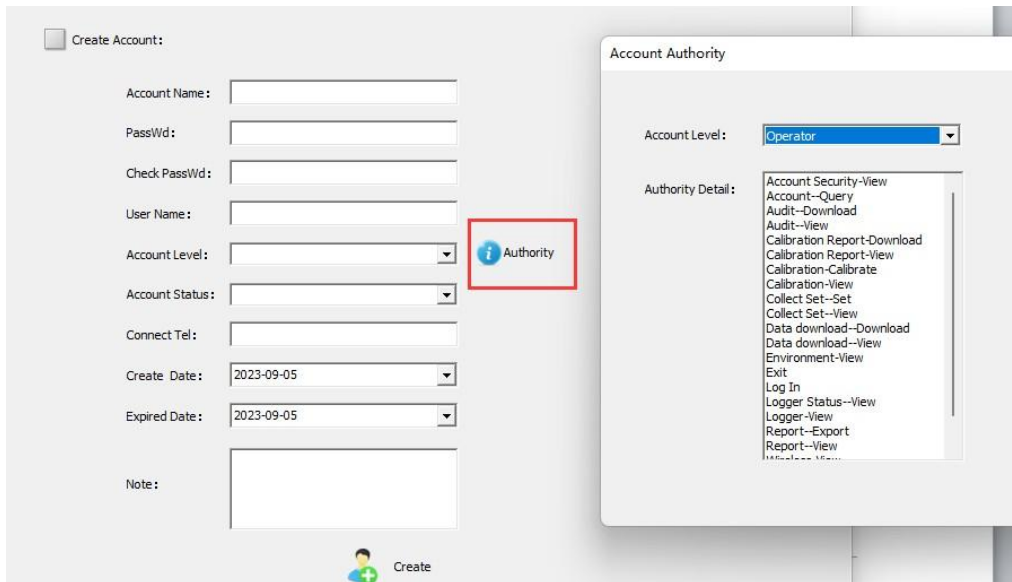
### 3.4.1 User Query

The software provides a very detailed user query function, which may filter queries based on a variety of information conditions.

Account Name	User Name	Account Level	Contact Telep...	Create Date	Expired Date	Account Status
admin	admin	管理员	1388888888	2015-12-10	2050-12-10	Normal

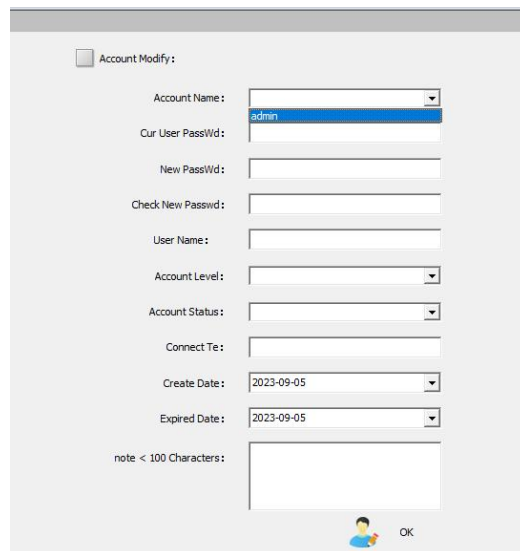
### 3.4.2 Adding Users

The most senior administrator has the permission to add users, and can set the corresponding permissions of new users, as shown in the figure below. The operation permissions corresponding to different user levels can be viewed by clicking the "Permissions" button.

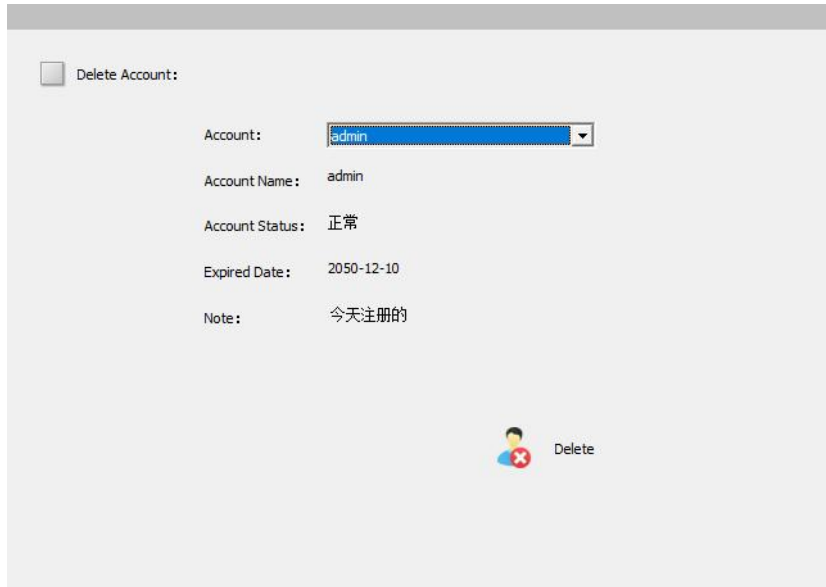


### 3.4.3 User Modification

According to the rights management allocation, only senior operators are allowed to modify their own password information; Admin has the highest administrator rights and can modify the



information of all users, and users with other permissions do not have permission.

