Neware BTS 8.0
User Manual

Battery Testing System 8.0

Info, Note and Warning

	Info: helps you to understand or operate better.
	Note: Wrong operation might cause data loss or hardware malfunction.
	Warning： Serious problem might happen, be careful.

Info: The content is subject to change due to software/hardware version upgrade.

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Version:8.0(R9)

Category

1. Overview 5
1.1. Purpose 5
1.2. Introduction 5
1.3. Software requirements 5
1.4. BTS Software features 6
2. Hardware and software connection 7
3. User instruction 7
3.1. Content Description 7
3.2. Installation of client software 8
3.3. Installation of server software 9
3.4. Verify the correct installation of server 11
3.5. Basic functions of software 14
3.6. Setting 18
3.6.1. Process type setting 20
3.6.2. System setting 20
3.7. User management 28
3.7.1. User login 28
3.7.2. Modify passwords 30
3.7.3. User logout 31
3.7.4. User management 31
3.8. Language switching 36
3.9. Tools 36
3.9.1. Download log 37
3.9.2. Step editor 38
3.9.3. BTSDA 38
3.9.4. Middle machine list 40
3.9.5. Delete historical data 40
3.10. Help 41
3.11. Device list 42
3.11.1. Add server 42
3.11.2. Delete offline device 43
3.11.3. Modify notes/remarks 44
3.11.4. Update middle machine 45
3.11.5. Restart middle machine 46
3.11.6. Upgrade low machine 46
3.11.7. Set and display middle machine and low machine 47
3.11.8. Sound-light alarm reset 48
3.11.9. Version information 48
3.12. Channel interface 49
3.12.1. Channel colour setting 49
3.12.2. Channel display configuration 51
3.12.3. Display Interface 56

3.13. Right-click the channel interface....56
3.13.1. single start....59
3.13.2. single stop....61
3.13.3. Start up test by row/layer....61
3.13.4. All stop....61
3.13.5. Continue/resume test....62
3.13.6. Jump....63
3.13.7. Channels move....64
3.13.8. Test profile reset/modify....64
3.13.9. Bar-code reset....64
3.13.10. Lock/unlock channels....65
3.13.11. Reset alarm....68
3.13.12. Reset mapping....69
3.13.13. Channels copy....72
3.13.14. Clear mark(reset channels)....73
3.13.15. Units settings....73
3.13.16. Check log....74
3.13.17. Channel data....75
3.13.18. Channel data/Test data save as....76
3.13.19. Channels information....77
3.14. List view....80
3.14.1. Right menu functions....80
3.14.2. Display parameters setting....81
3.14.3. Bar-code input....81
3.15. Capacity grading....84
3.15.1. Grading settings....84
3.15.2. Grading result....85
3.16. History Of Test Results....85
4. Appendix....87
4.1. FAQ....87
4.2. Precautions on use....88
4.3. Repair and Maintenance....88
4.4. After sales and service....89
4.5. Contact NEWARE....89

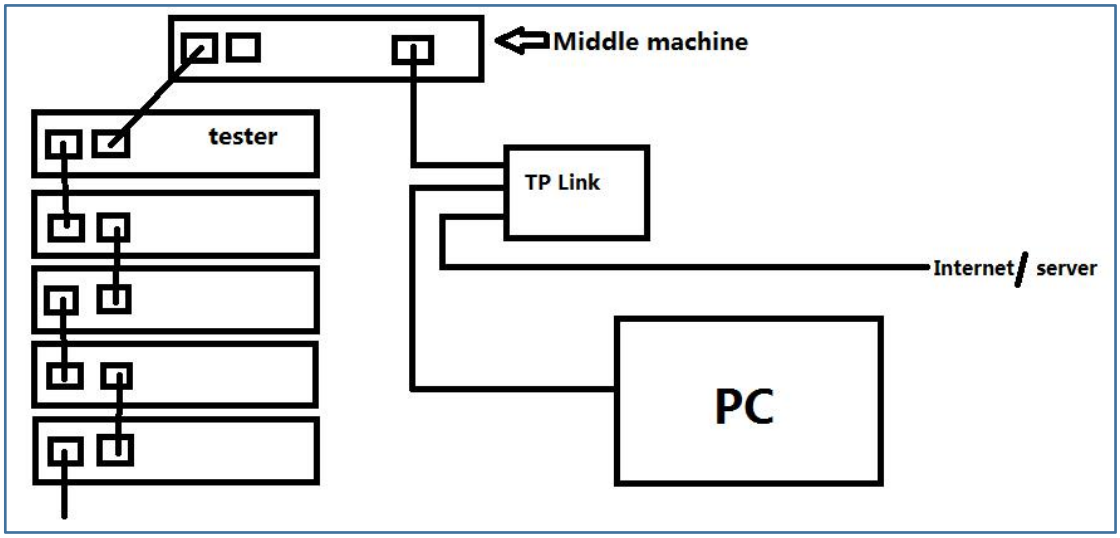
1. Overview

1.1. Purpose

BTSClient8.0 is based on BTSClient7.6.0 and a brand new version, it has better performance and will replace 7.6.0 gradually.
This document targets Neware users, to help them get to know the installation and operation of BTSClient8.0.

1.2. Introduction

BTSClient8.0 is the brand new client of Neware battery test system, it's based on BTS7 and even better.
BTS software is based on C/S structure and database(mysql), a typical diagram
Looks like the picture below.



1.3. Software requirements

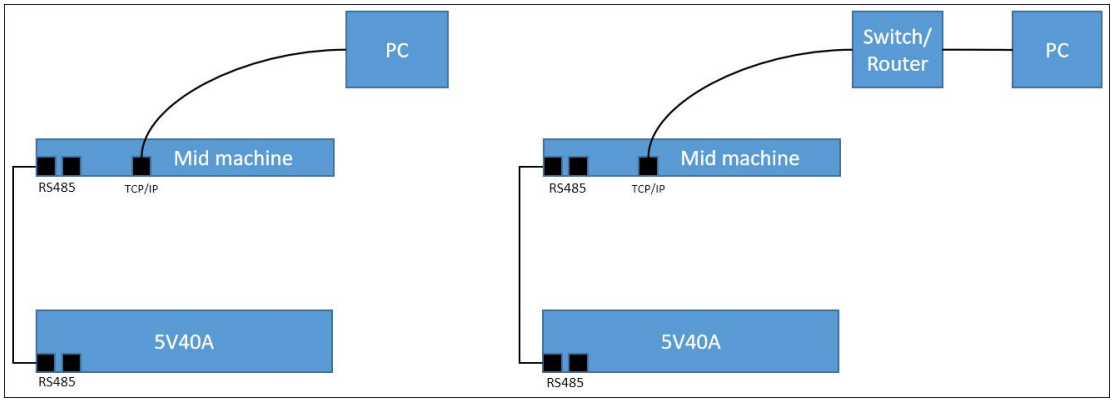
Items	Configuration
CPU	Intel i3 or better
Memory	4GB minimum, 8GB+ better
Hard drive	200GB+
File system	NTFS
OS	Microsoft Windows 7 + 64 bit
Interfaces	USB, Ethernet

1.4. BTS Software features

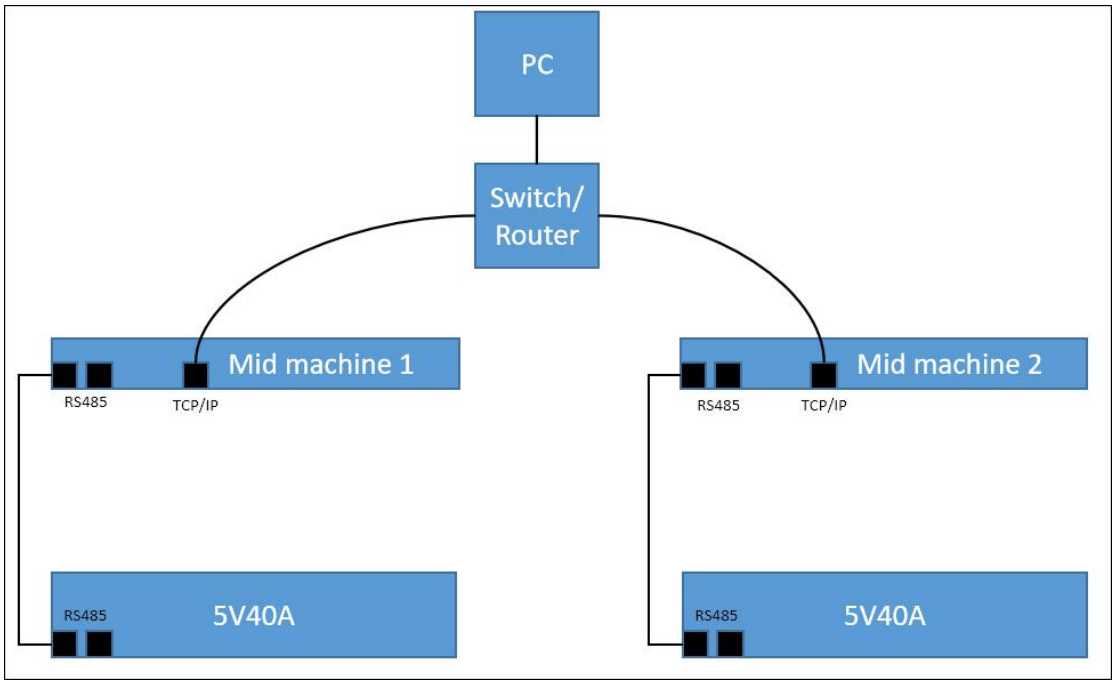
1. C/S structure, base on TCP/IP and database.
2. Multi-user supported.
3. User friendly design.
4. Powerful test process control.
5. Flexible and complex programming test solutions.
6. Perfectly realize battery sorting, matching, and curve comparison.

2. Hardware and software connection

1. The connection diagram of one device:



2. The connection diagram of multiple devices:



3. User instruction

3. 1. Content Description

BTSClient8.0 mainly introduced the installation and uninstall of client software, the connection between software and server, and how to connect with computer after software successful installation. What's more, it also introduces the operation of each function, such as battery sorting,

auxiliaries mapping setting and trans-middle machine mapping realizing,etc.

3. 2. Installation of client software

Only one client software is allowed in one computer for the operation efficiency.

Notes： The FAT file system has a high probability of errors during power failure. When installing software, you should install it into NTFS file system.Otherwise, when the power is cut off or the system is shut down abnormally, the entire directory may be wrong, which may cause errors in the steps files, system files or data files.View NTFS system property display, please refer to the figure below.

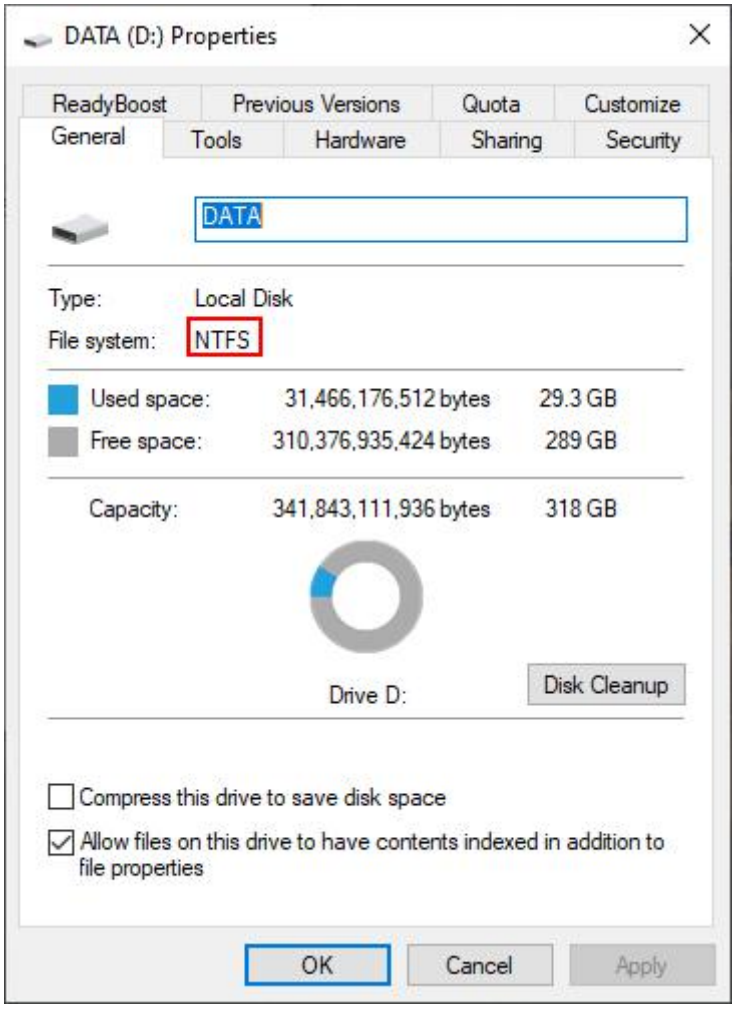


Figure 3.2.1 View file system type

Client software is green version of RAR,double click “BTS.exe” to use it after decompressing.

Notes： Net environment is required when running client software, please install “Microsoft .NET Framework 4.5.1.exe” firstly. If not the client can not be started.

3. 3. Installation of server software

	Notes： If you have installed another version of BTS server on your computer, be sure to uninstall it before installing the new version. Please backup the data in other version database before uninstalling.
	Notes： The FAT file system has a high probability of errors during power failure. When installing software, you should install it into NTFS file system**.**Otherwise, when the power is cut off or the system is shut down abnormally, the entire directory may be wrong, which may cause errors in the steps files, system files or data files.View NTFS system property display, please refer to the figure 3.3.1.

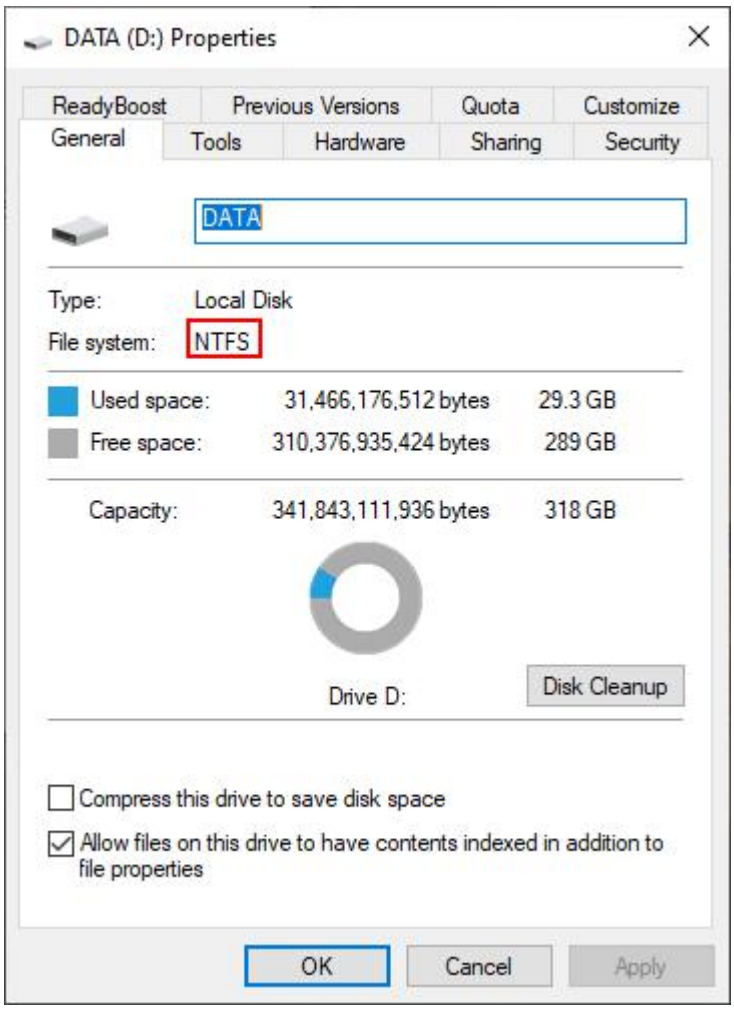


Figure 3.3.1 Hard disk file system window

1. Enter the install guidance of " BTSServer" and click "Next" as shown in the figure 3.3.2:

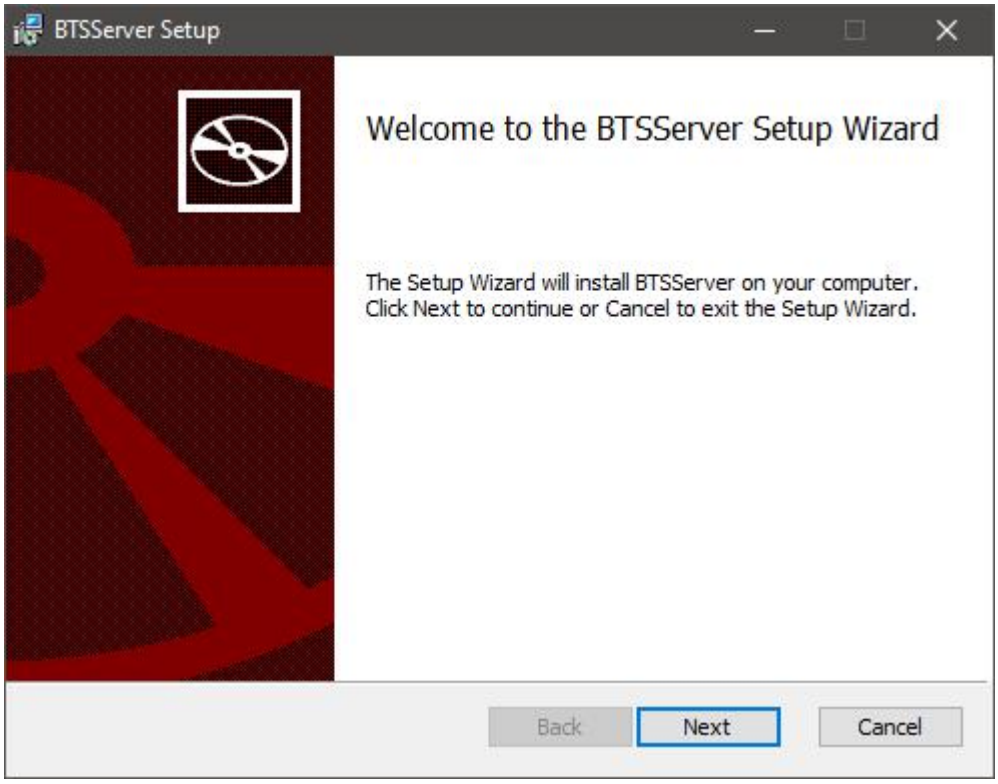


Figure 3.3.2 Install guidance window

2. After accepting User License Agreement,choose the server installation path. Default path is “D:\Program Files（x86）\Neware\BTSServer”. Click “Modify” to choose other path, then click “Next”to install. (Shown in the figure 3.3.3)

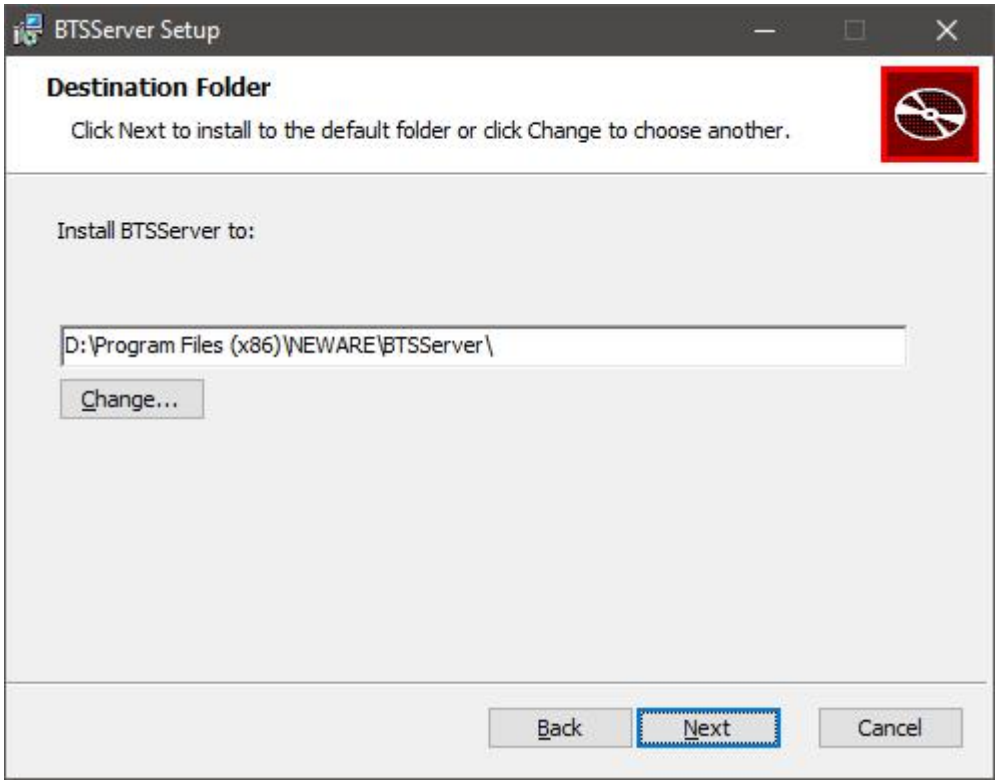


Figure 3.3.3 Installation path window

3. The installation process bar appears(in the last half of process bar it is normal when two command window appears),click “Finish” after installation. (Shown in the figure 3.3.4)

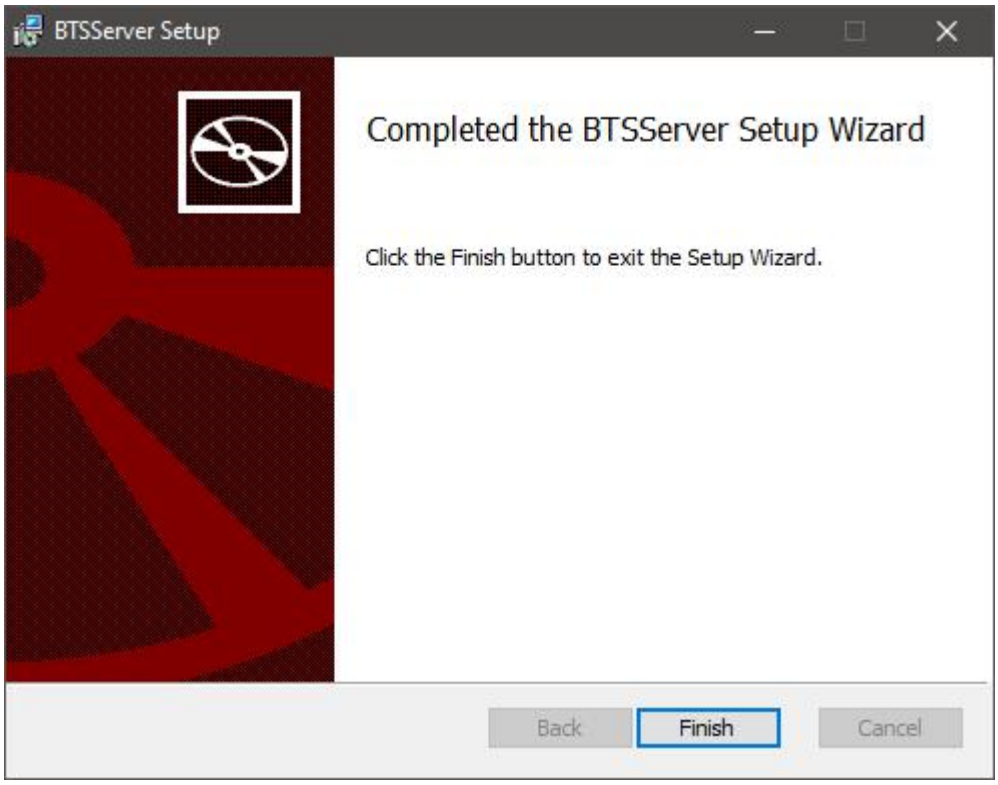


Figure 3.3.4 Installation finish window

3. 4. Verify the correct installation of server

After finishing installation, you need to verify whether the server is installed correctly or not, the operations as follows:

1. Click “Control Panel”→ “System and Safety” → “ Management tools”Choose “ Service” to make sure whether “MySQL” and “NEWARE BTS Service” are in the list on the right and started.(Shown in the figure 3.4.1）

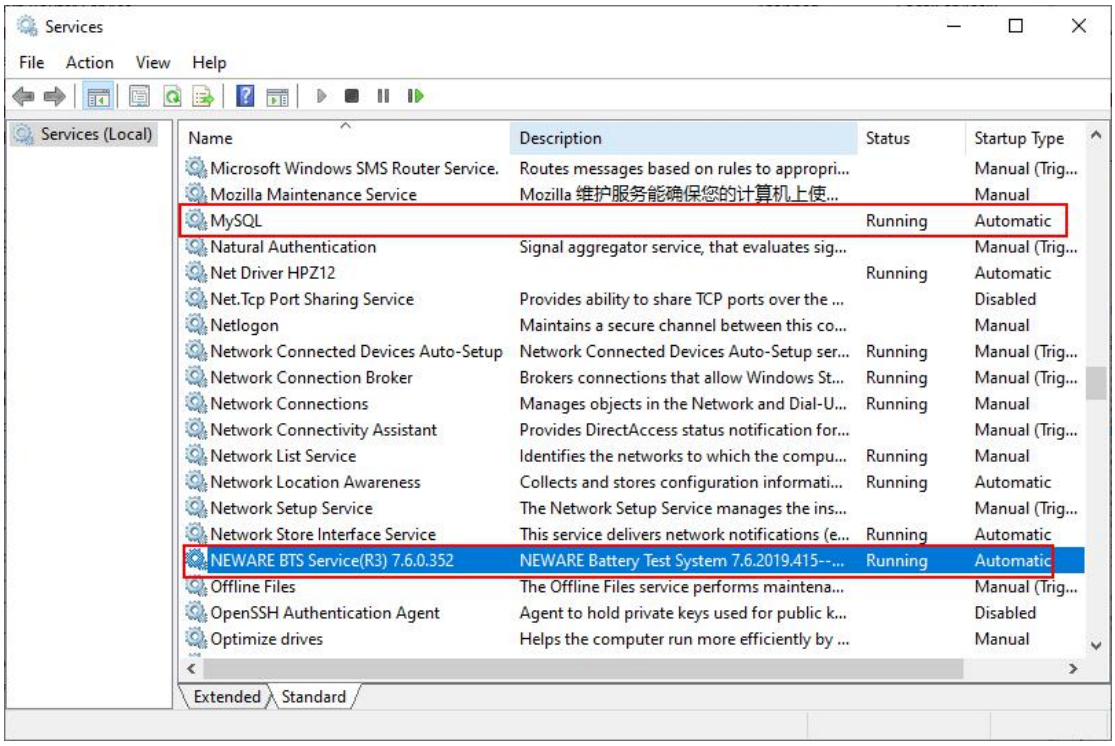


Figure3.4.1 Service and application window

2. If there is no “MySQL”or “NEWARE BTS Service” in the list, please uninstall the server and install it again.And reconfirm with the steps above that the server is properly installed and started.

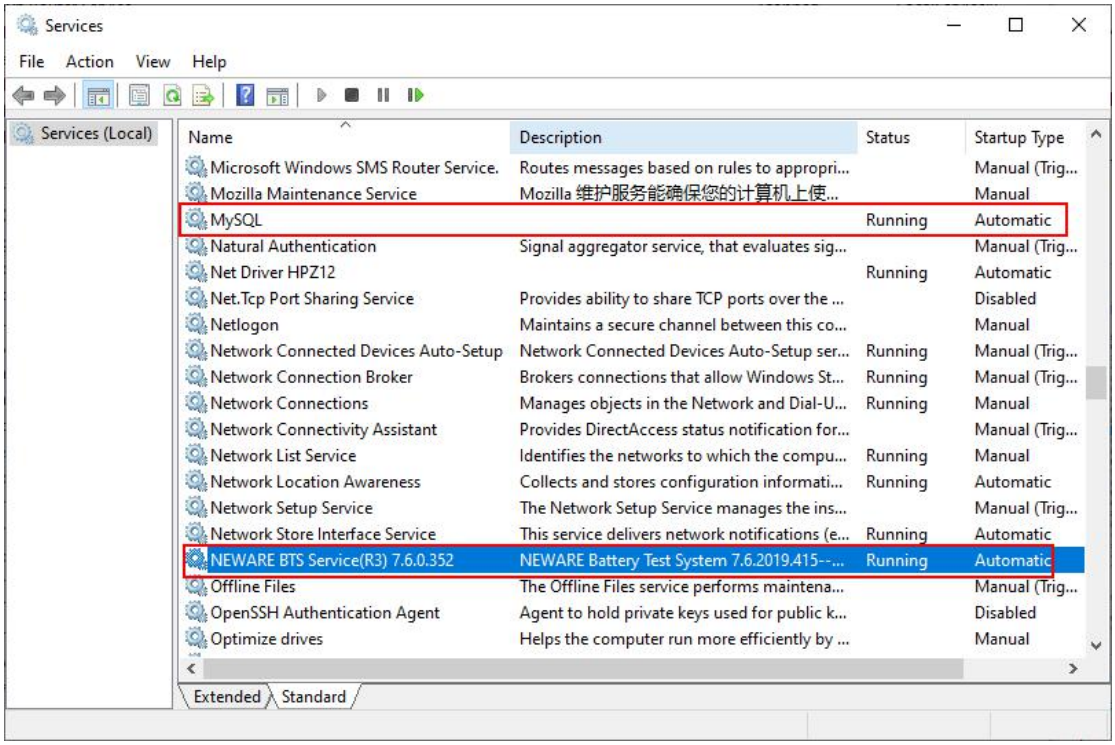


Figure 3.4.2 Start setting window

3. If there is no “MySQL”or “NEWARE BTS Service” in the list, please uninstall the server and install it again.And reconfirm with the steps above that the server is properly installed and

started.

4. If you find that the start type of either service is "Manual", please change it to "Auto" as follows. For example, the start type of NEWARE BTS Service is manual(as same as MySQL)

Method 1:

1. Right click “NEWARE BTS Service”,choose “Property”
2. Start type: choose “Auto” (Shown in the figure 3.4.3)

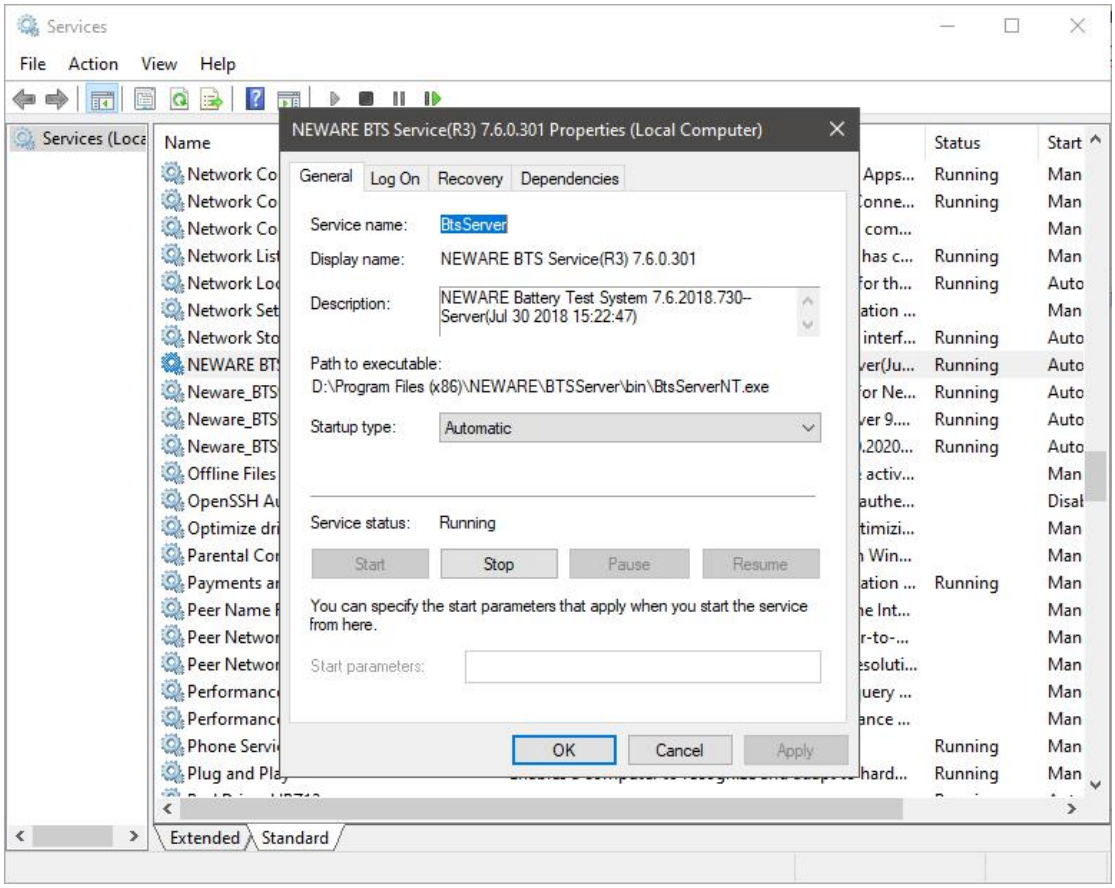


Figure 3.4.3 NEWARE BTS Service start window

Method 2:

1. Open “Running...” from the start menu, enter “msconfig”and click “Enter”.
2. Enter “System configuration utility”. choose“NEWARE BTS Service”in the service, click “Apply”and restart the computer.(Shown in the figure 3.4.4)

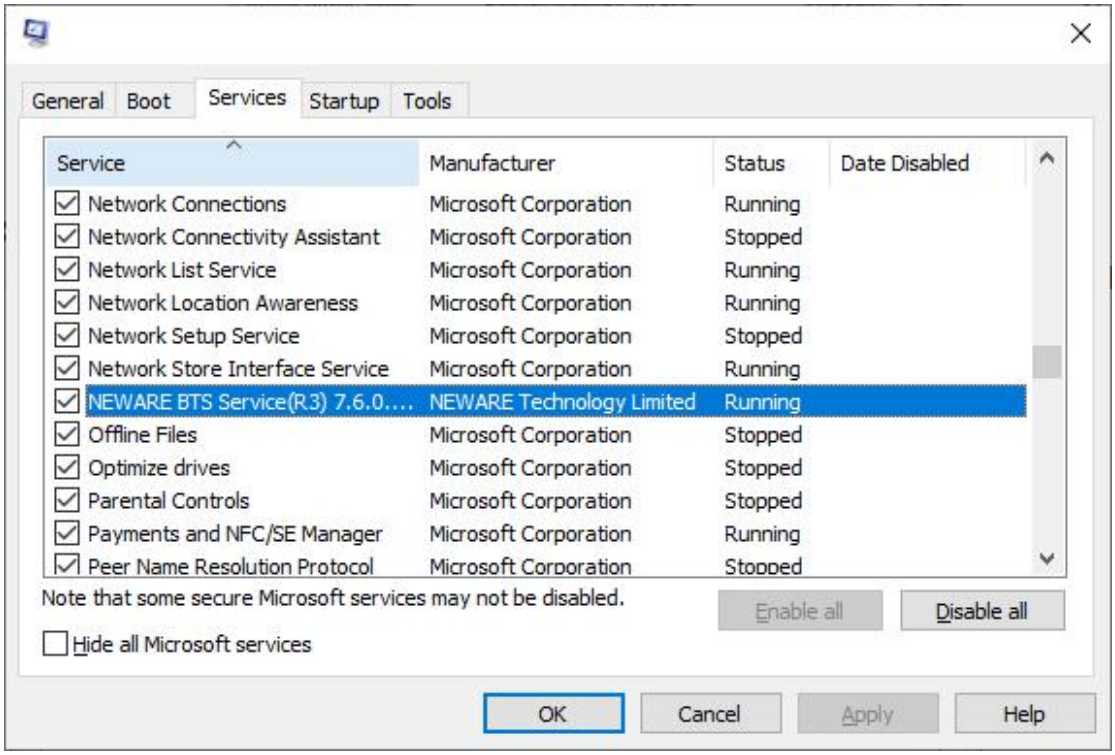


Figure 3.4.4 System configuration utility window

Notes： In Computer Management window. Right click and choose “Stop” to close the running service. It will be needed when manually upgrade the server.

3. 5. Basic functions of software

If there is no channels displayed in the client software, it needs to map again.(Client software interface after mapping successfully shown in the figure 3.5.1)

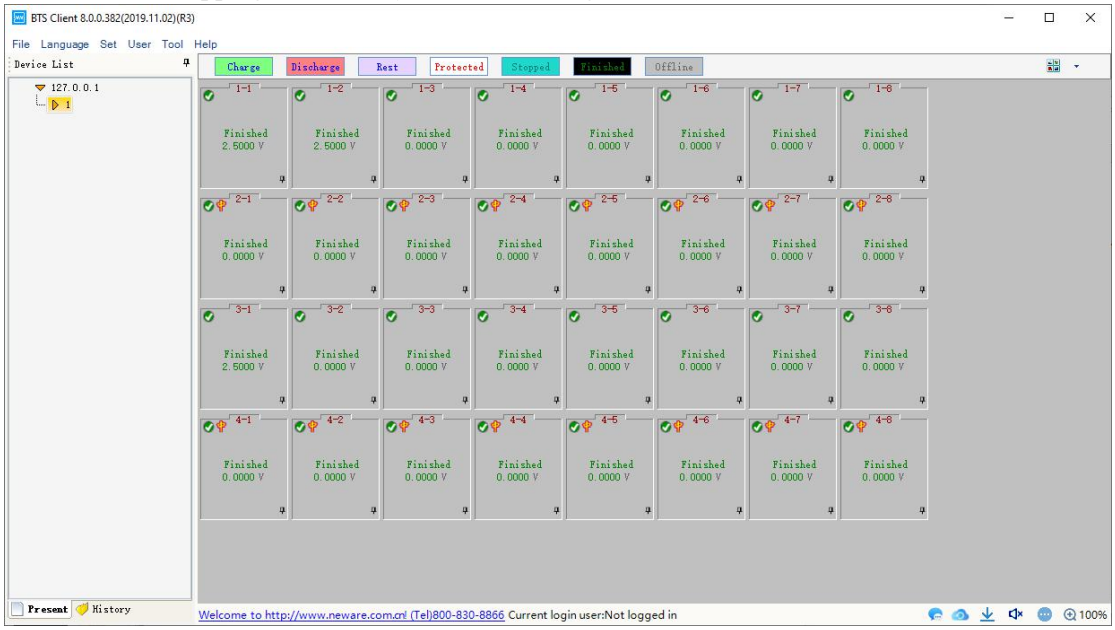


Figure 3.5.1 BTSClient8.0.0 main window

When the software display is minimized, the image of it on taskbar will be hidden. You can find it in the pallet list.You can also drag client software into the quick start bar,which is a common feature of popular software.

Notes: You also can choose that minimization software will be displayed in the taskbar through system setting.

Figure 3.5.2 Software minimize into pallet list

3.5.1Explanation of Nouns in Step name drop-down list:

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Other
1	CC DChg		2.8	1200			

Figure 3.5.3

CCD: The channel discharges at constant current, and the battery voltage drops, in which the cut-off voltage and the constant current value must be set. Time, capacity, energy are alternative conditions . It means “or” logically relations among them. The figure above indicates that the battery discharges from the beginning of 1200mA current to the end of the 2.8V.

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Other
1	CC Chg		4.2	1200			

Figure 3.5.4

CCC: The channel is charged with a constant current value, and the battery voltage is raised. The cut-off voltage and the constant current value must be set. Time, capacity, energy are the conditions of choice, it means “or” logically relations among them. The figure above indicates that the battery charges from the beginning of 1200mA current to the end of the 4.2V.

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Other
1	Rest	00:05:00.000					

Figure 3.5.5

Rest: The channel is rest. The step time must be set. The picture above indicates that the channel will rest for 5 minute.

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Other
1	Rest	00:05:00.000					
2	CC DChg		2.7	1500			
3	Cycle	Start Step ID:1	Cycle Count:5				

Figure 3.5.6

Cycle: Define multiple steps for cycling . The figure above indicates that step 1 or step 2 will be performed 5 times from the first step.

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Other
1	CCCV Chg		4.2		1200	50	

Figure 3.5.7

CC&CVC: When the battery voltage is below the set voltage value, the device charges the battery in a constant current mode until the battery reaches the set constant voltage value and then enters a CV process. The figure above shows that the battery is charged by 1200mA, and the battery enters the CV process at 4.2V, where the voltage remains constant and the current drops slowly until the current goes down to 50mA. Lithium battery charging and CV-Chg to CC-Chg process, the step voltage, current, off current must be set.

Step ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Power(W)	Other
1	CP DChg		2.8				10	

Figure 3.5.8

CP-DChg: The channel is equivalent to a battery with a constant power load, and the current in the discharge increases with the decrease of the voltage. The product of current and voltage at

any time is equal to the set power value. As shown above, the battery discharges at constant power of 10W until the end of the 2.8V (assuming that the battery voltage is 5V, the discharge current = 2A, and when the voltage drops to 4V, the current should be 2.5A). The cut-off voltage and power value must be set.

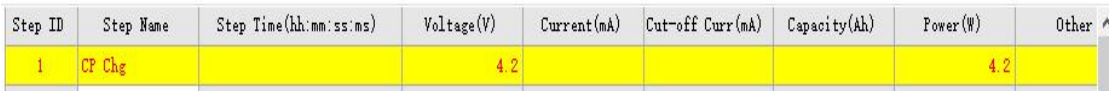


Figure 3.5.9

CP_Chg: Charge according to the setting power, and the current will decrease with the increase of the voltage, because the product of the current and the voltage is always equal to the setting power. As shown above, the battery is charged at a constant power of 4.2W until the voltage becomes 4.2V (assuming the battery voltage is 4V, the current should be 1.05A, and when the voltage rises to 4.2V, the current should be 1A). The cut-off voltage and power must be set in this step.

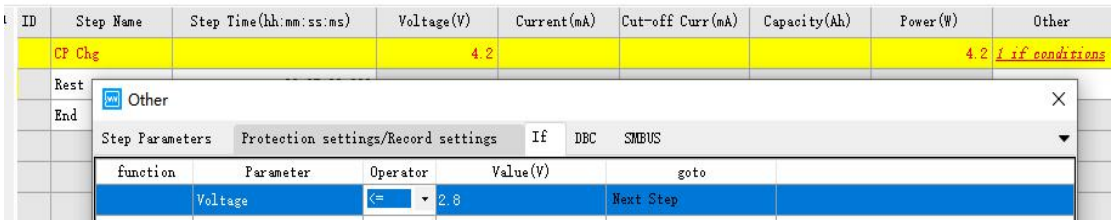


Figure 3.5.10

IF: The insertion of this step in any step is supported, and judge the direction of the step goto by its parameters. As shown below, you can add voltage, step time, environment temp and current, then you can choose Goto to the target step.

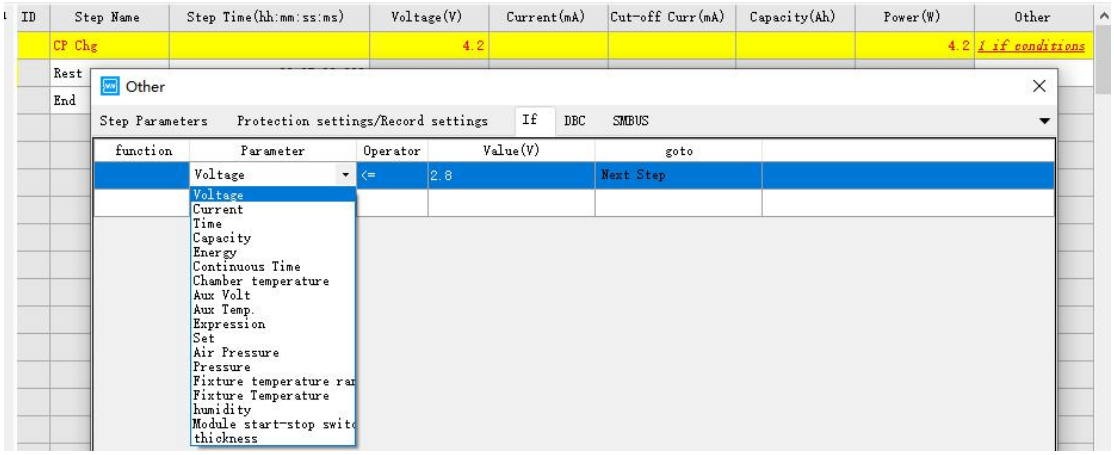


Figure 3.5.11

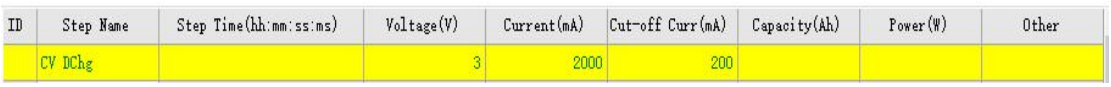


Figure 3.5.12

CV_DChg: Adopt it when the voltage required to be constant during the discharge, and the discharge current will gradually decrease. As shown above, the battery discharges at the maximum 2000mA (if less than 2000mA, discharges at the actual value, which depends on the battery voltage) until the voltage reaches 3.0V, then the voltage remains constant and the current begins to decrease, and the step will finish when the current falls to 200mA. If the current value is not set in this step, the starting

current discharge value may reach the full scale current (depending on the initial voltage). This step requires hardware support.

ID	Step Name	Step Time(hh:mm:ss:ms)	Voltage(V)	Current(mA)	Cut-off Curr(mA)	Capacity(Ah)	Power(W)	Other
	CCCV DChg		3.5	1200	10			

Figure 3.5.13

CCCV_DChg: Discharge at a constant current value, when the voltage drops to the setting voltage, the voltage remains constant, the current gradually decreases, and then the step comes to the end when it drops to the cut-off current. As shown above, the battery discharges at 1200mA and decreases when voltage reaches by 3.5V, then the step finishes when current drops to 10mA

3. 6. Setting

When setting steps, in addition to the protection parameters in the step file, you can also set advanced protection parameters.Edit the steps files on other computer,then copy them to local server to merge advanced protection parameters.

Notes: The setting of protection will take effect only when the whole tester or whole unit is started.

Operation as follows:

1. Chick “Menu”-- “Setting”-- “Protection parameter setting”(Shown in the following figure)

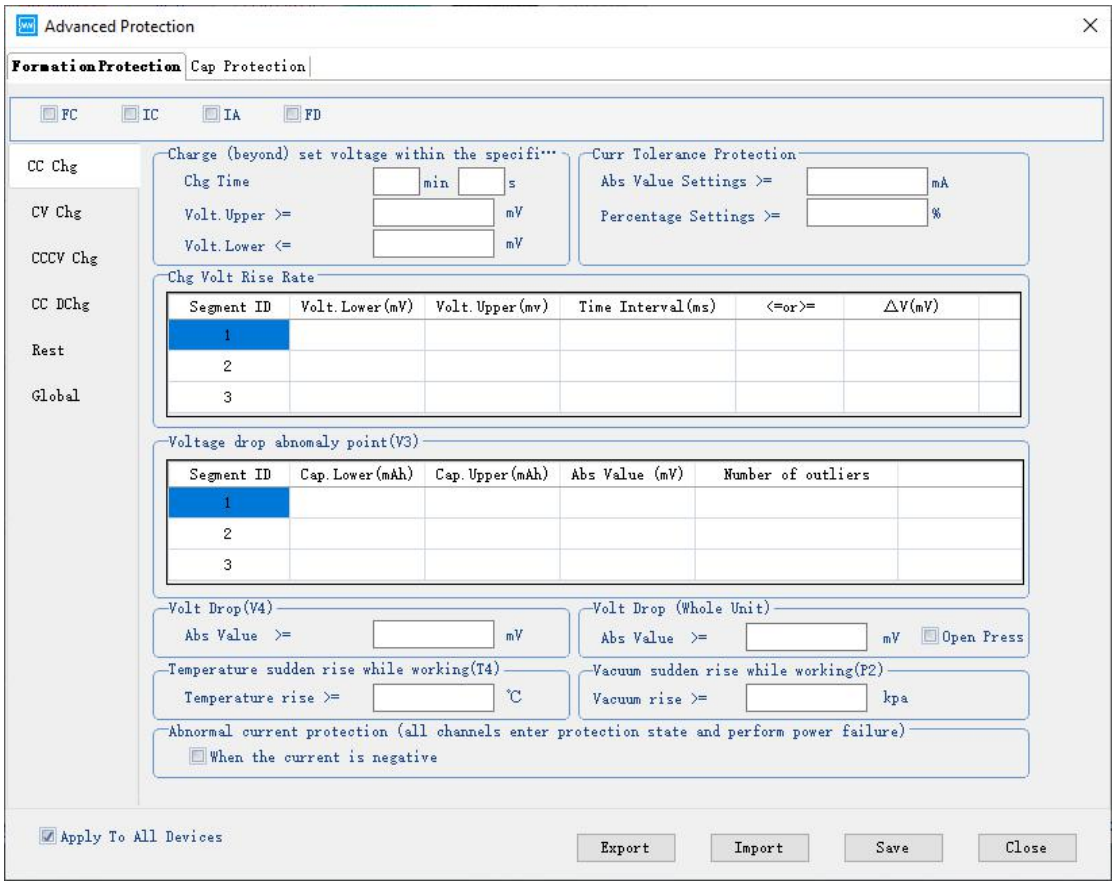


Figure 3.6.1 Advanced protection parameter setting

2. You can set single-point startup to load advanced protection parameters in the system settings. After setting, single-point startup will automatically merge the advanced protection parameters into the step file (As shown in the following picture)

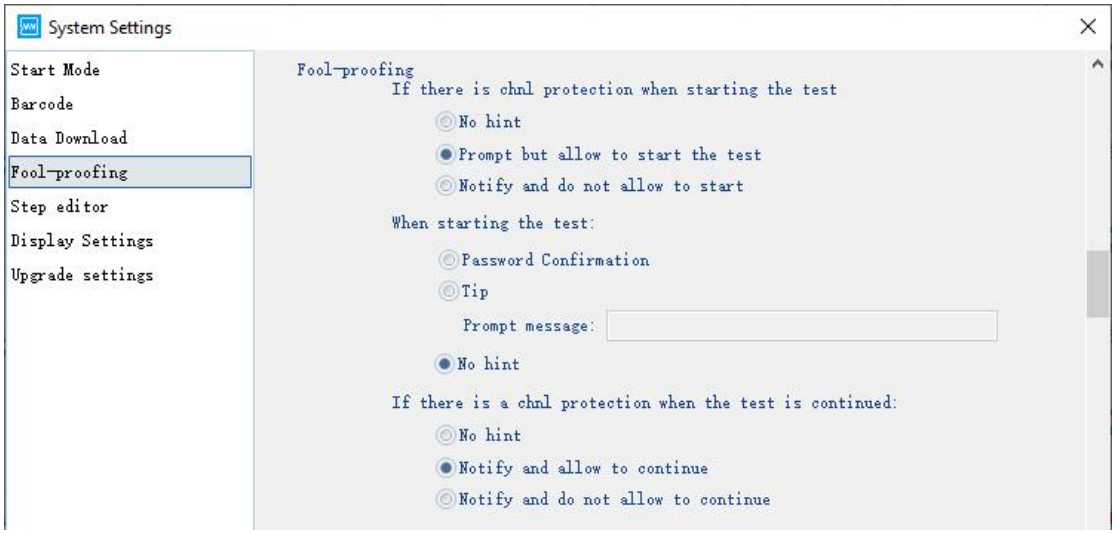


Figure 3.6.2 Single point loading advance protection parameter

Notes： For detailed meanings of advanced protection parameters, pleasr see “Advanced Protection Parameters”document.

3.6.1. Process type setting

As shown below, enter the process type you want to use in the left list, click ‘>’、‘>>’and move the type from left list to right. Click ‘<’、‘<<’move it from right list to left. The process type on the right list can choose whether it is a formation or a grading process type.

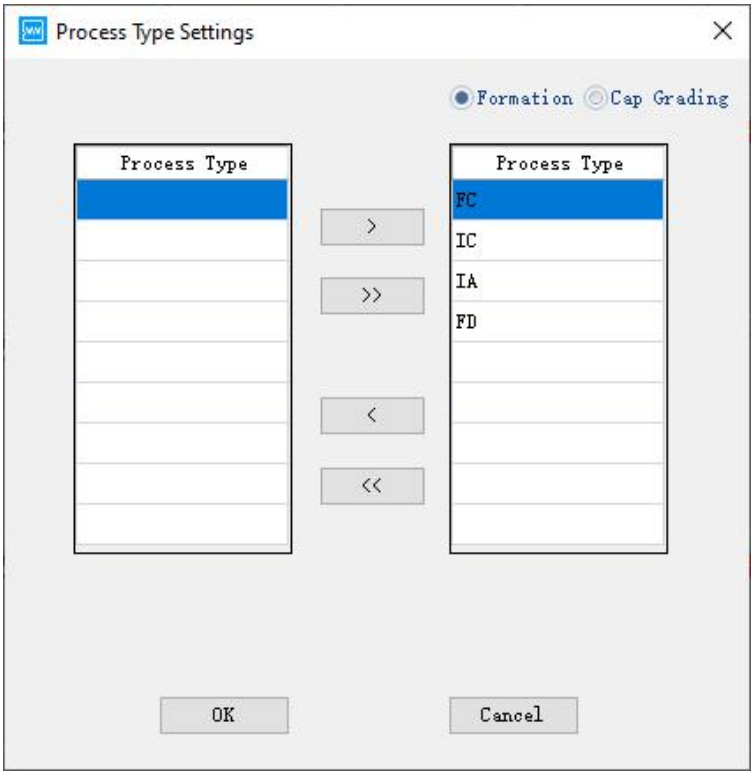


Figure 3.6.3 Process type setting

3.6.2. System setting

When the software is used for the first time, the system configuration interface will appear. At other times, you can also call up the system configuration by clicking the menu bar.