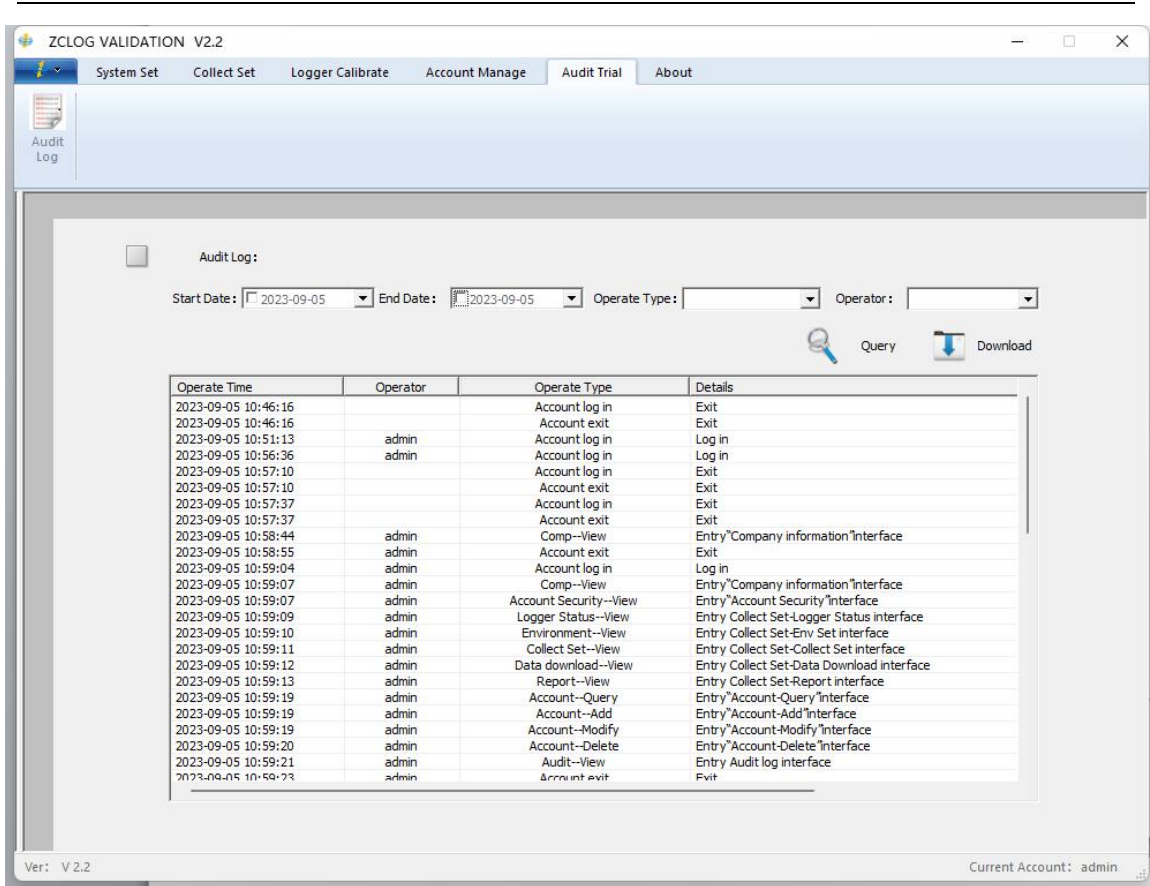


#### 3.4.4 Delete Users

Note: 'User Add', 'User Modify', 'User Delete' all require administrator rights to perform!

#### 3.5 Audit Trail

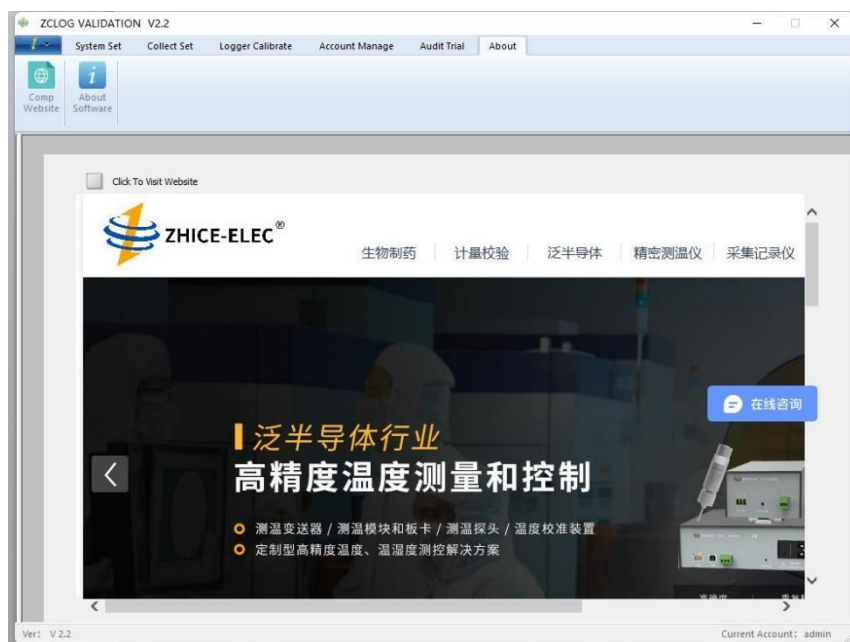
You can query logs to view user operations based on different conditions. Click the "Download" button, you can export the log in PDF format file.



### 3.6 About

#### 3.6.1 Company Website

Enter the "Company Website" interface, click the "Click to view company website" button on the upper left, our official website can be displayed on the interface, you can quickly inquire about our company's relevant information on this interface.



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### 3.6.2 About Software

This interface allows you to view the version information of the software, as well as the contact information of our company.