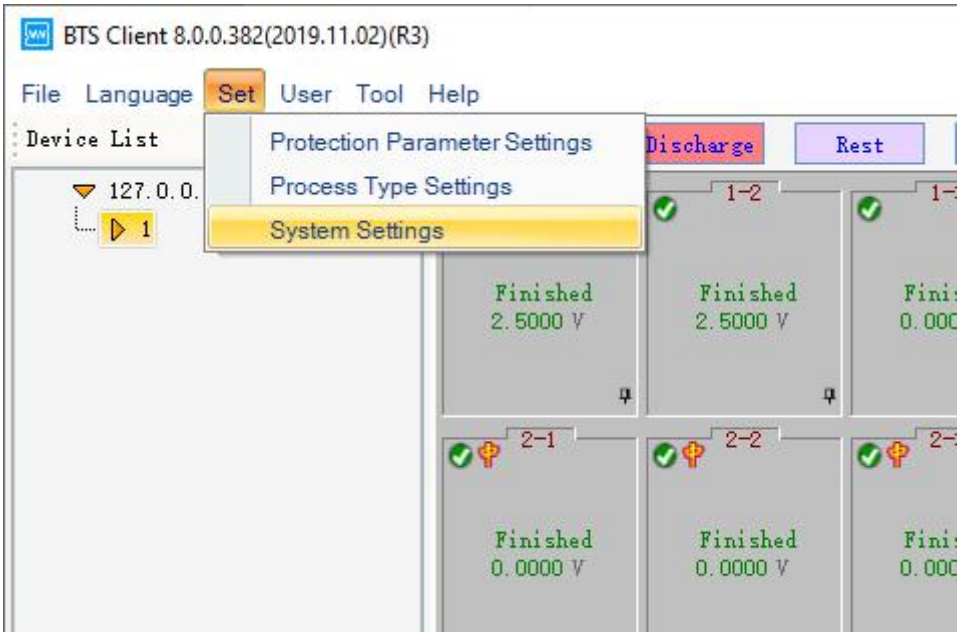
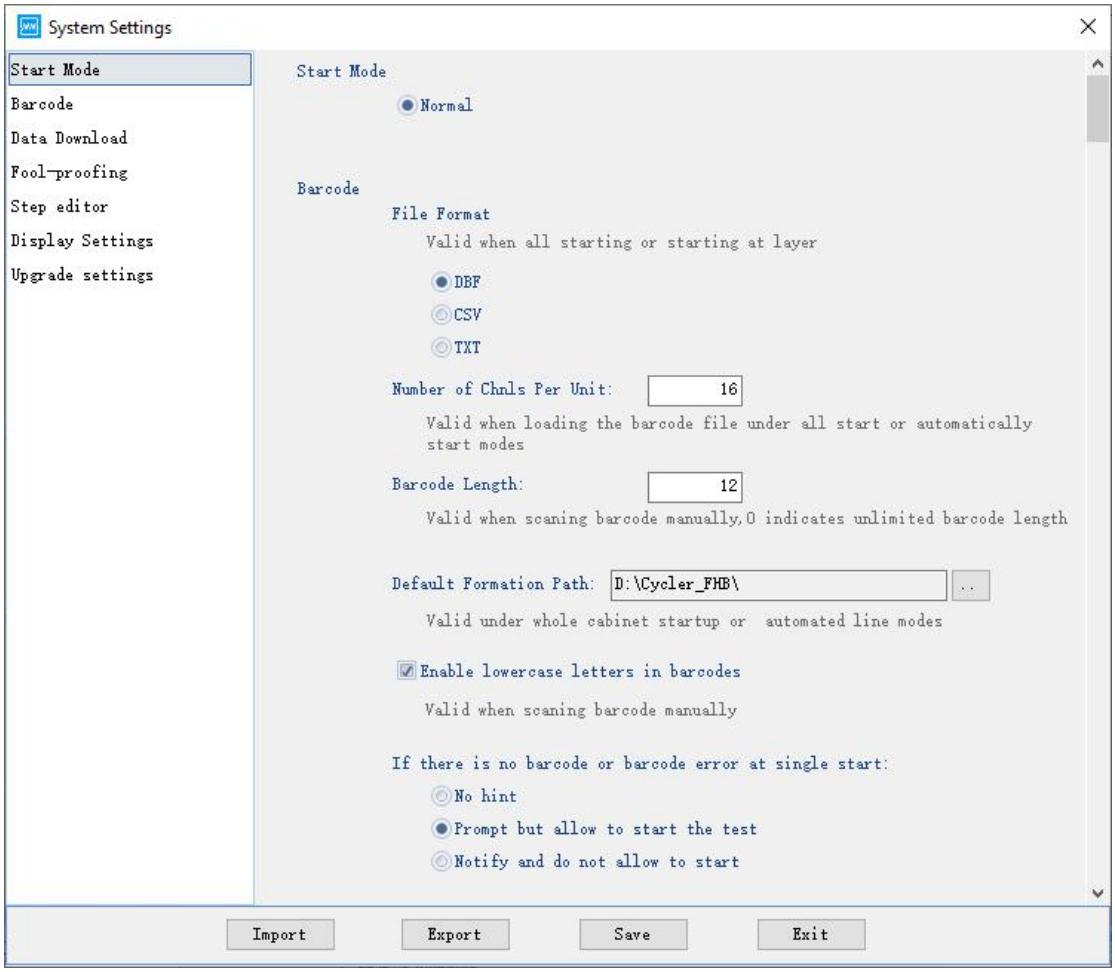


Figure 3.6.4 Choose setting system from menu bar

1. Startup mode

After registration, choose the type of startup mode and restart the client software.(Shown in the following figure)



2. Barcode

Barcode format, the number of channel, barcode length, default grading category path can be chose under the barcode interface. Meanwhile, you also can confirm whether lowercase are allowed, and whether a single point can start up when there is barcode errors or no barcode.After finishing,click “Save”.(Shown in the following figure)

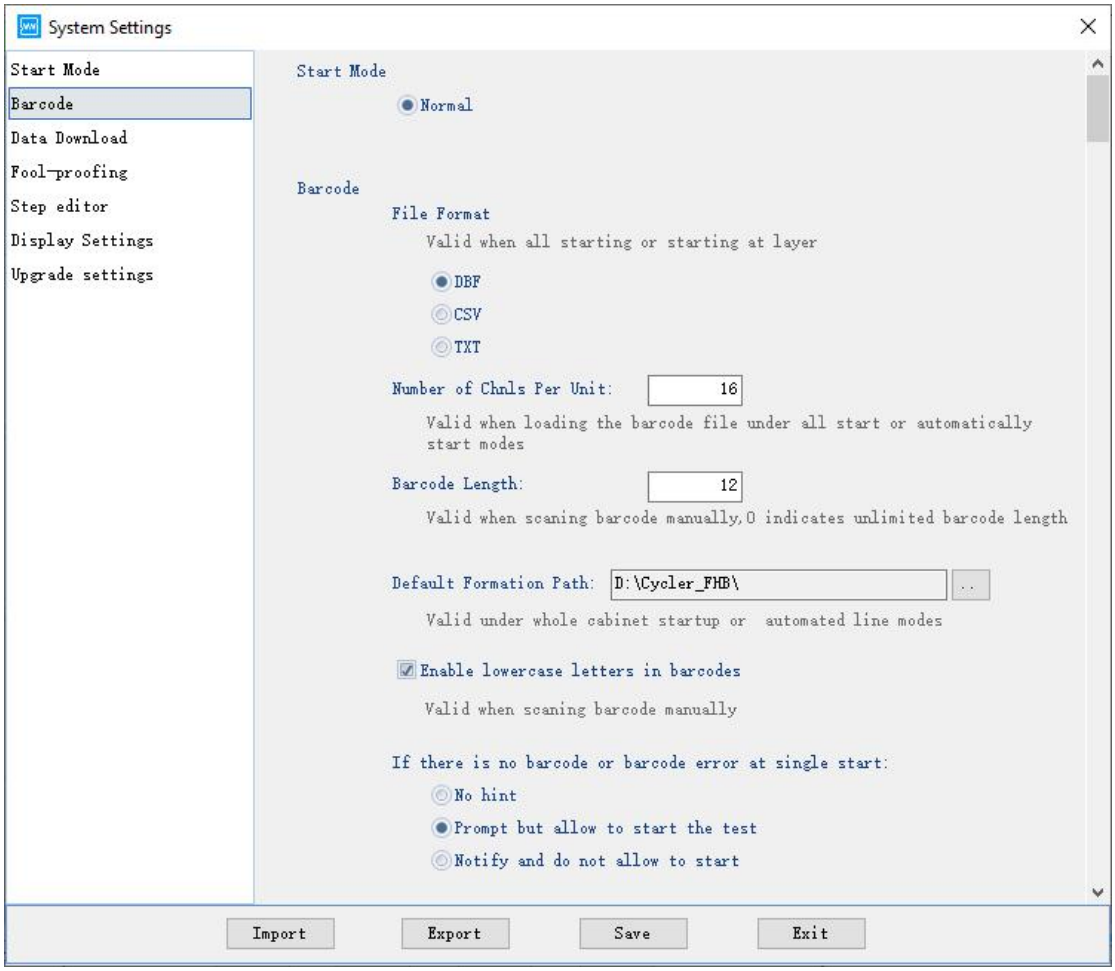


Figure 3.6.6 Barcode setting window

3. Data download

Support to set file format, export mode, export method, etc. After finishing, Click “Save”.(Shown in the following figure)

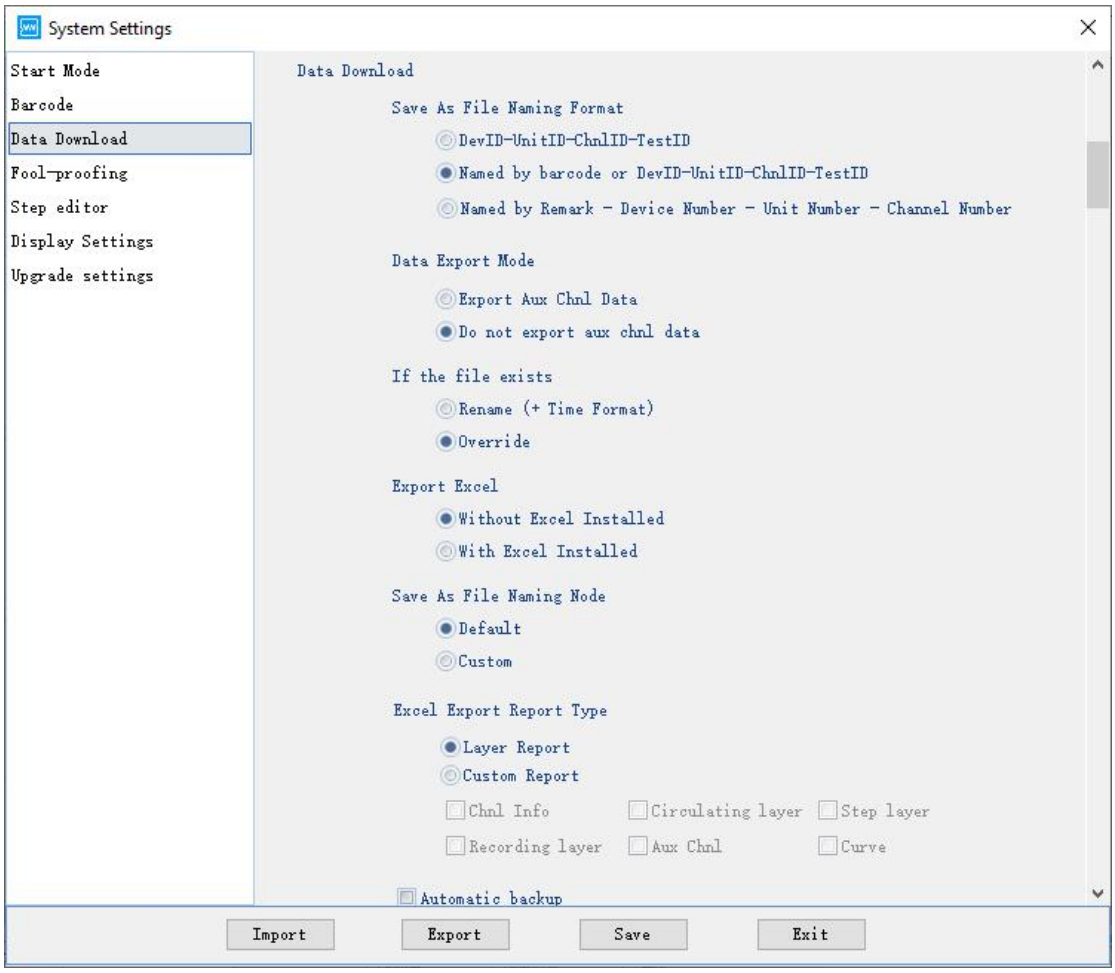


Figure 3.6.7 Data download window

4. Foolproof settings

The startup test channel has functions such as whether the protection prompts or starts, whether passwords is required for the startup test, whether advanced protection parameters are loaded at a single-point startup, whether password verification is required to exit the software,etc. After the foolproof settings are configured, click “Save”.(Shown in the following figure)

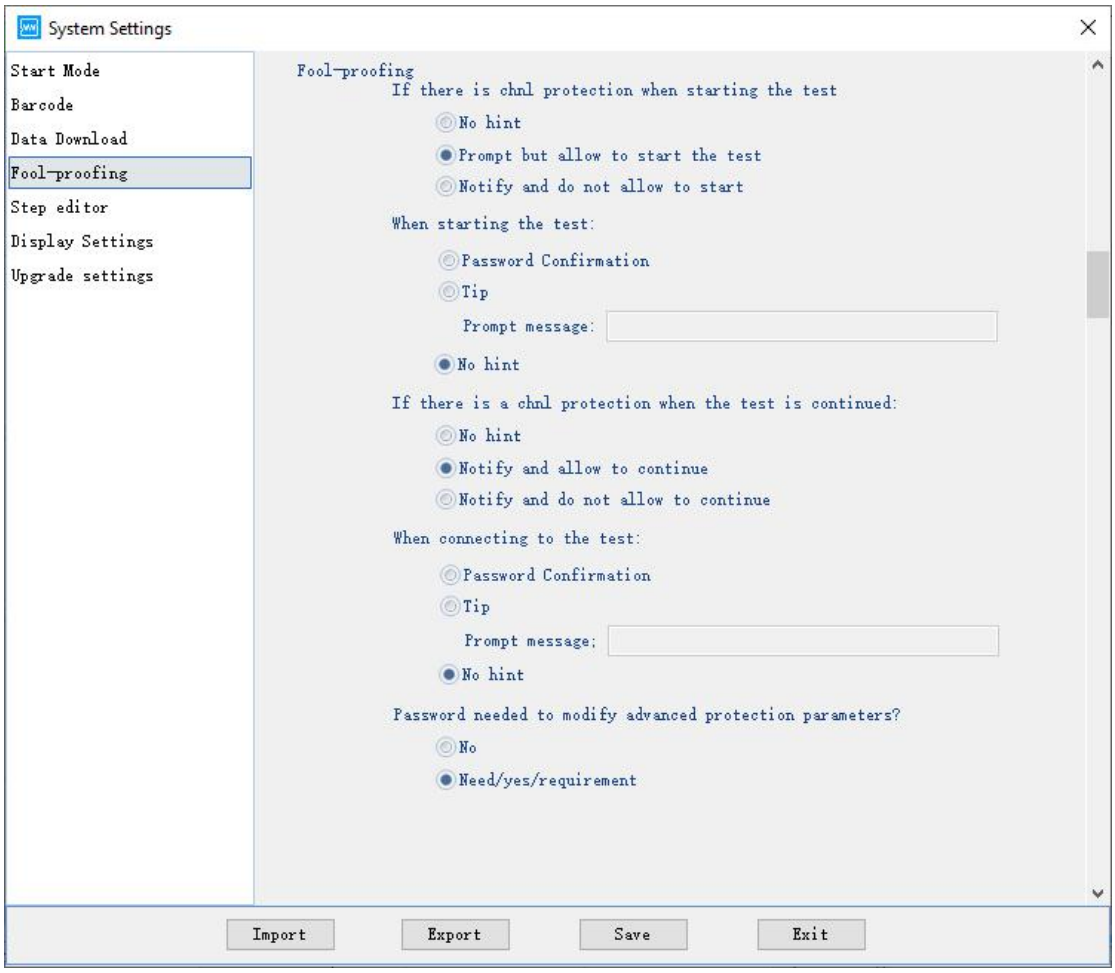


Figure 3.6.8 Foolproof setting window

5. Step edit

It includes following settings: Step parameters, Step type, Required conditions for step parameters, Creator, Batch number, Remarks, Default voltage and current upper and lower limit protection, Default and minimum step interval, Cutoff current, Weather a single step is allowed to edit advanced protection parameters, etc. After finishing, click “Save”.(Shown in the following picture).

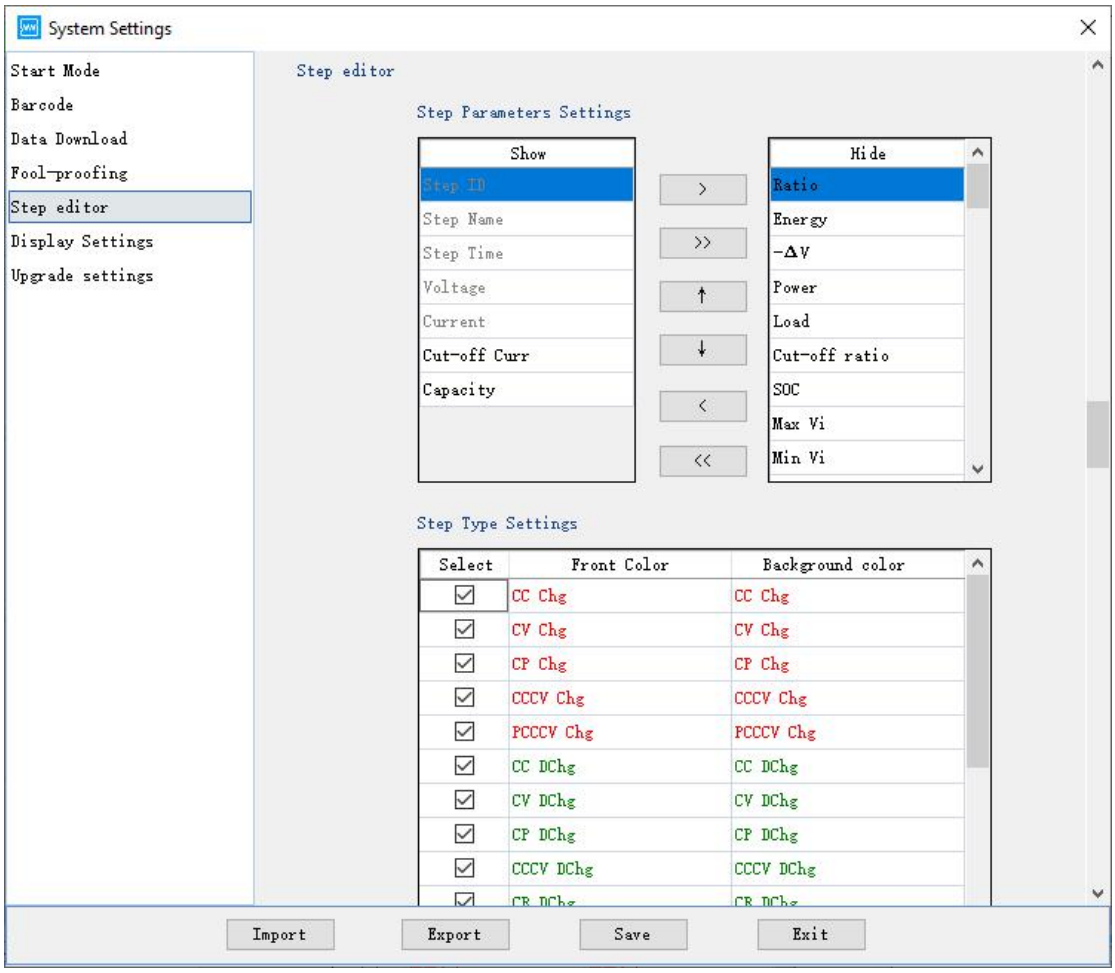


Figure 3.6.9 Step edit window 1

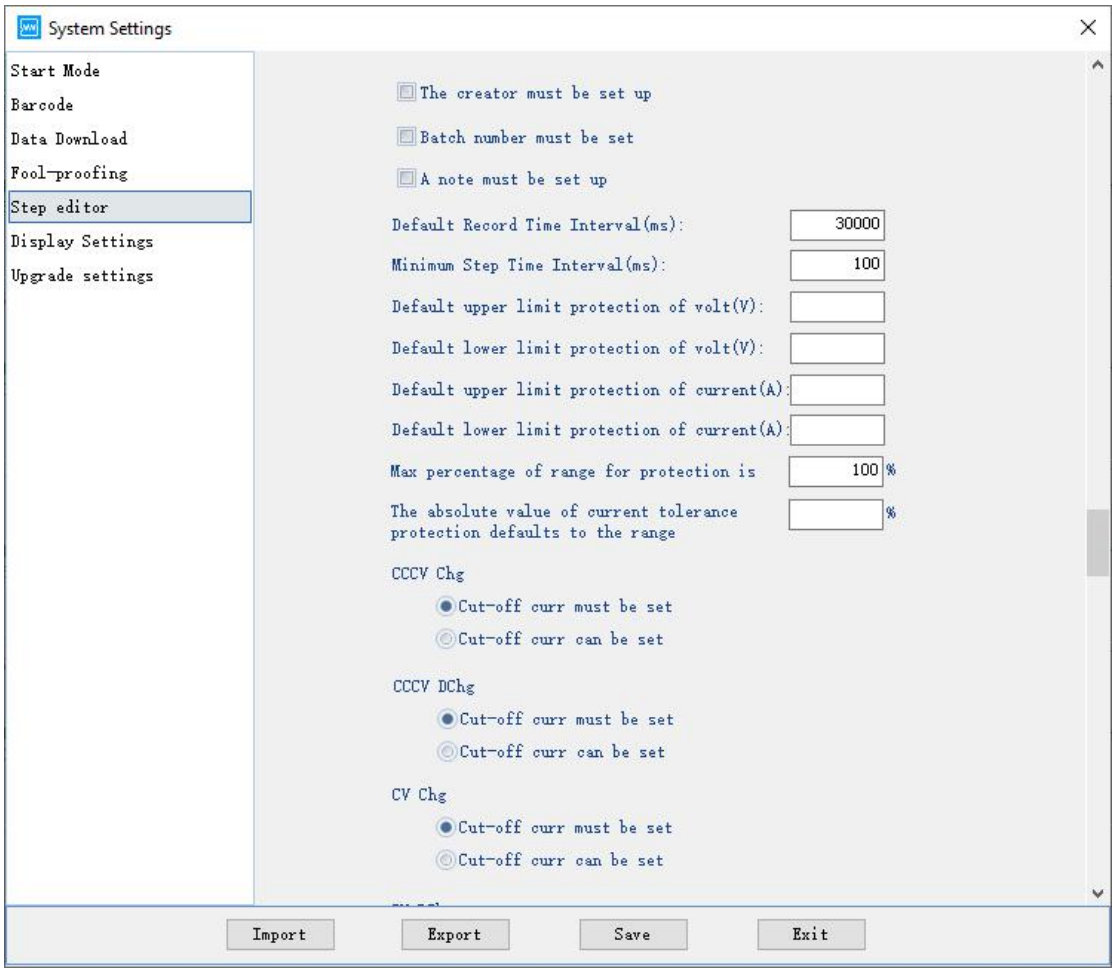


Figure 3.6.10 Step edit window 2

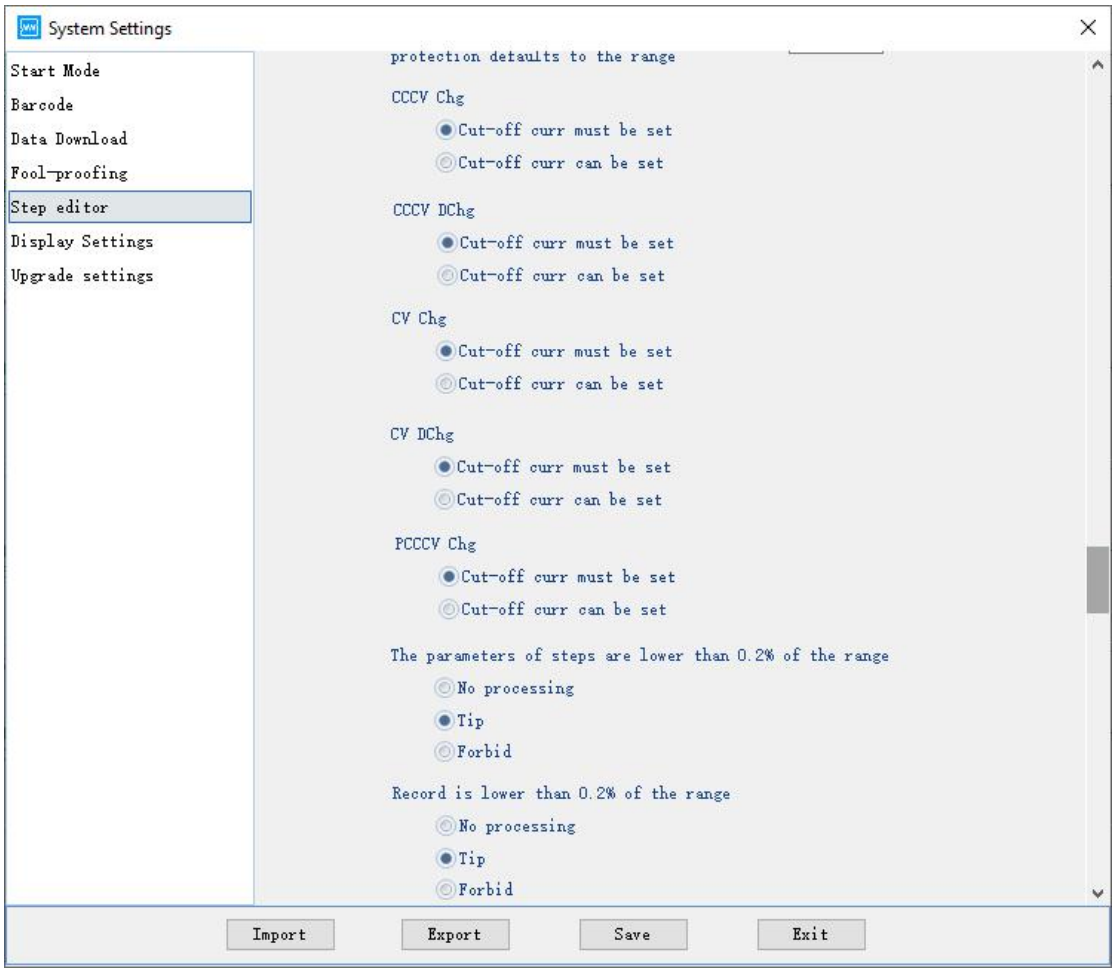


Figure 3.6.11 Step edit window 3

6. Display setting

It consists of 6 parts : Display setting(Weather display the type of device or not,etc.), View setting（Big image and small image,List,Sorting,etc.), Channel number display per line(Be used when click fixtures),Channel dividing line, Right-click menu function, Channel colour. After finishing, click “Save”. (Shown in the following picture)

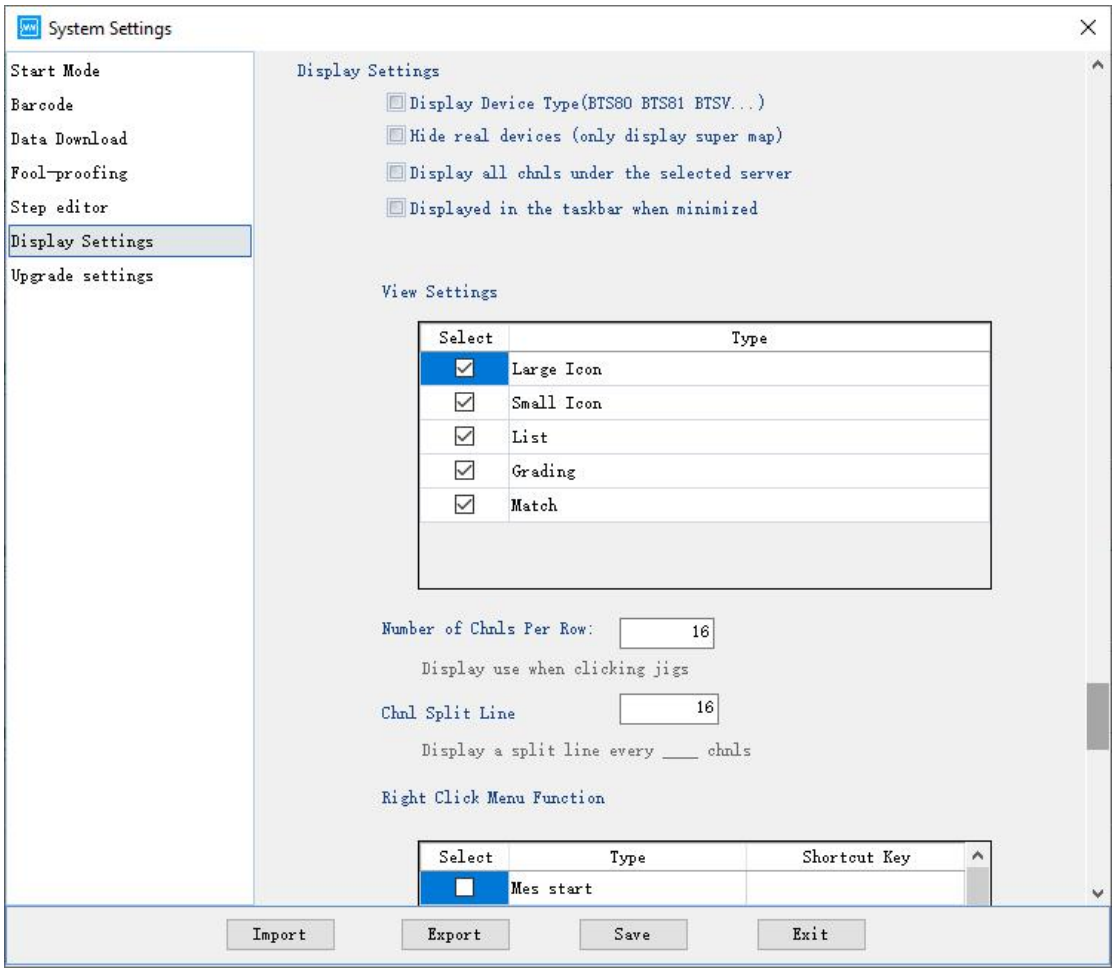


Figure 3.6.12 Display setting window

3. 7. User management

3. 7. 1. User login

Users can not operate until they log in the client software as a administrator.

Login instruction

1. Left click IP, click “User” and “User login”.(Shown in the following picture)

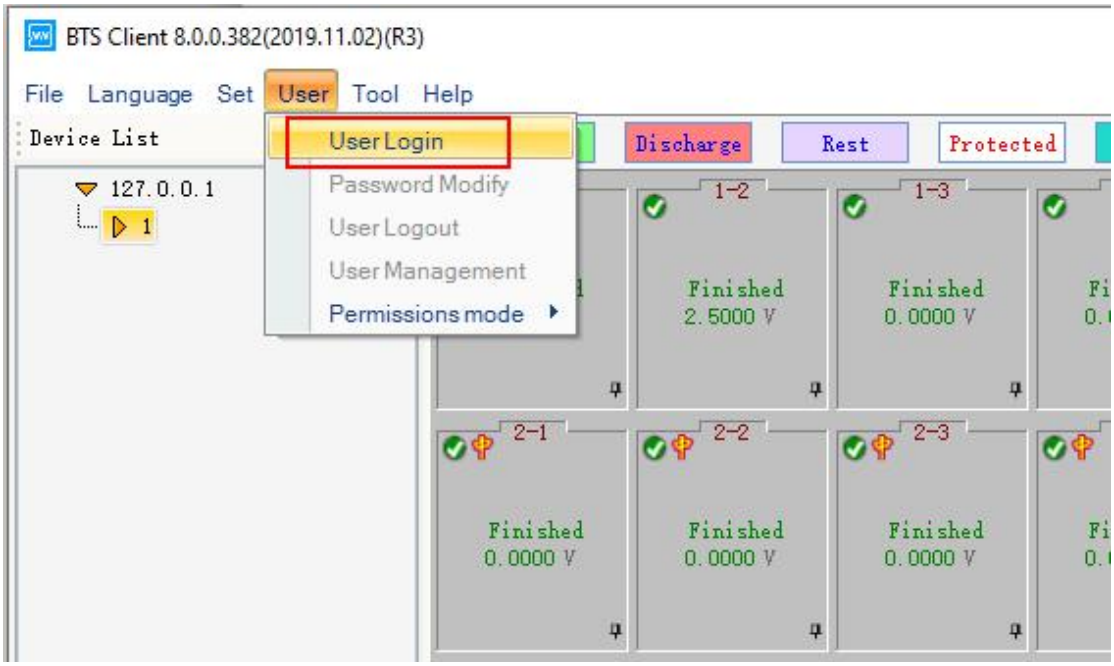


Figure 3.7.1 User login window

2. Enter “User” and “Passwords”in user login window.(Default user: admin, Default passwords: neware. You can change them through “Modify password”and click “OK” .)(Shown in the following figure)

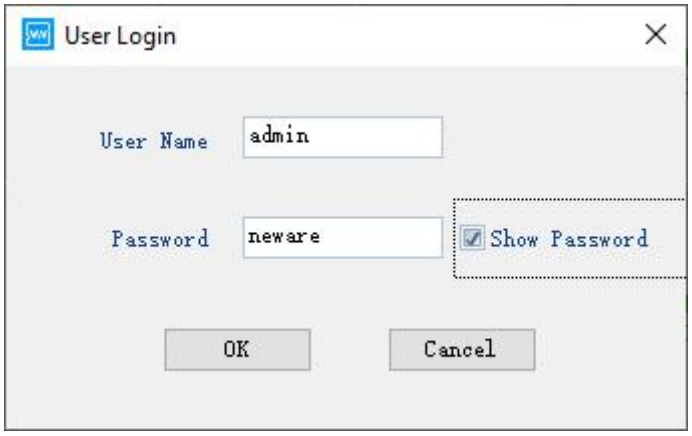
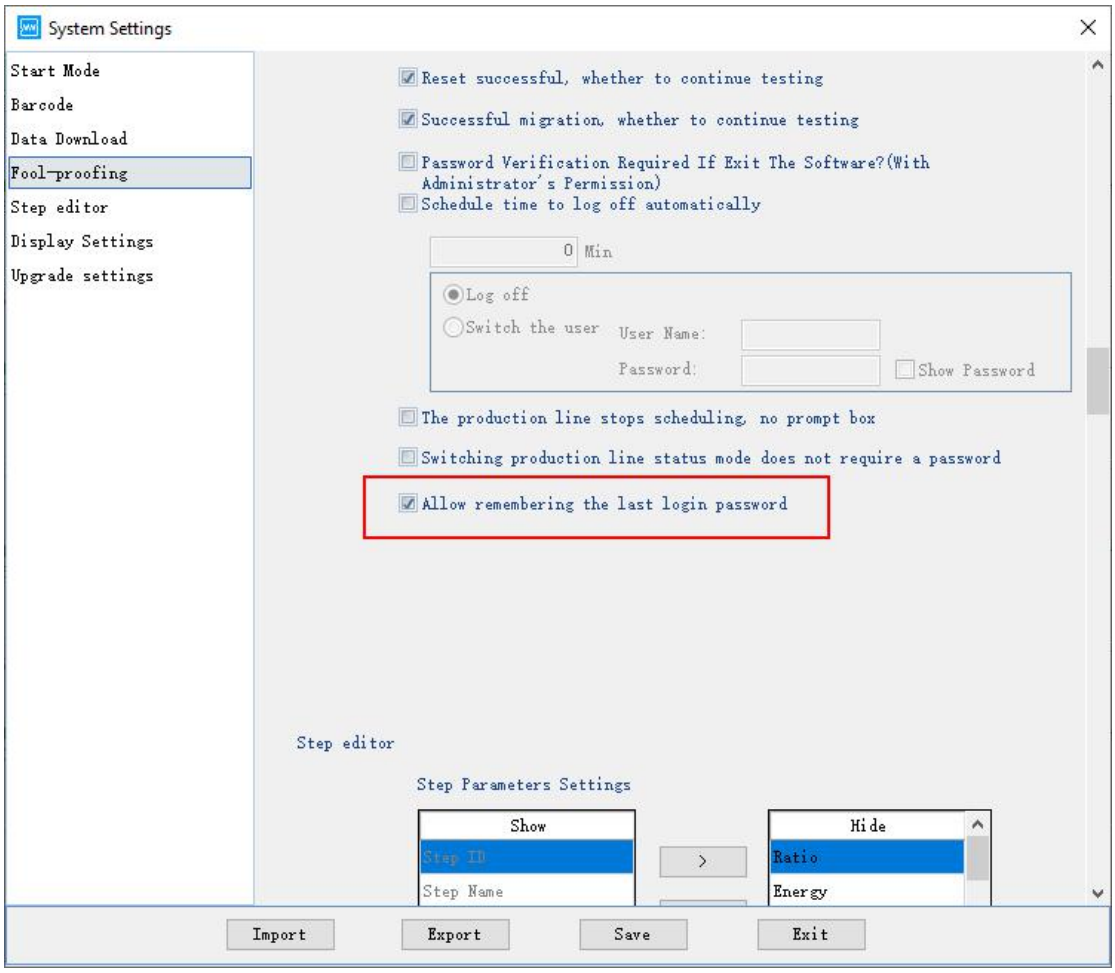


Figure 3.7.2 User login window

You can remember the last login password through “system settings” → foolproof settings.(Shown in the following figure)



3. 7. 2. Modify passwords

Users can modify the passwords of device.

Modify instruction:
Click “User”→ “ Modify passwords”, after entering your original passwords, it will require you to enter your new passwords. (Shown in the following figure)

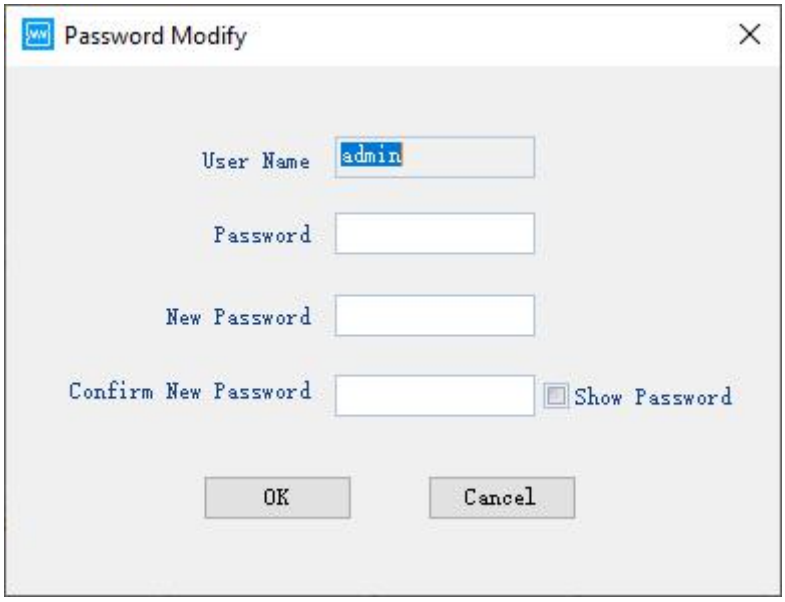


Figure3.7.3 Change password window

3.7.3. User logout

Users can log out the present user account of device.
Logout instruction:
Click “User”--> “User logout”. When the prompt dialog appears, click “OK”. The user account logs out successfully. If you want to operate, you should login again.

3.7.4. User management

If the currently logged-in user is an administrator, you can add, delete, and configure permissions for ordinary users.
Manage instruction:
Click “ User”--> “User management”(Shown in the following figure)

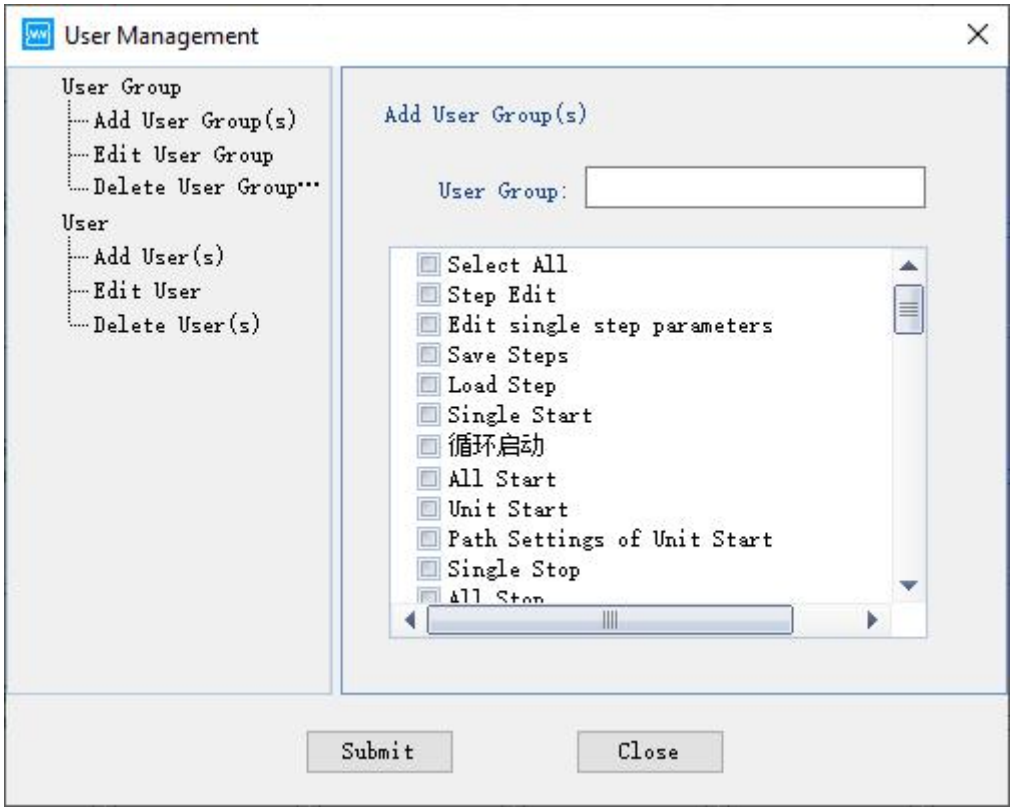


Figure3.7.4 User management

1. Add new user group: configure the permissions for new user group.(Shown in the following figure)

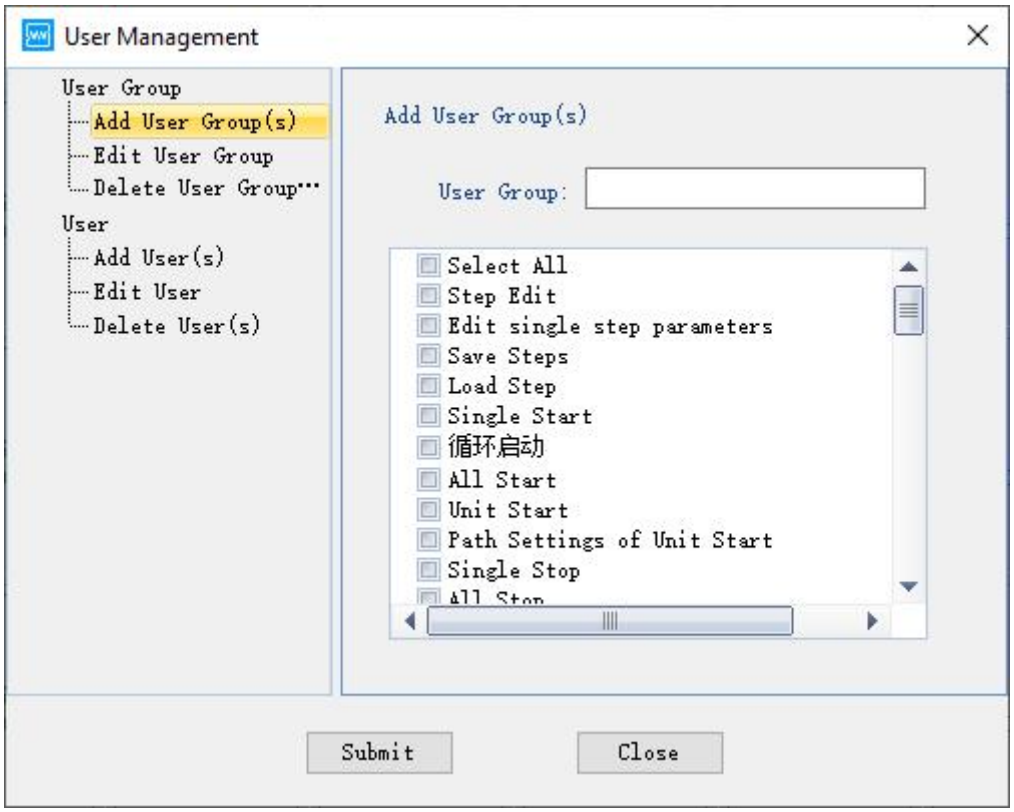


Figure 3.7.5 Permissions configuration

2. Modify user group: Select the user group you want to modify, choose or cancel the permissions you do not need, then click “Submit”. (Shown in the following figure)

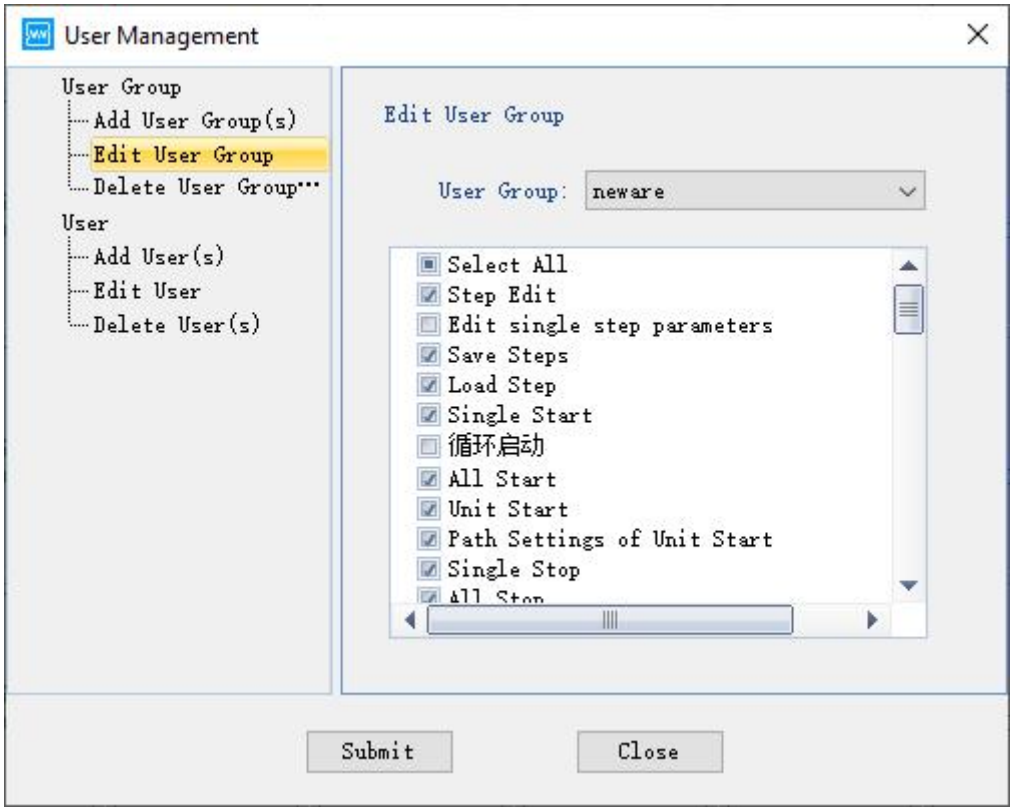


Figure 3.7.6 Permissions modify

3. Delete user group: Select the user group you want to delete and click “ Submit”.(Shown in the following figure)

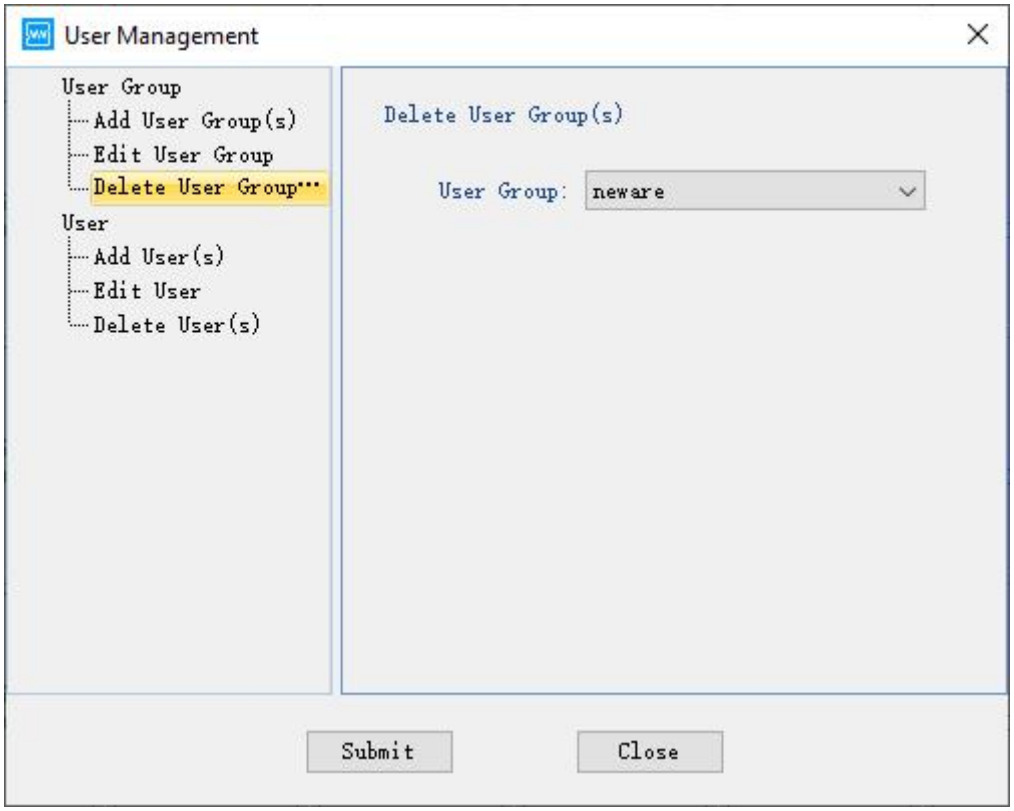


Figure 3.7.7 Delete users window

4. Add users: Select the user group for new user, enter the user name, password and click "Submit".(Shown in the following figure)

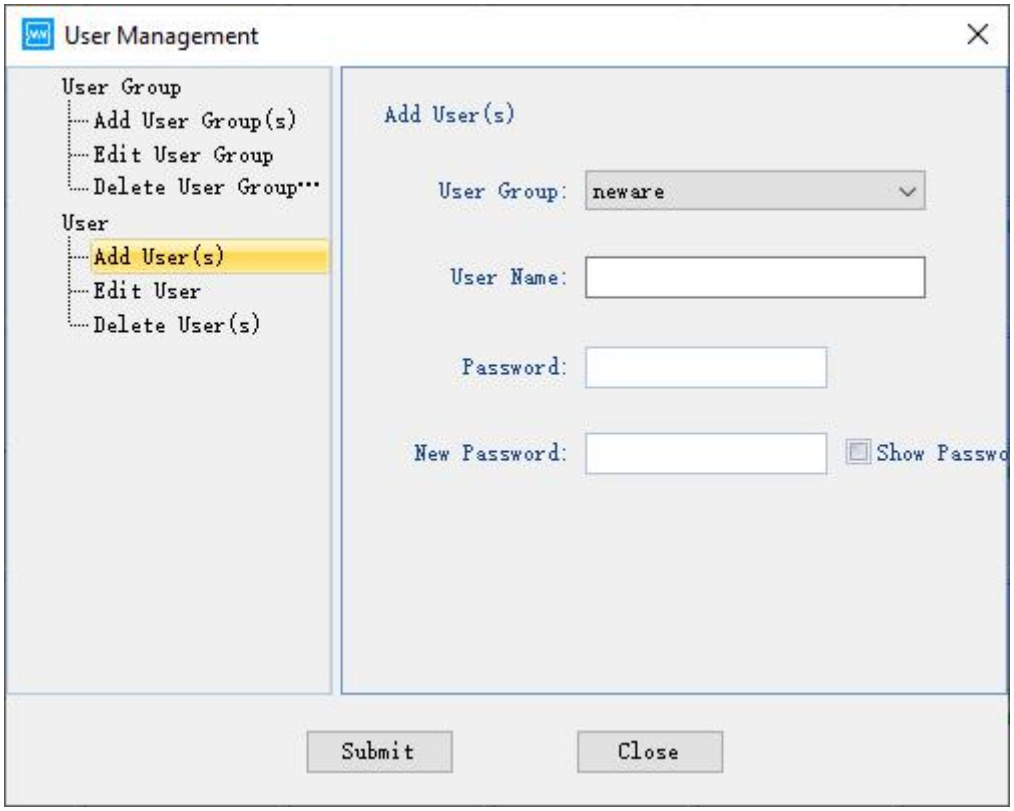


Figure3.7.8 Add users window

5. Modify users: Choose user group name and user name, enter new passwords, click “Submit”.（Shown in the following figure)

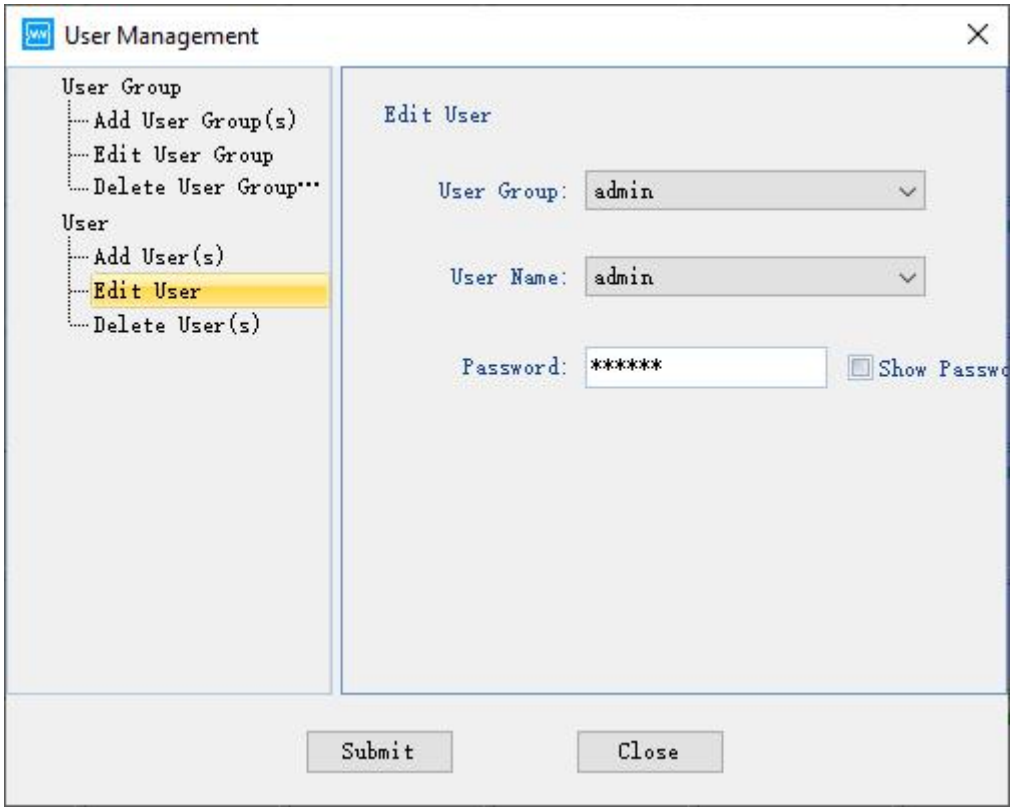


Figure 3.7.9 Modify user

6. Delete users: Choose user group name and user name, click “Submit”.(Shown in the following figure)

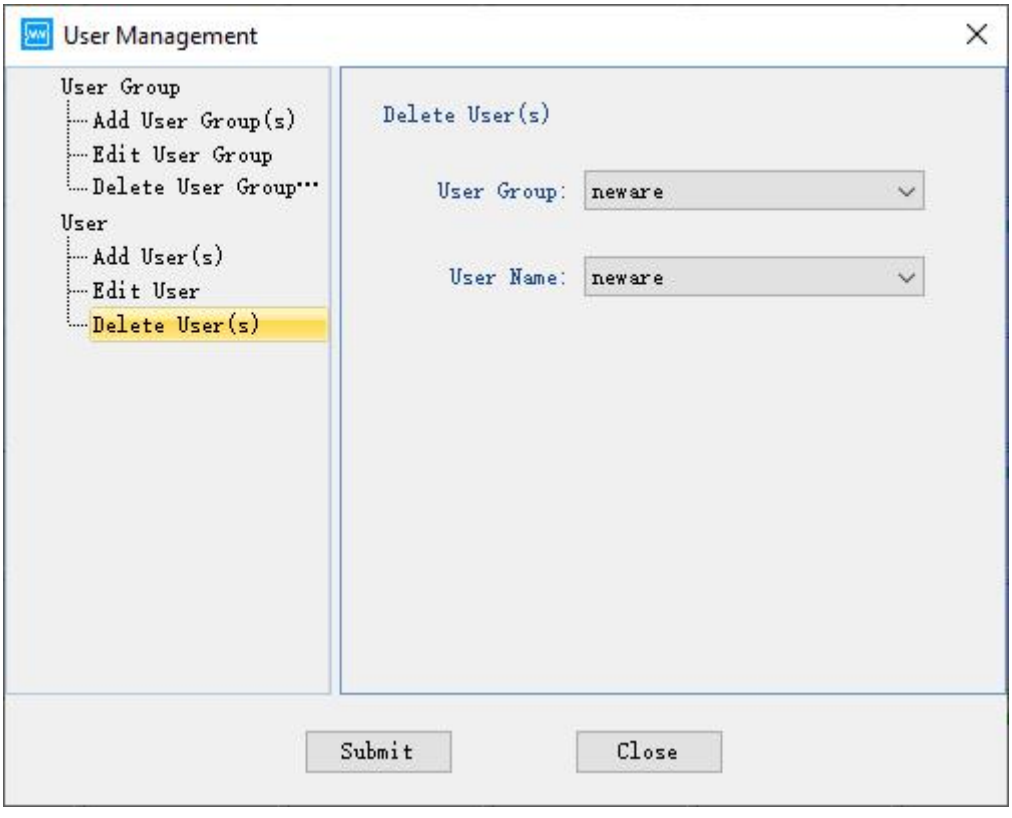
1. 

Figure 3.7.10 Delete users window

3.8. Language switching

Client software supports Simplified Chinese,Traditional Chinese, English, Korean switching.

Switching instruction:

Click “Menu” --> “Language”choose the language you want.(Shown in the following figure)

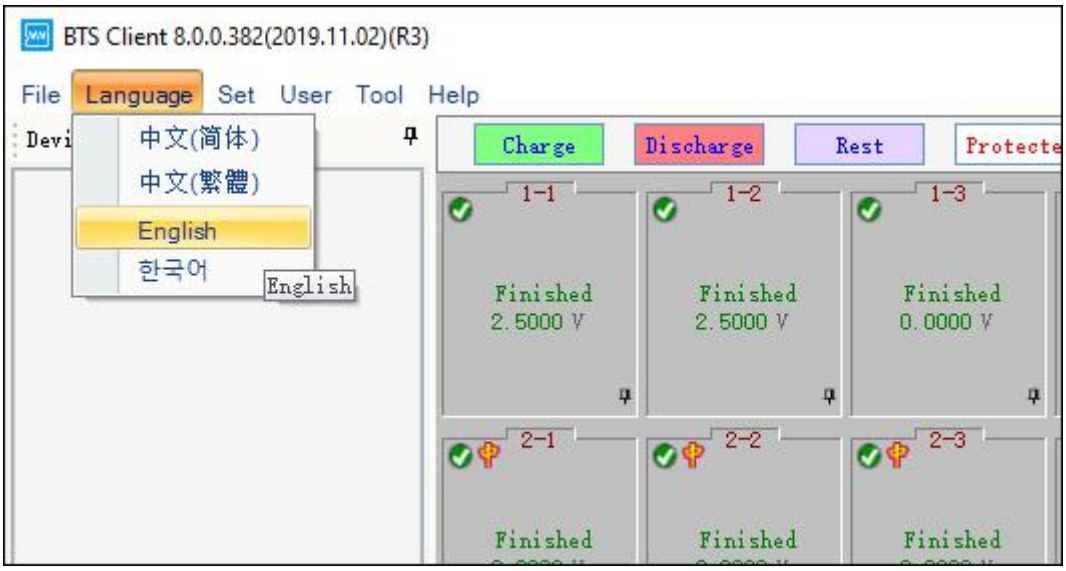


Figure 3.8.1 Multilingual switching 多语言切换

3.9. Tools

You can find other software of BTS series through “Tools”.Such as BTSDA, Offline step editor,Download log software.(Shown in the following figure)

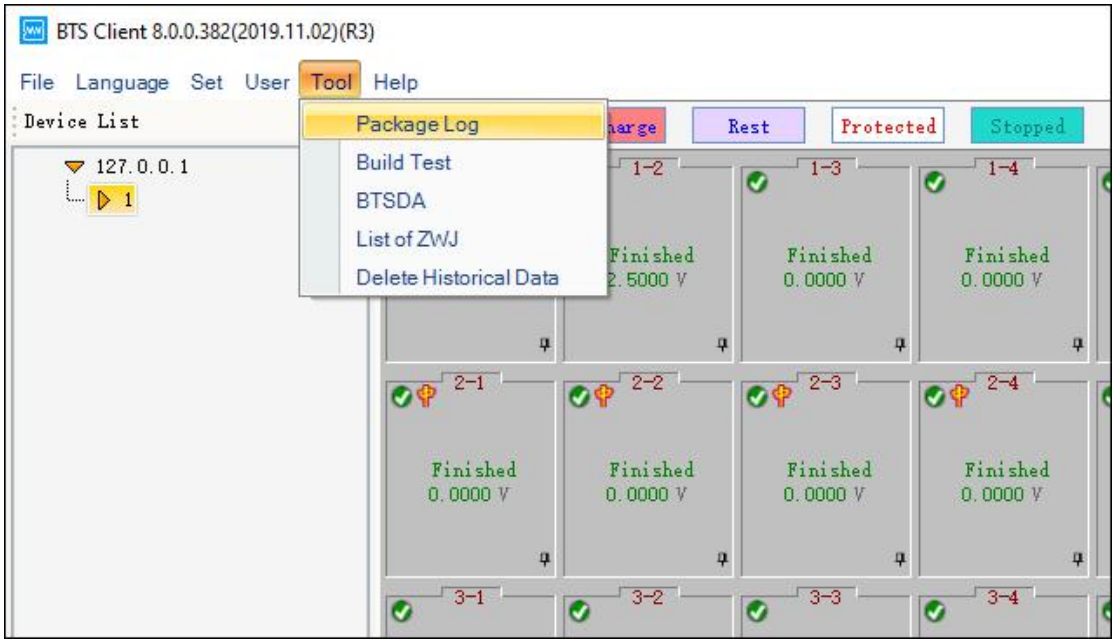


Figure 3.9.1 Tools

3.9.1. Download log

Choose “Download log” in “Tools”,you can choose server IP, time range of log, save path of log. The content of log includes client software log and server log.(Shown in the following figure)

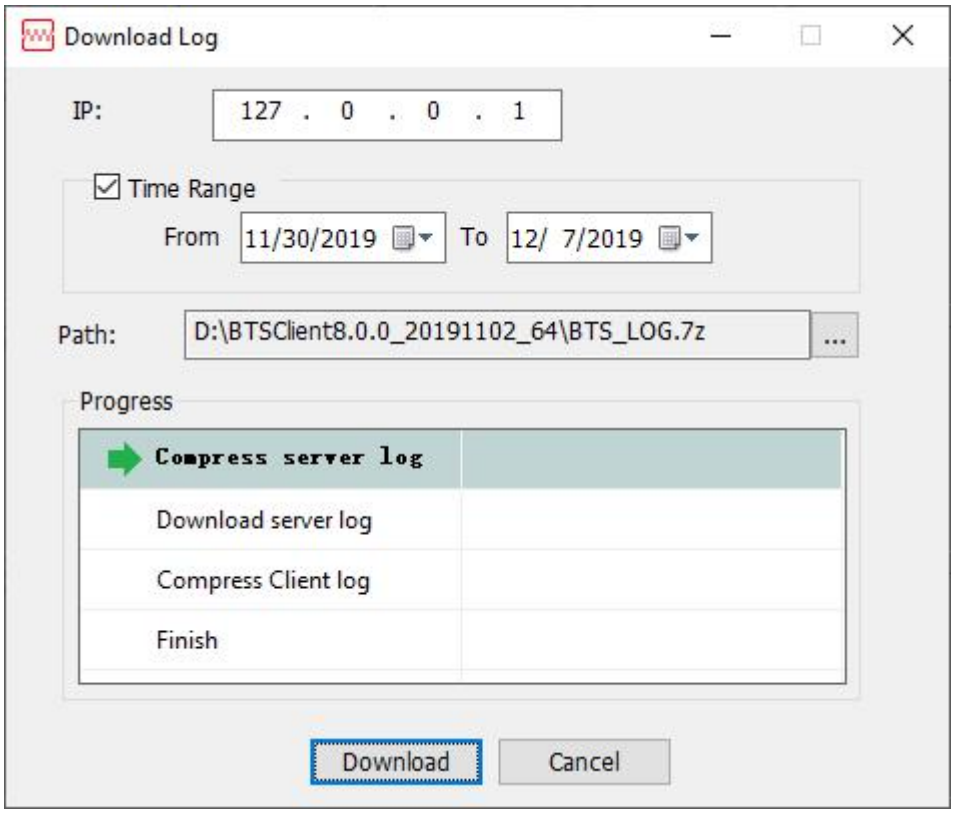


Figure 3.9.1 Download log window

3.9.2. Step editor

Choose “Step editor”in “Tools”or double click “BuildTest.exe” to start up offline step editing function.(Shown in the following figure)

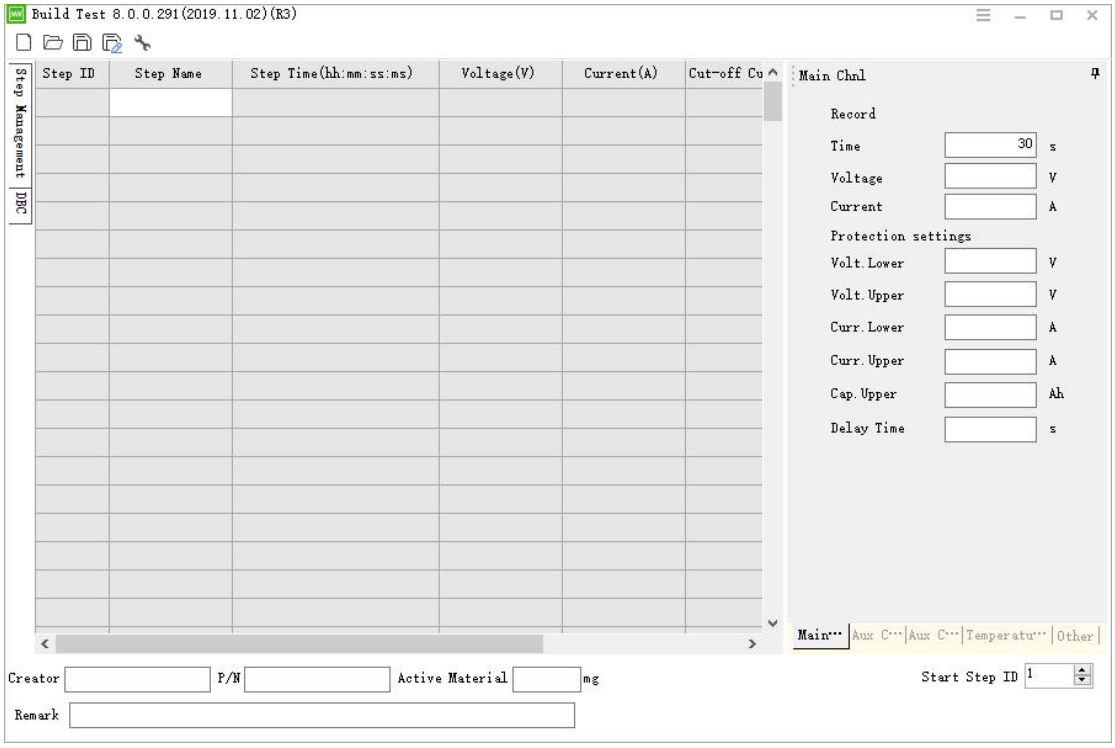


Figure 3.9.1 Offline step editor window

Notes： For detailed instructions on how to use the step editor, please see the BuildTest user manual

3.9.3. BTSDA

1. Right click at channel data, you can open BTSDA window.(Shown in the following figure)

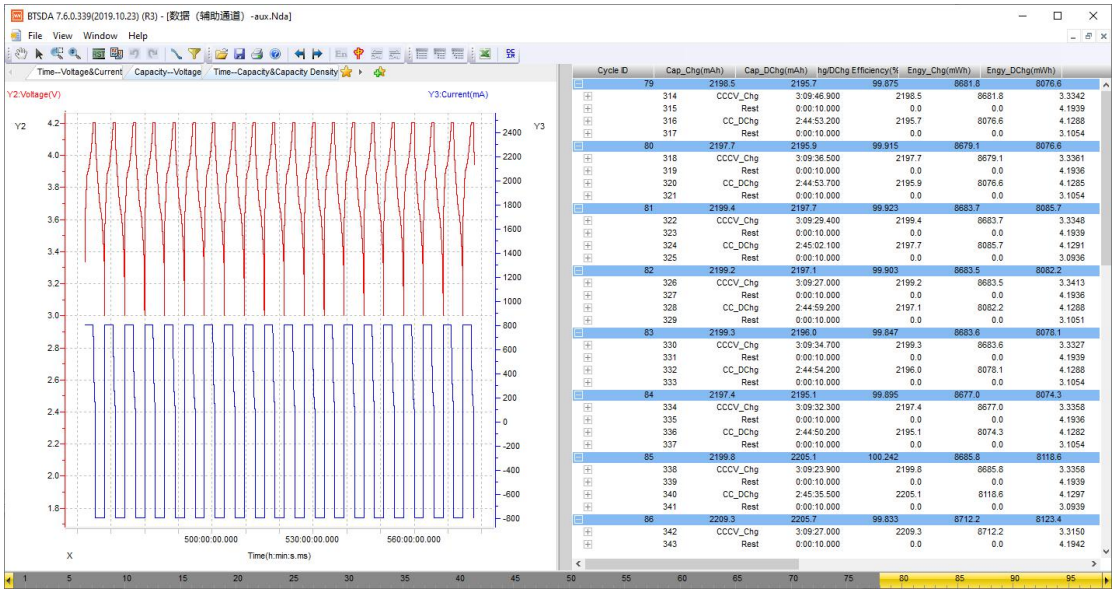


Figure 3.9.1 BTSDA window

2. The method to export data report is shown in the following figure.

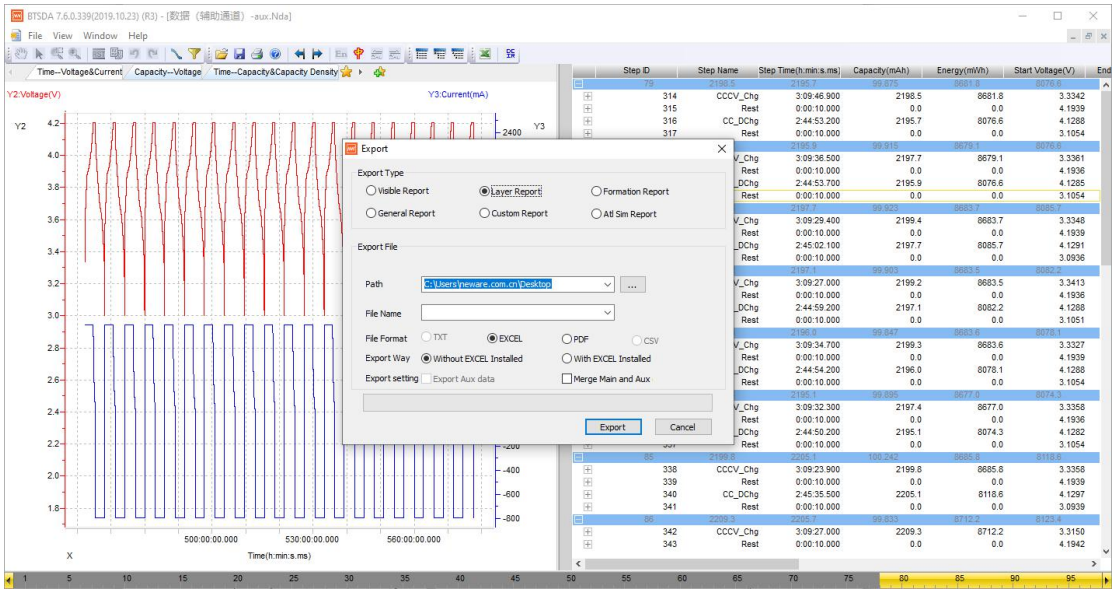
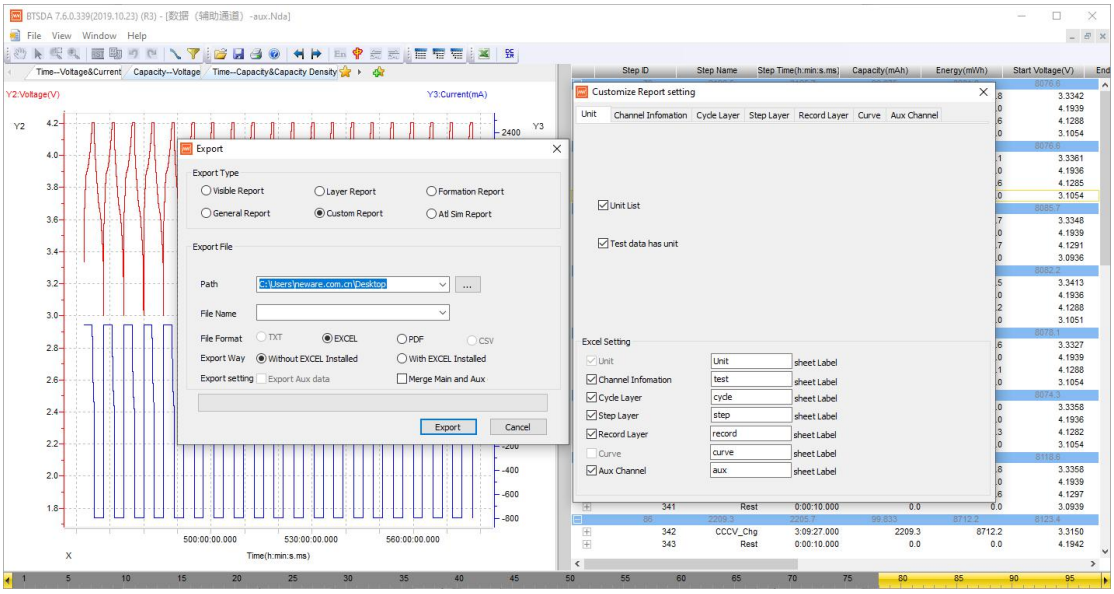


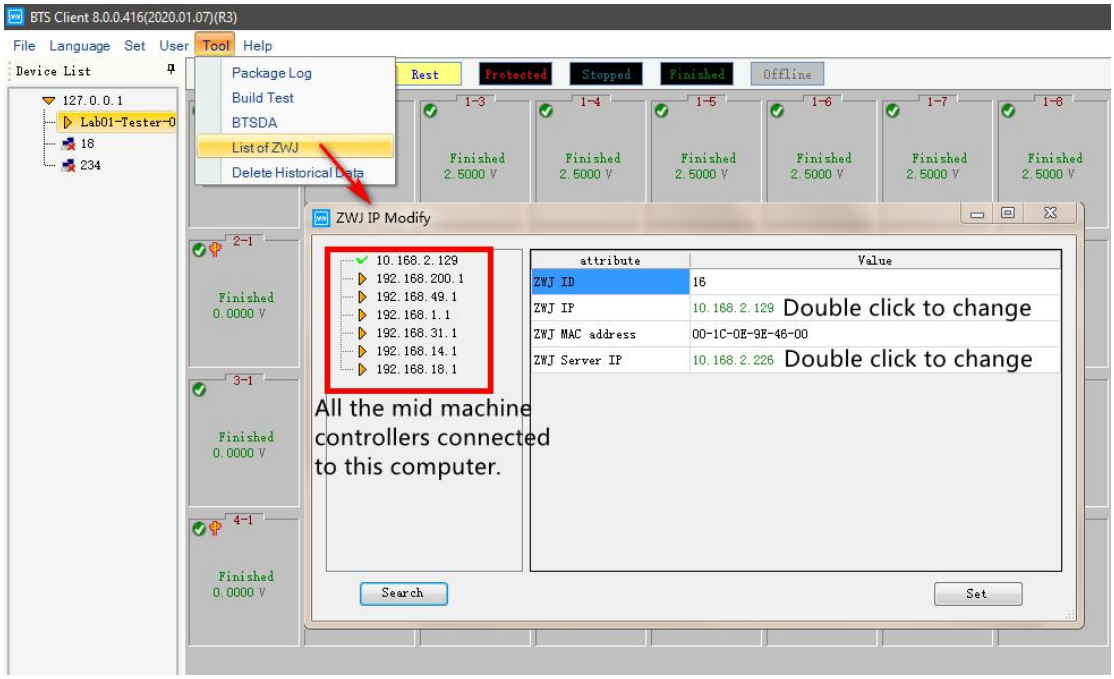
Figure 3.9.1 Export data report window

3. Data report customized parameters setting(Shown in the figure)



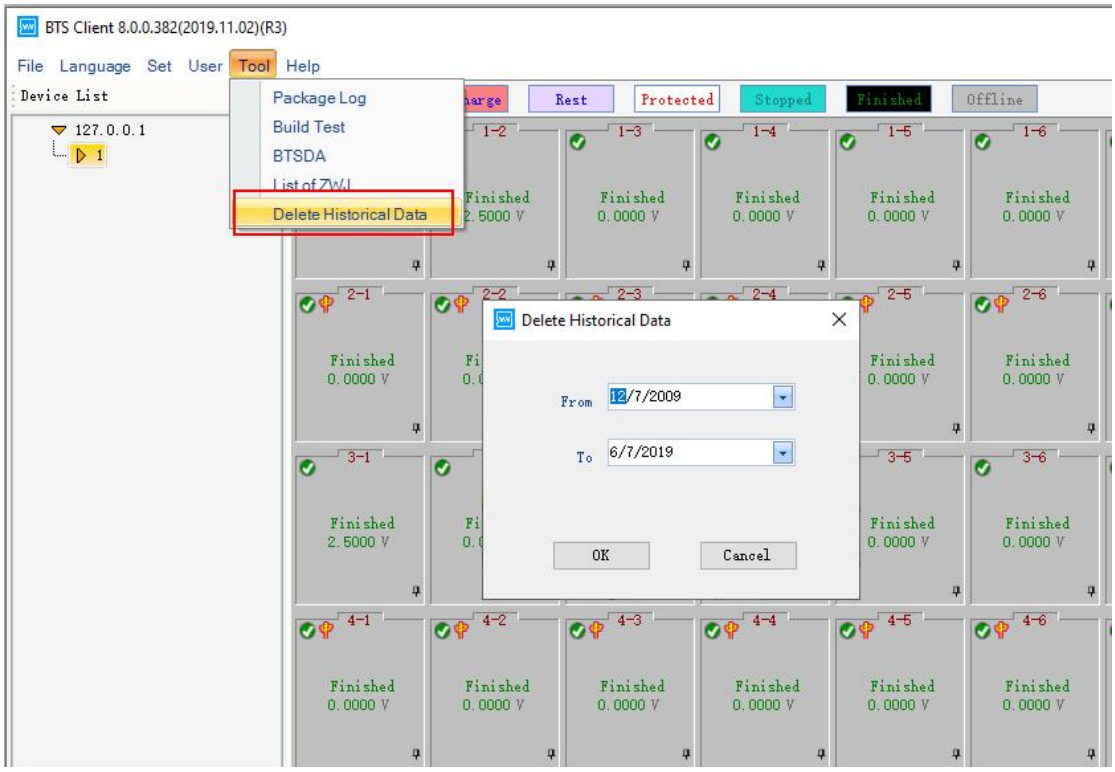
3. 9. 4. Middle machine list

Open middle machine list to automatically search for the online middle machine, you also can modify middle machine IP and server address.(Shown in the figure)



3. 9. 5. Delete historical data

Delete data by setting time range.(Shown in the figure)



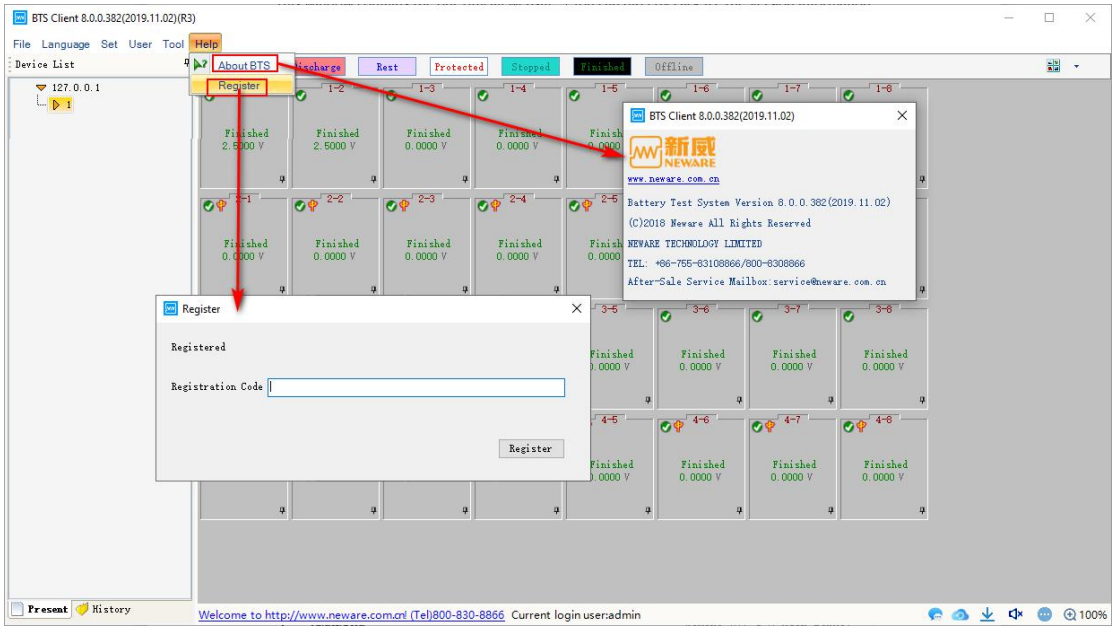
3. 10. Help

1. About BTS

This window contains the our official website（You can directly click it), the version information, contact number and complaint email.

2. Registration

Registration function: For different automation projects,it will not displayed and used normally until corresponding mode is registered.(Shown in the following figure)



3. 11. Device list

3. 11. 1. Add server

Default local service:127.0.0.1. If you want to access other services,select any service IP and right click “Add server”, you also can add and modify notes on it.(Shown in the following figure)

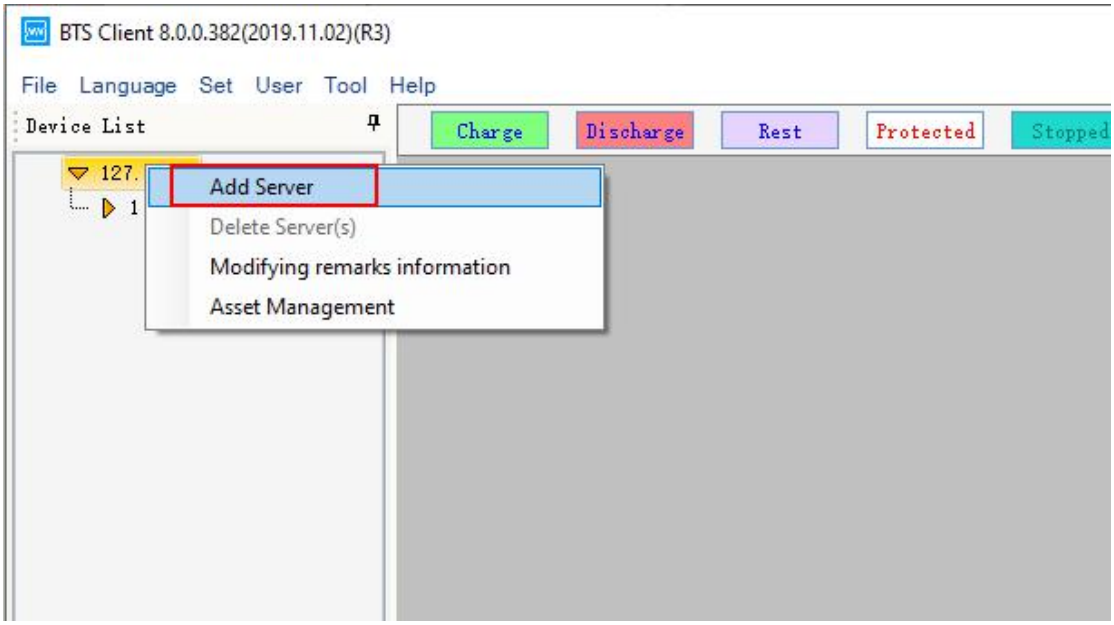


Figure 3.10.1 Add server

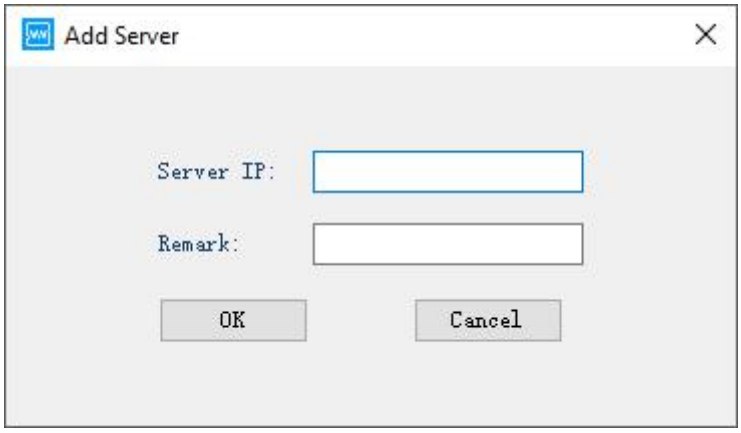


Figure 3.10.2 Add server

Notes: Adding server is not allowed in the mode of automatic production line

Move the mouse cursor at server IP, you can see the information of server version.(Shown in the following figure)

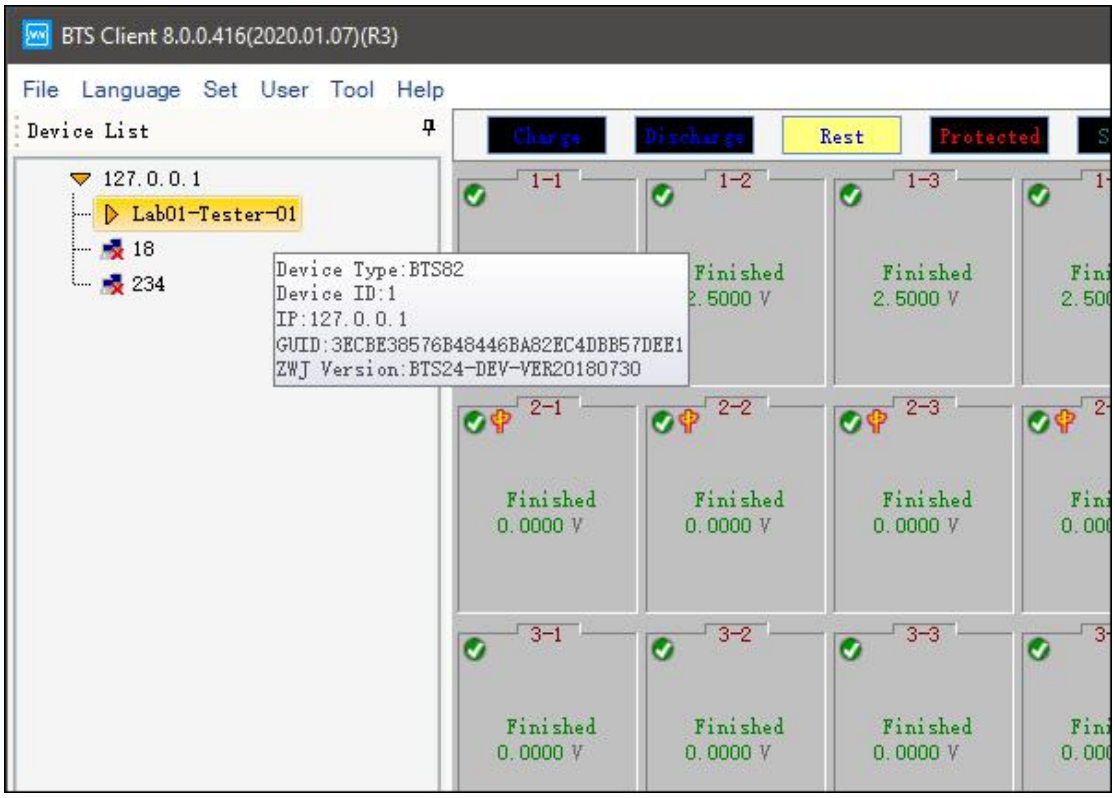


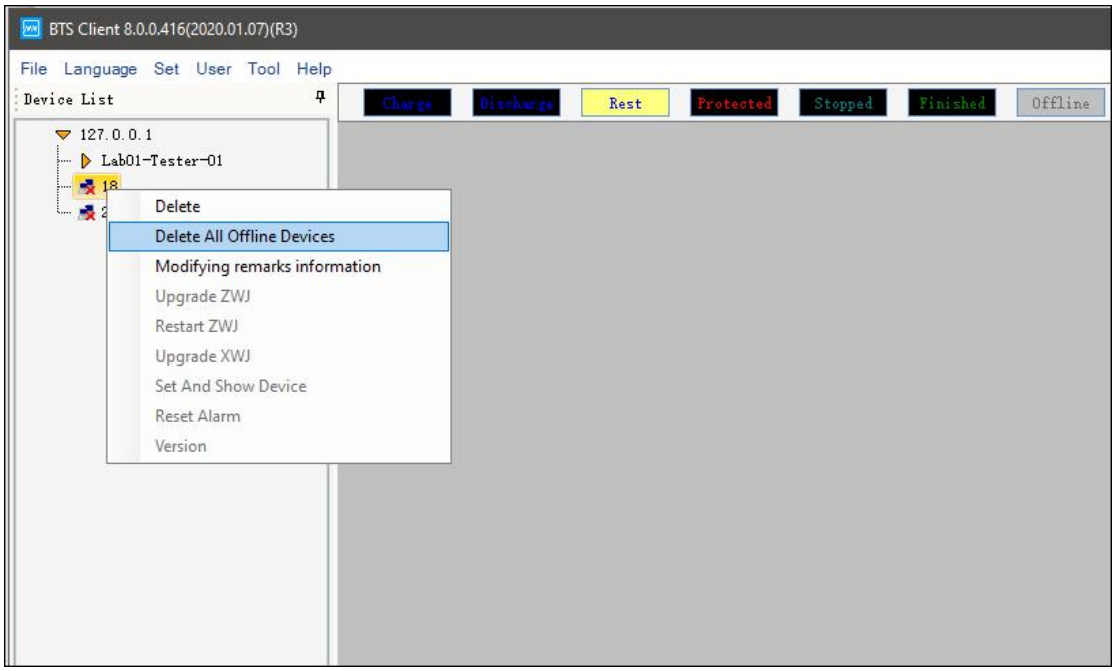
Figure 3.10.3 Information of server version

3.11.2. Delete offline device

image will be displayed after the device offline.If you do not wants to display them, you can delete the offline devices.

Delete instruction:

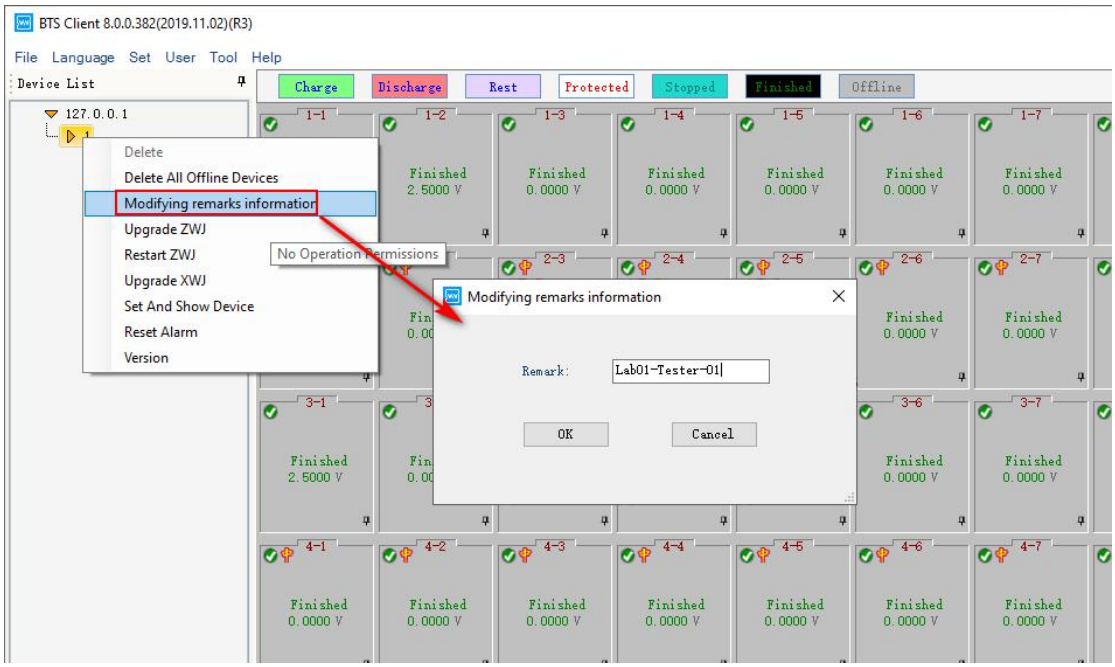
1. Choose offline devices in the device list.
2. Right click and choose “Delete”or “Delete all offline devices”.

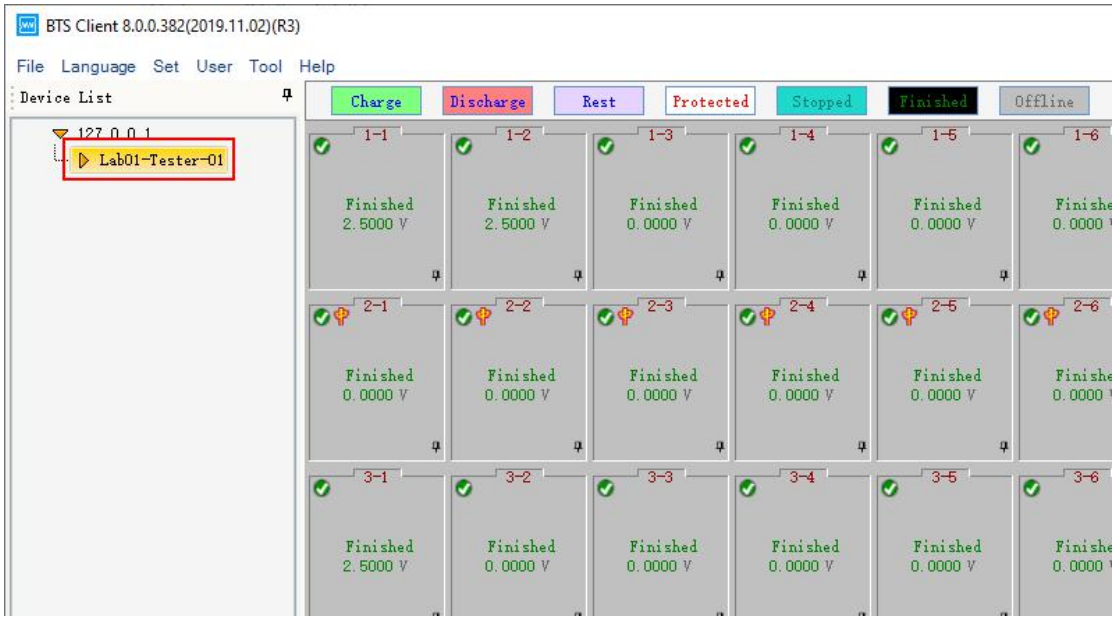


Notes： Online devices will not be deleted.

3.11.3. Modify notes/remarks

Choose the middle machine firstly , right click to modify notes.(Shown in the figure)





3.11.4. Update middle machine

Middle machine can be updated by downloading the upgrade package through client software.

Update instruction:

1. Choose the middle machine in the device list.
2. Right click and choose “Update middle machine”,entern the user name and passwords.
3. Choose upgrade file in updating window,click “Update”.
4. After finishing, upgrading complete dialog will appear, close it.

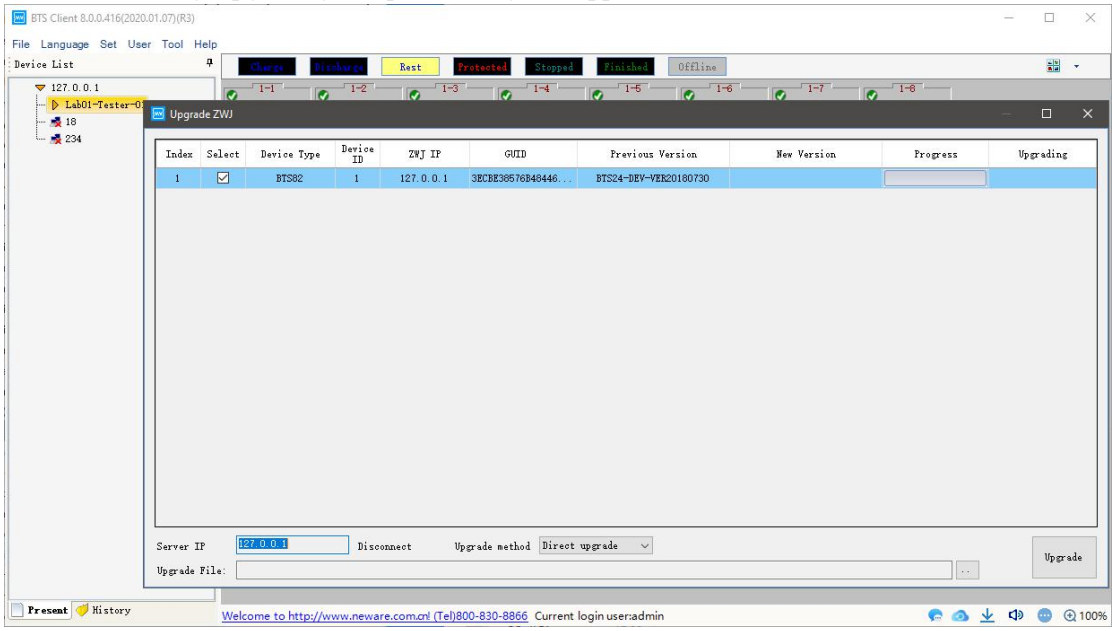


Figure 3.10.4 Update middle machine

Notes： Offline devices are not allowed to update. Please contact Neware engineers for firmware update. Please don’t use the online firmware, it might cause problems to the hardware.

If you want to update several middle machines at one time, right click in updating window.

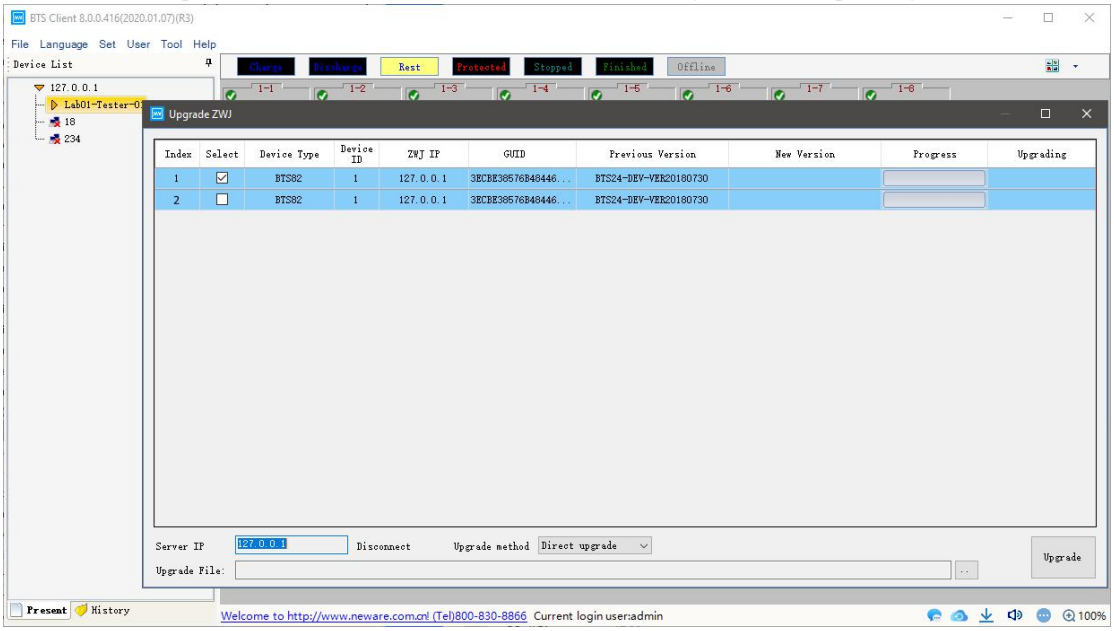


Figure 3.10.5 Upgrade several middle machines

3.11.5. Restart middle machine

The median machine can be sent a restart command through the client software.

Restart instruction:

1. Choose device in device list
2. Right click and choose “Restart middle machine”.

3.11.6. Upgrade low machine

Low machine can be upgraded by upgrading package through client software.

Upgrade instruction:

1. Choose middle machine in device list.
2. Right click and choose “Upgrade low machine”.
3. Choose upgrade files and low machine and click “Updrade”.
4. Upgrading finishing dialog will appear when finishing,close it.

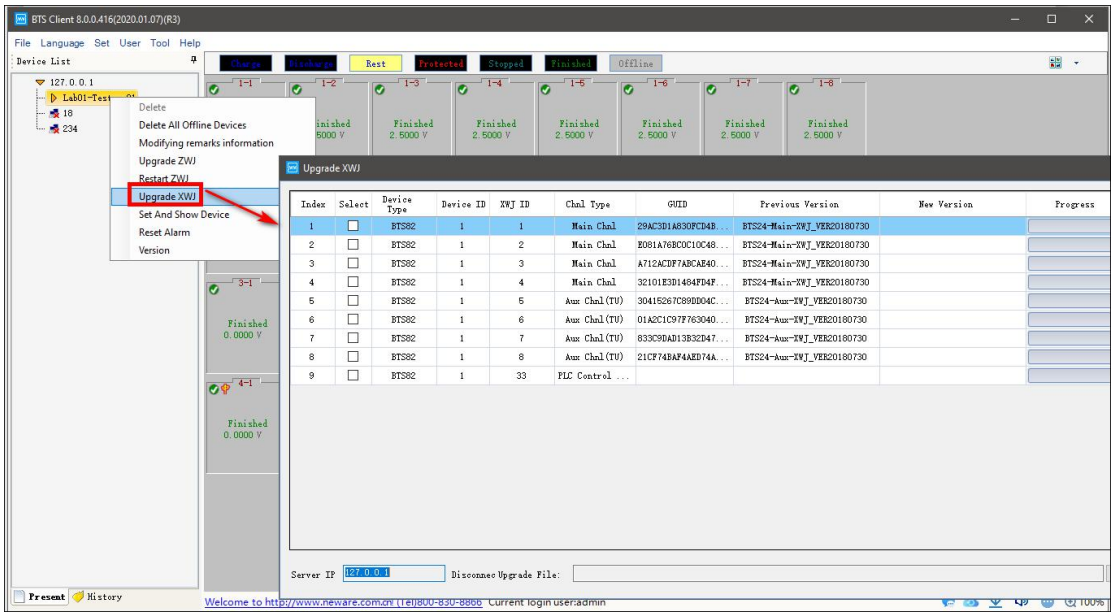


Figure 3.10.7 Upgrade low machine

Notes： Offline devices are not allowed to upgraded.Please contact Neware engineers for firmware update. Please don't use the online firmware, it might cause problems to the hardware.

If you want to upgrade several low machines at one time,right click in upgrading window, click "Display all devices"and choose low machines you want to update and updating files, click "Upgrade".(Shown in the following figure)

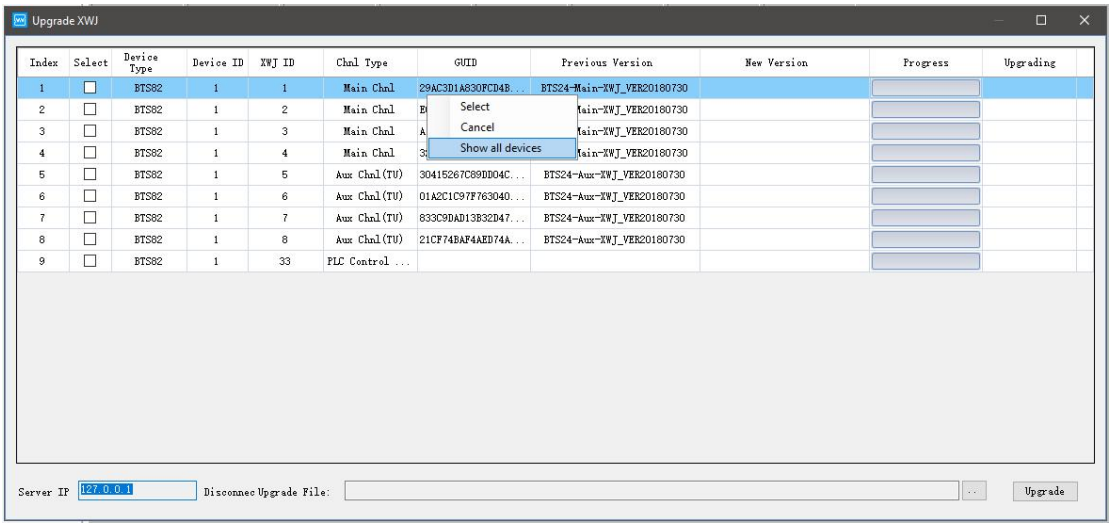


Figure 3.10.8 Upgrade several low machine

3. 11. 7. Set and display middle machine and low machine

You can see the version and modify the number of middle machine and low machine from client software.

Instruction:

1. Choose middle machine in device list.
2. Right click and click "Set and display middle machine and low machine".

3. Enter new number of machine,click “Setting”.

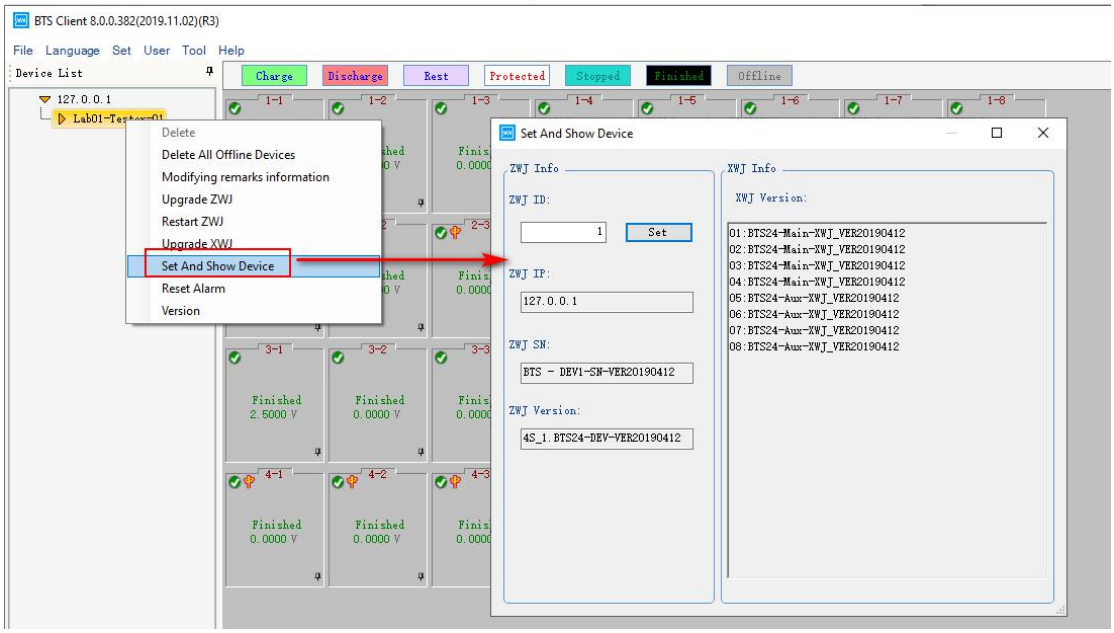


Figure 3.10.9 Setting and display middle machine and low machine

3.11.8. Sound-light alarm reset

If the device is equipped with a buzzer, the buzzer will alarm when the channel is protected. At this time, the alarm can be reset by the sound and light alarm reset.

Reset instruction:

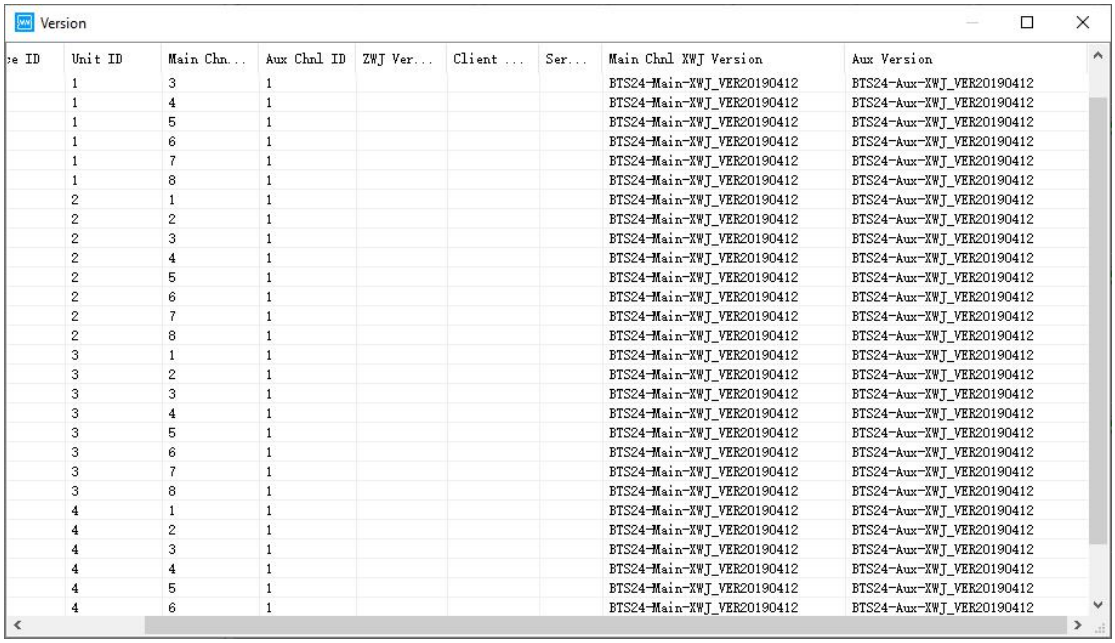
1. Choose the channel or device
2. Click “Sound-light alarm reset”.

3.11.9. Version information

You can view the version formation of each middle machine and low machine.

Instruction:

1. Choose middle machine in device list.
2. Right click and choose “Version information”.



›e ID	Unit ID	Main Chn...	Aux Chnl ID	ZWJ Ver...	Client ...	Ser...	Main Chnl XWJ Version	Aux Version
	1	3	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	1	4	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	1	5	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	1	6	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	1	7	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	1	8	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	1	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	2	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	3	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	4	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	5	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	6	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	7	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	2	8	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	1	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	2	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	3	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	4	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	5	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	6	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	7	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	3	8	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	1	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	2	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	3	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	4	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	5	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412
	4	6	1				BTS24-Main-XWJ_VER20190412	BTS24-Aux-XWJ_VER20190412

Figure 3.10.10 Version information

3. 12. Channel interface

3. 12. 1. Channel colour setting

Channel colour consists of background colour and foreground colour(font colour),you can change the colour according your preferences.

1. Channel background colour setting:

Click colour box and choose the colour you want. For example, Click “Charge” the color box will appear and choose the colour. Right click and choose “ Withdraw” the colour will become default colour. (Shown in the following figure)

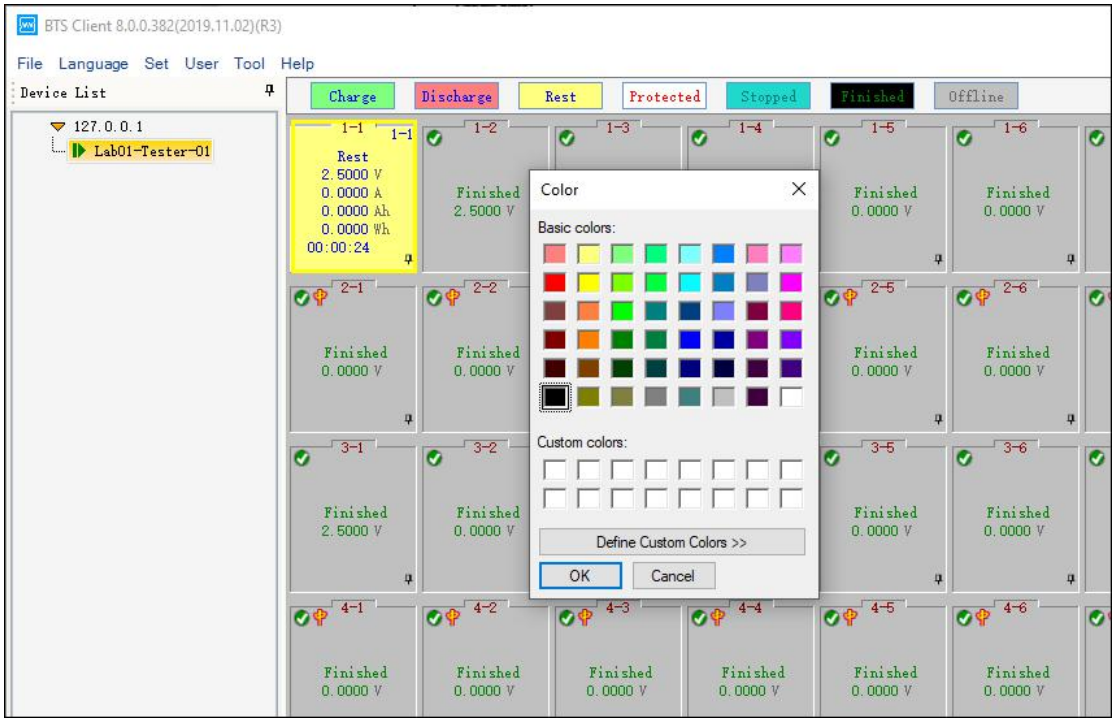


Figure 3.11.1 Set colors of channels in different status

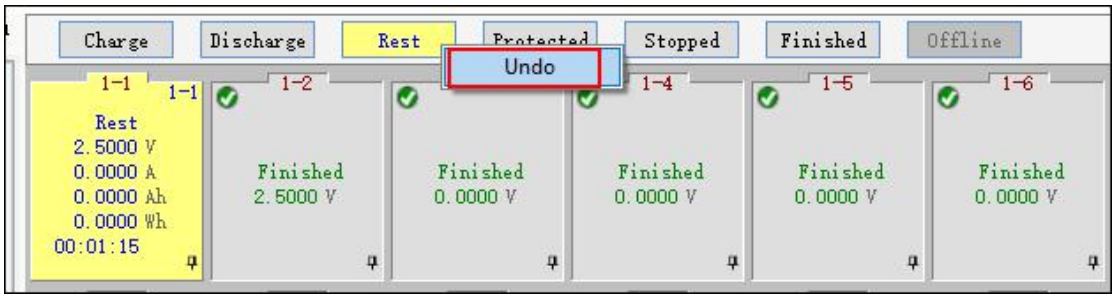


Figure 3.11.2 Right click to restore default colour

2. Font colour setting

The font color needs to be modified in the system display settings.In the system setting,channel colour can be forbidden to modify, which is convenient for unified color management within a company.You also can hid the unset background colour in channel display window.

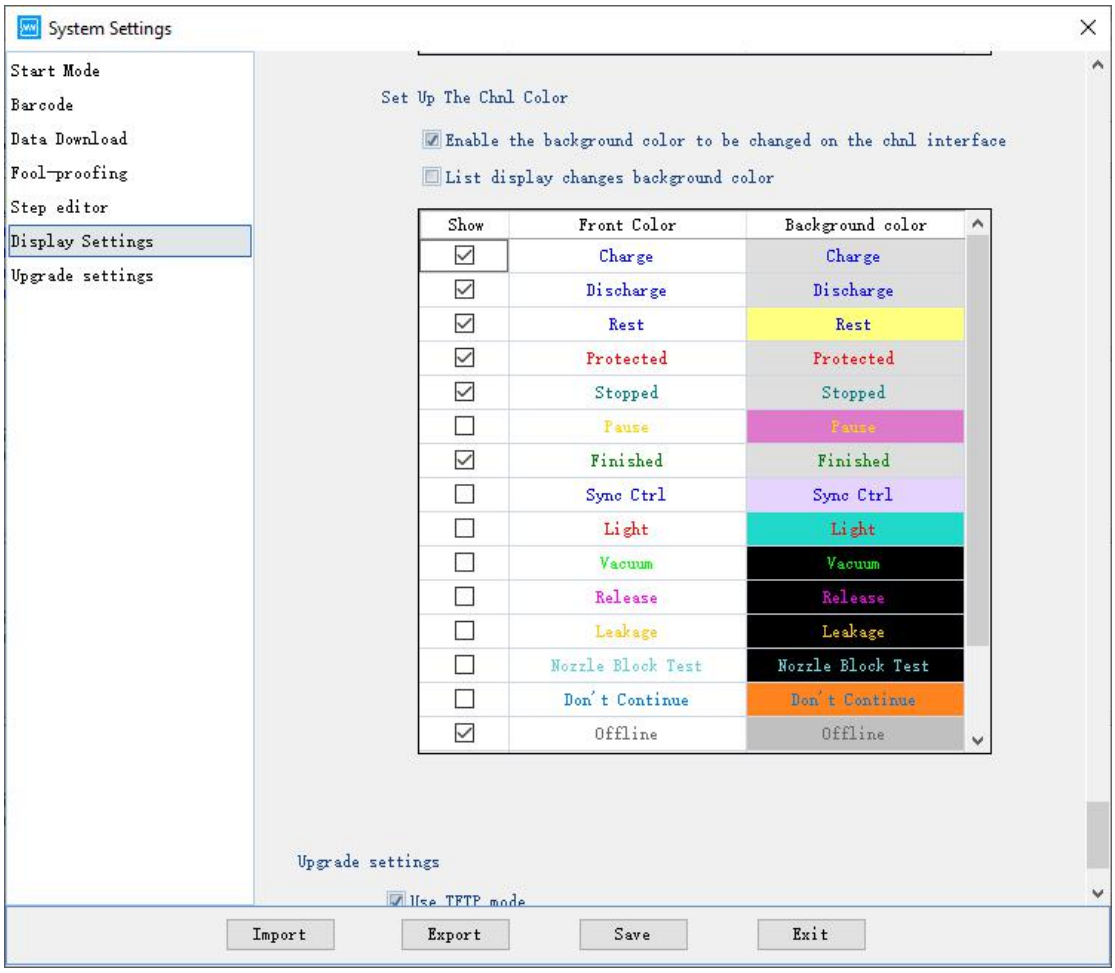


Figure 3.11.2 Foreground colour setting

3. 12. 2. Channel display configuration

1 Channel protection and alarm

Instruction:

Click in the right corner of client channel display window. Message window will appear.(Shown in the following figure)

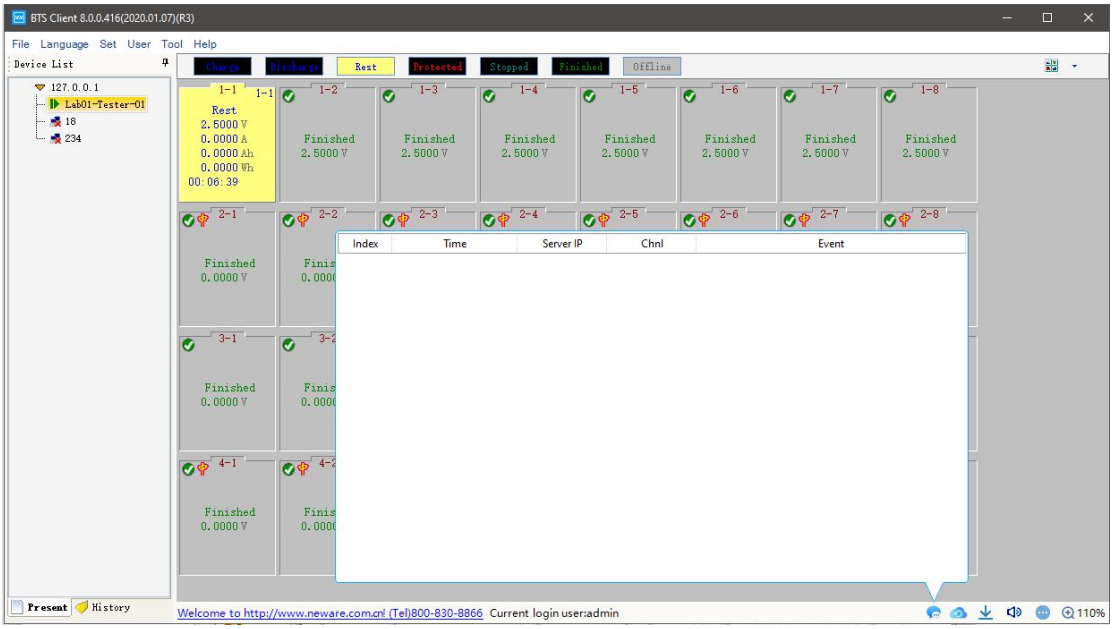


Figure 3.12.1 Message

2 Automatic backup

View the current and historical backup data. You also can add, modify, and delete the data after starting the test.

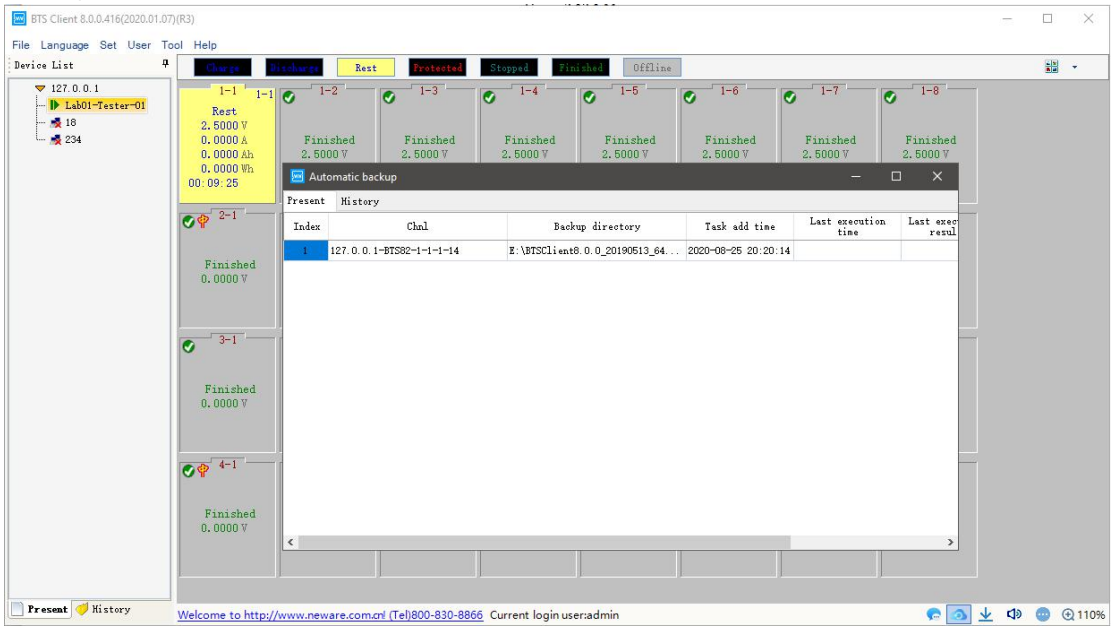


Figure 3.11.2 Automatic backup

3 Data download and view

At the right bottom corner of the BTSClient, click the icon , the downloader window will pop up, which looks like the picture below.

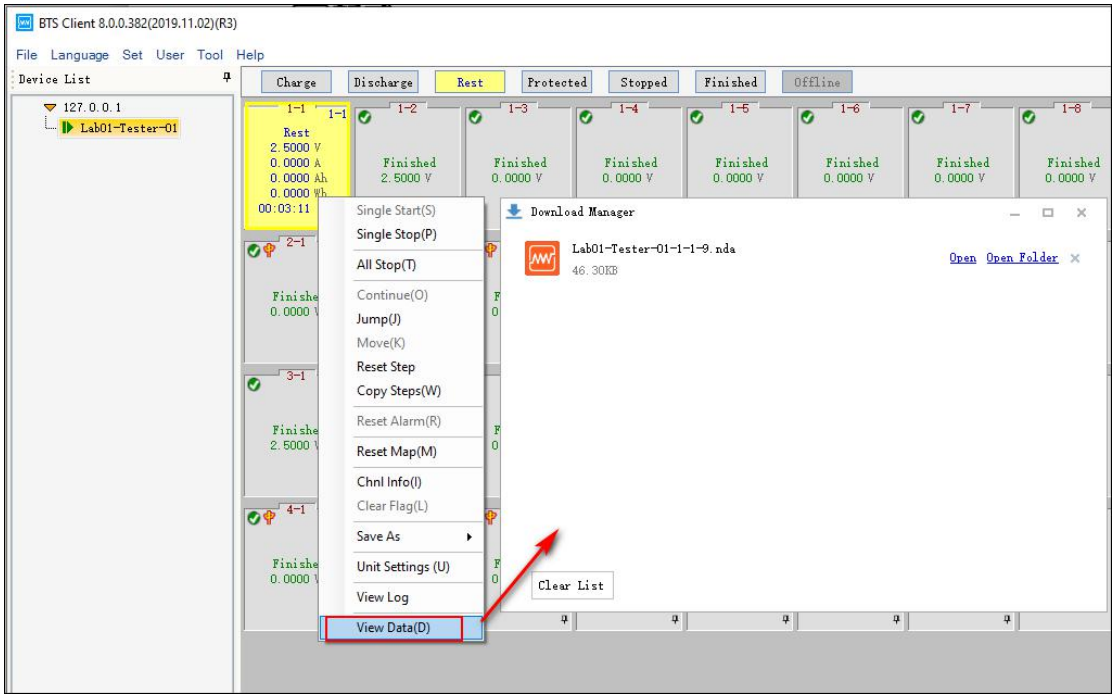


Figure 3.11.3 Data view and download

4 Alarm

At the right bottom corner of the BTSClient, click the icon , it will open or close sound alarm, and you can choose alarm available in the following situations.

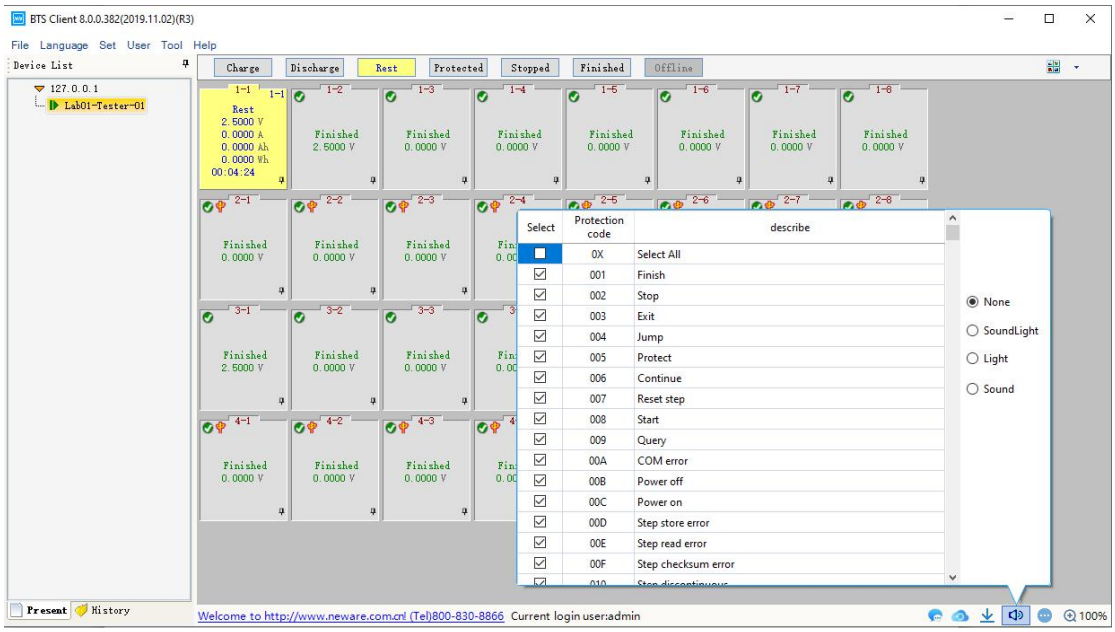


Figure 3.11.4 Alarm settings

5 Channel information display

Operation of ‘large icons’:

When BTS client is in ‘large icons’view, right click the icon at the

UI bottom right, a window will pop up which looks like below：

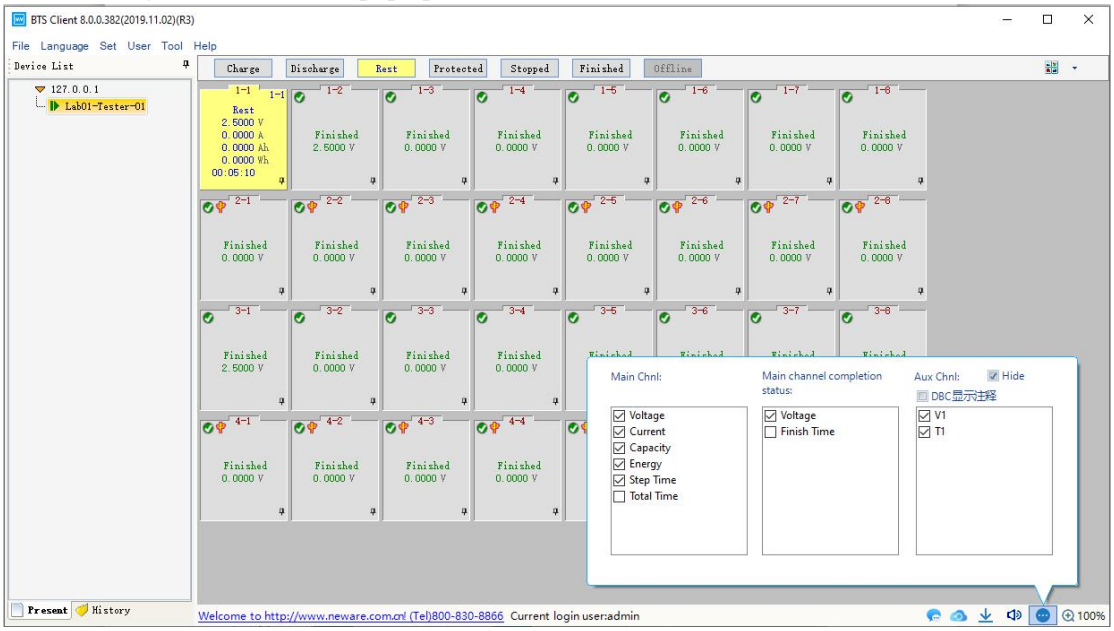


Figure 3.11.5 Display/view settings

Operation of ‘small icons’:

When BTS client is in ‘small icons’view, right click the icon at the

UI bottom right, a window will pop up which looks like below：

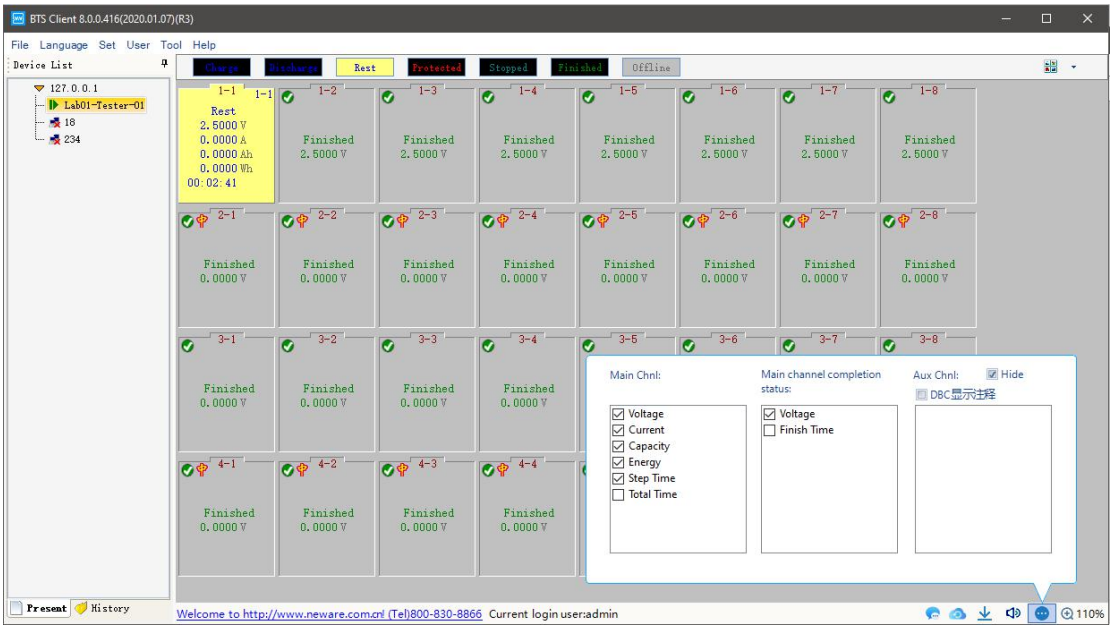


Figure 3.11.6 Configuration Icon shows more available fields

5 Font and channel/battery size：

Click the right bottom corner icon , then you can zoom in/out the font and channel/battery size of the UI.

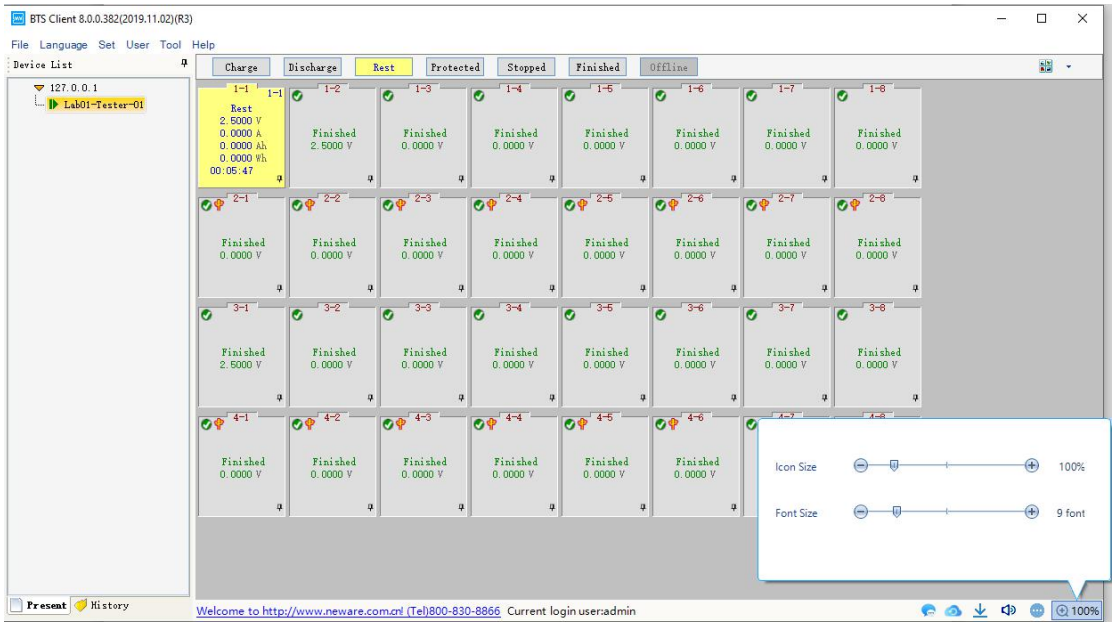


Figure 3.11.7 User interface Zoom in and out

Software defaults to click the BTS number in the BTS list, right side shows all channels for the corresponding equipment, channels will not be displayed if click on other nodes,if multiple BTS need to be started uniformly, It can be selected in the system configuration interface“Displays all channels under the server”after that, click on the server node, all channels under this server are displayed on the right side. As shown in figure below.

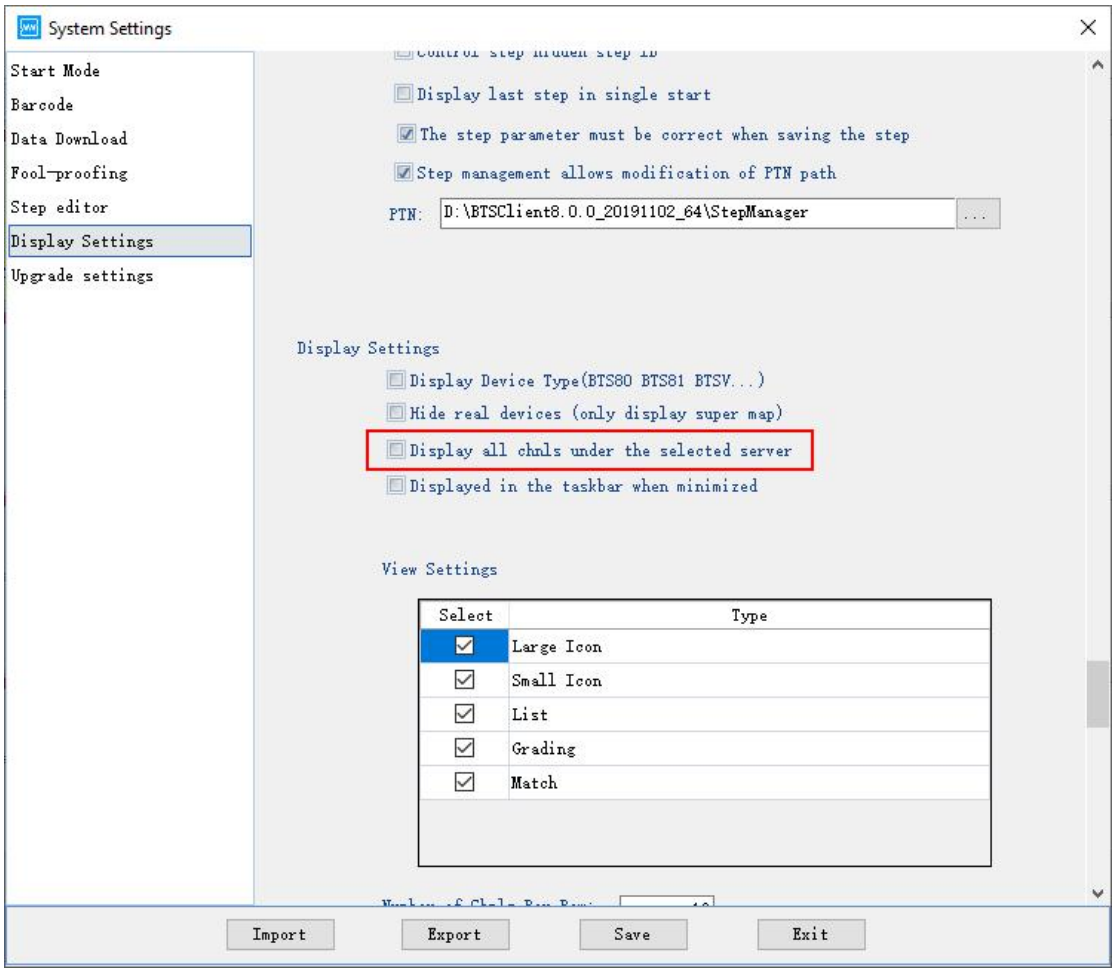


Figure 3.11.8 Configuration of show all the channels in one place

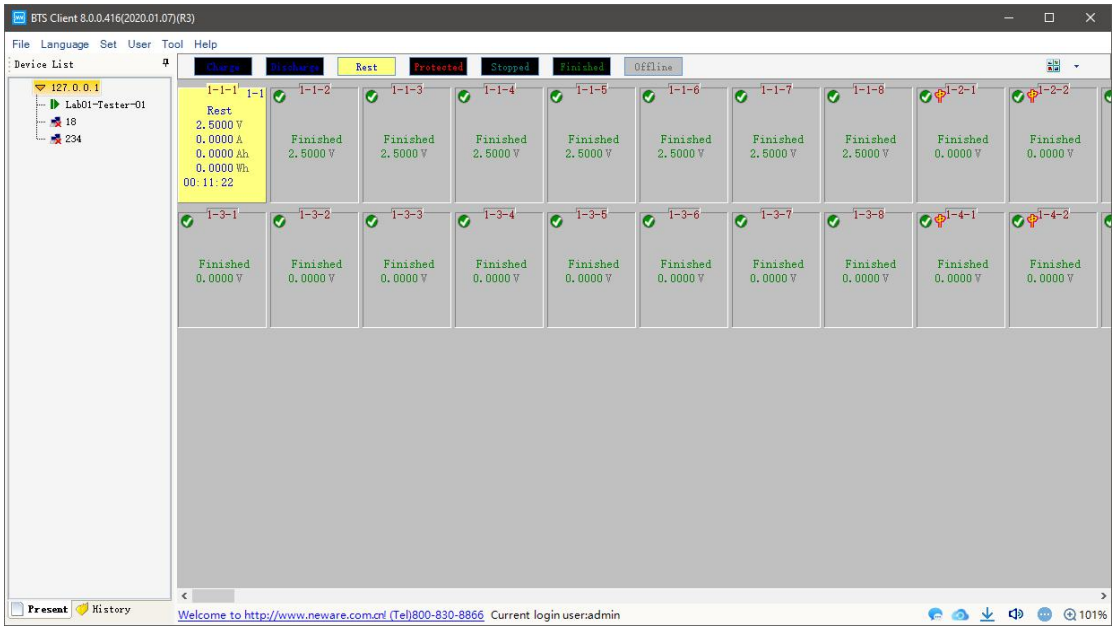


Figure 3.11.9 Show all the channels in one place

3.12.3. Display Interface

As shown in figure below, switch to large icon, small icon, list, sorting interfaces respectively through the button in up-right corner.

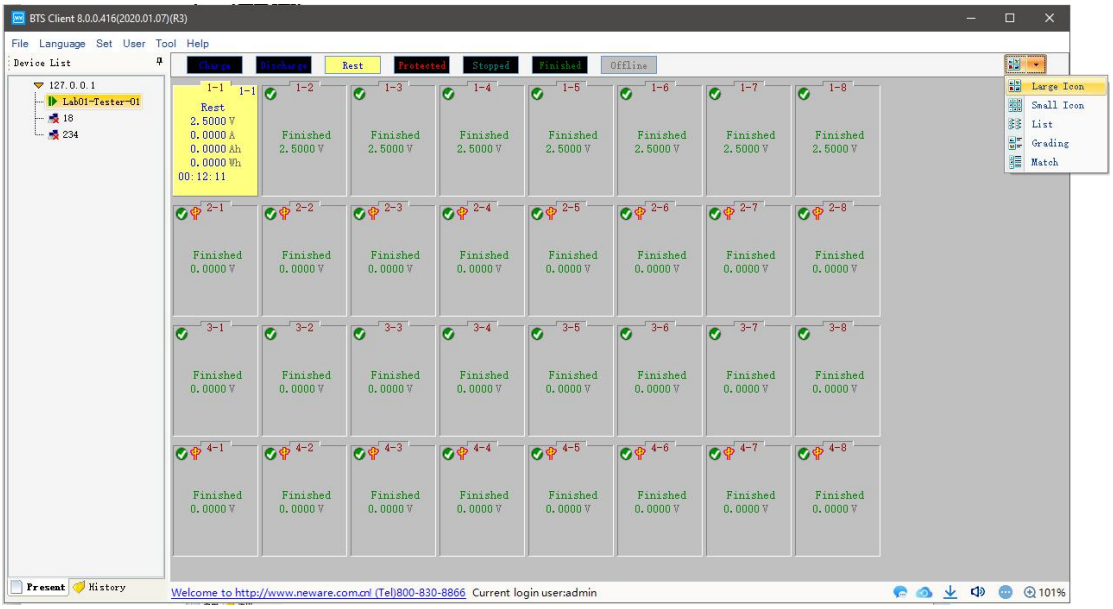


Figure 3.11.10 Switch between different views

3.13. Right-click the channel interface

Right-click the channel display area, if the option is grayed out, user needs to log in first, then

corresponding operation can be carried out

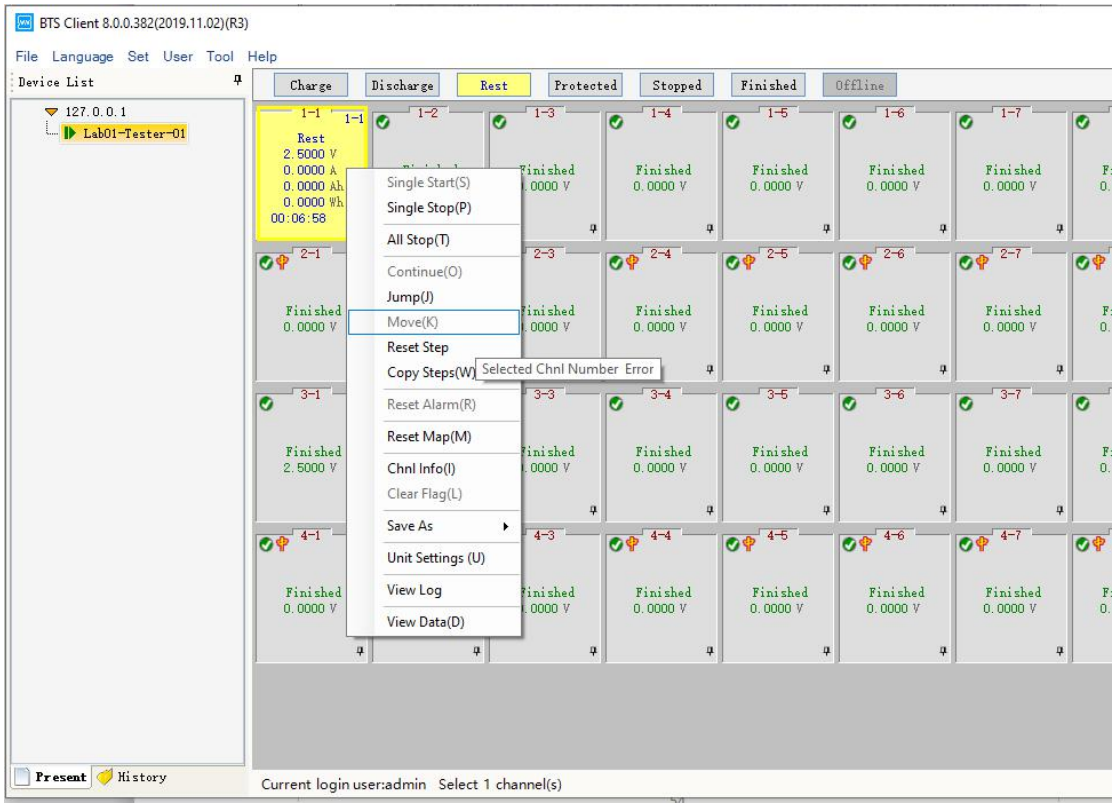


Figure 3.12.1 Right click and the menu of channels

when channel is offline,the background color of the channel changes to the gray, as shown in figure below.

Figure 3.12.2 Show offline channels

For functions that cannot be operated in the right-click menu, hovering mouse cursor over a corresponding position,the corresponding reason will pop up,as shown in figure below.

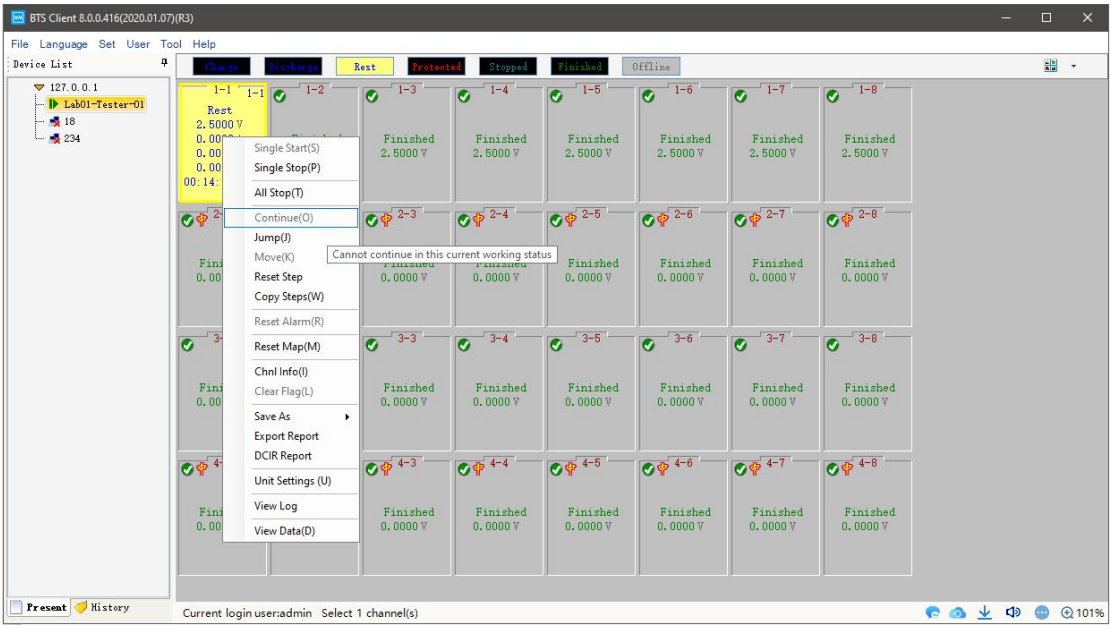


Figure 3.12.3 For unavailable items, system will prompt you why you can work with it

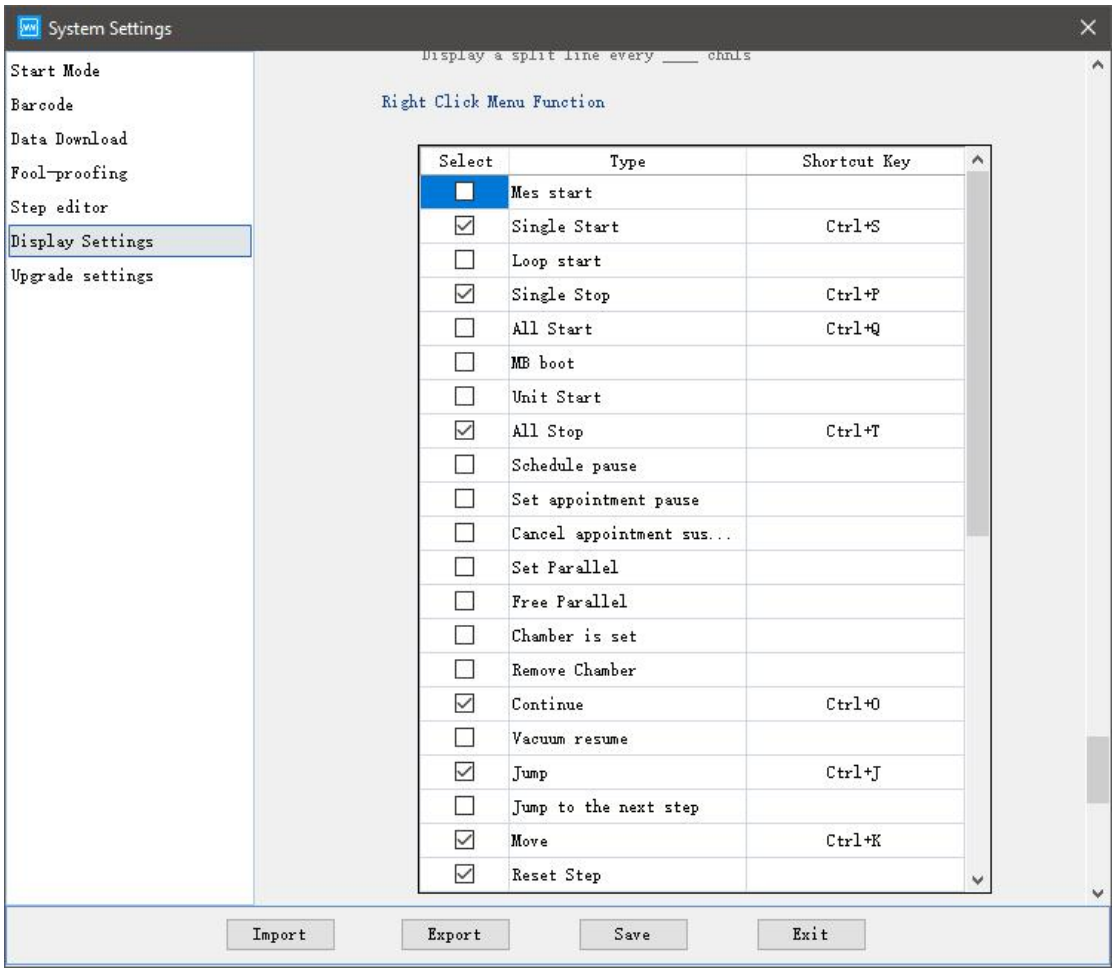


Figure 3.12.4 Choose what items will be shown in the right menu

3.13.1. single start

When a “single start” operation is required,the operation is as follows

Select the channel to be operated→right-click→“single start”

Work step, recording condition, safety protection etc can be set (as shown in figure below).

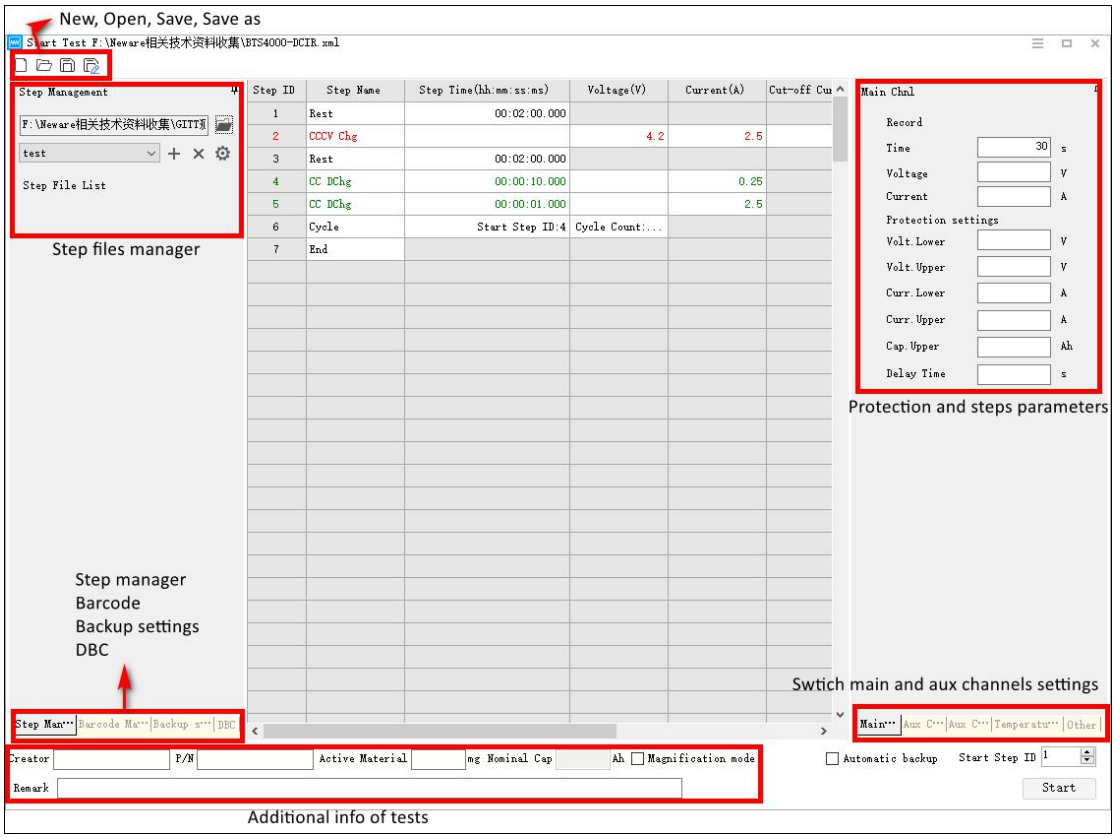


Figure 3.12.5 Test profile manage and create interface

Select the channel to input barcode→Right click→“single start”

Click barcode management interface to input barcode, as shown in figure below.

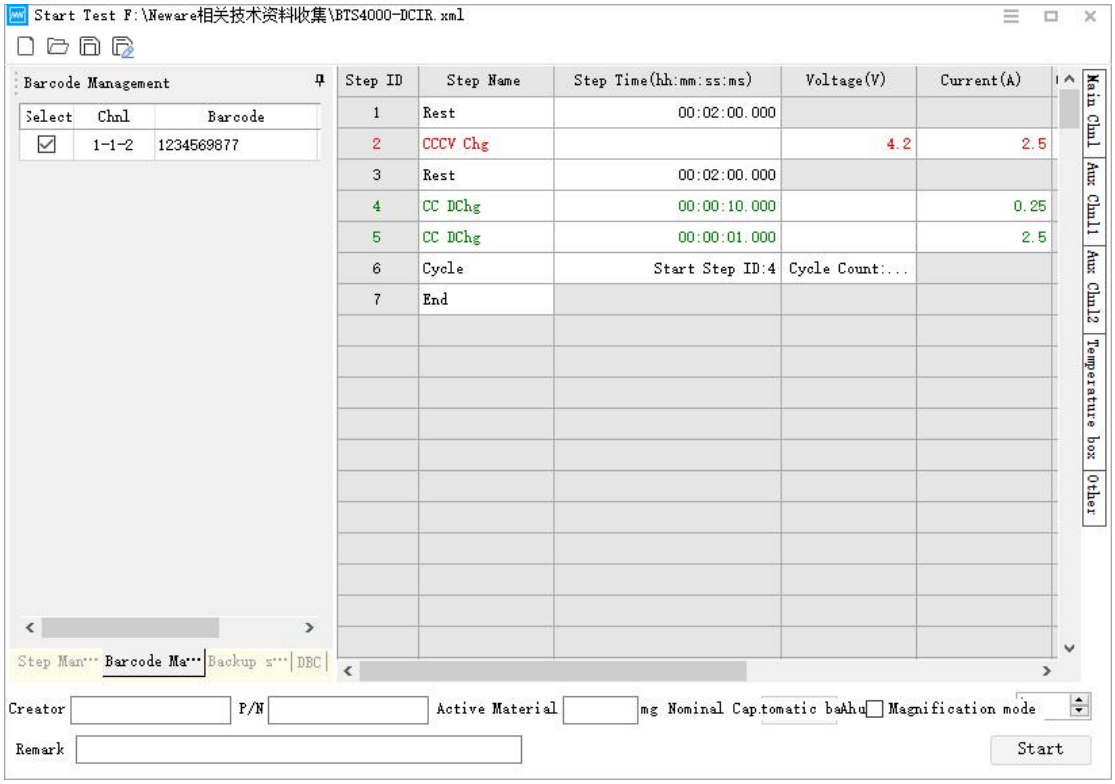


Figure 3.12.6 Barcode input user interface

Backup Settings interface

Operation method→Select the channel to be tested, right click start→click backup setting perform an automatic backup,as shown in figure below:

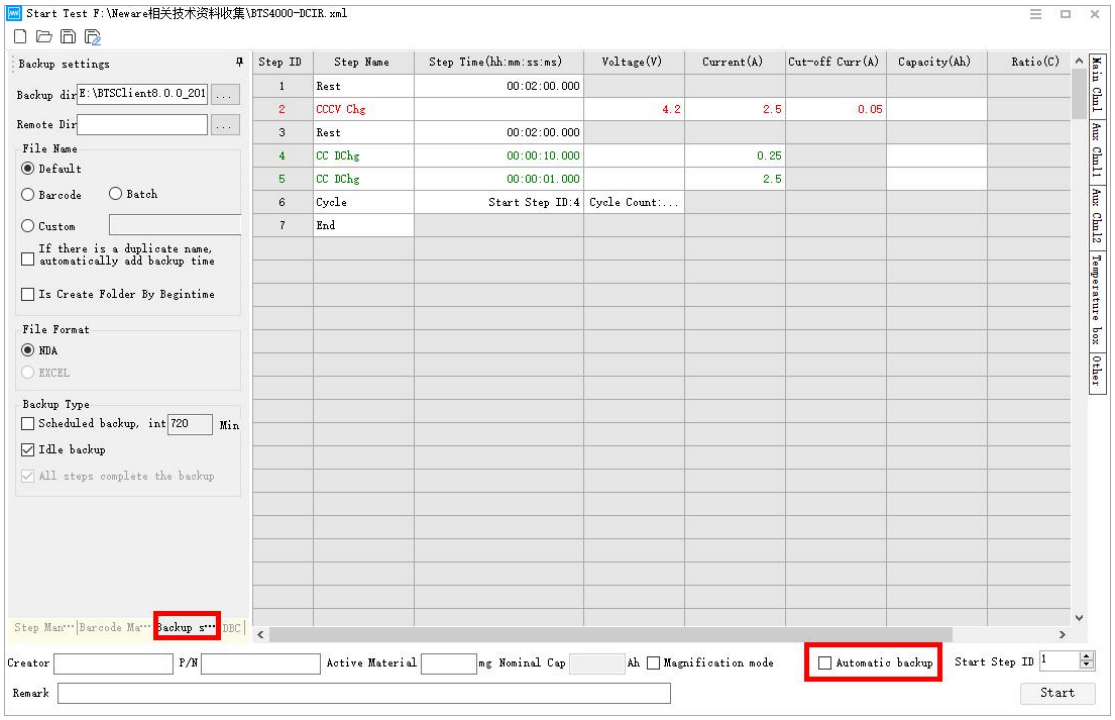


Figure 3.12.7 Backup setting interface

3.13.2. single stop

When the working steps of single or multiple channels need to be reset,
Select single or multiple channels→right click→“single stop”

3.13.3. Start up test by row/layer

If we need to start up tests for more than 1 channel at the same time, say start up tests on a row or a layer. We can make it by doing as following way.
1) Right click →“**unit start**”;
2) Here the unit start window popped up, and after we’ve set up the profile path, sample frequency, safety settings, then click ‘ok’button.

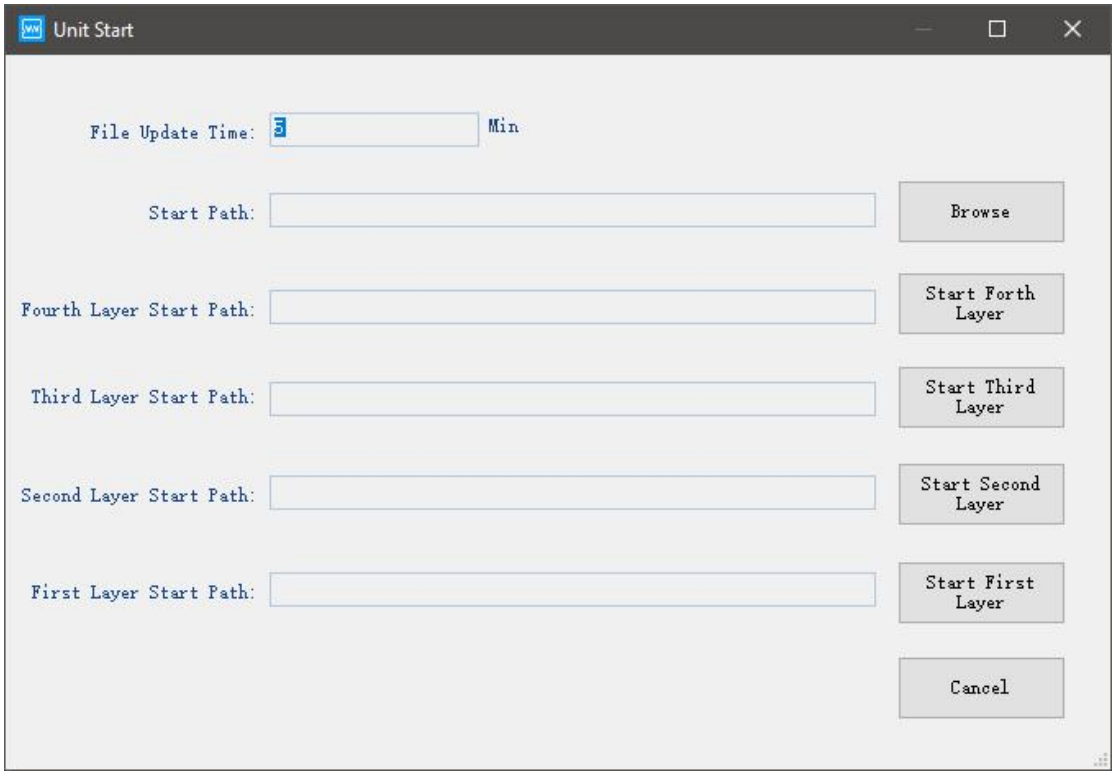


Figure 3.12.8 Start test on a whole layer/unit

3.13.4. All stop

“all stop” option needs to be executed when all channels test need to be stopped at the same time,operation is as follows: right click in the channel status display area.In this moment, All channels that are being tested will be in a "stop" state.

Appointed pause

When user wants the channel to stop running automatically after the work step has completed, It can be realized through “appointed pause”

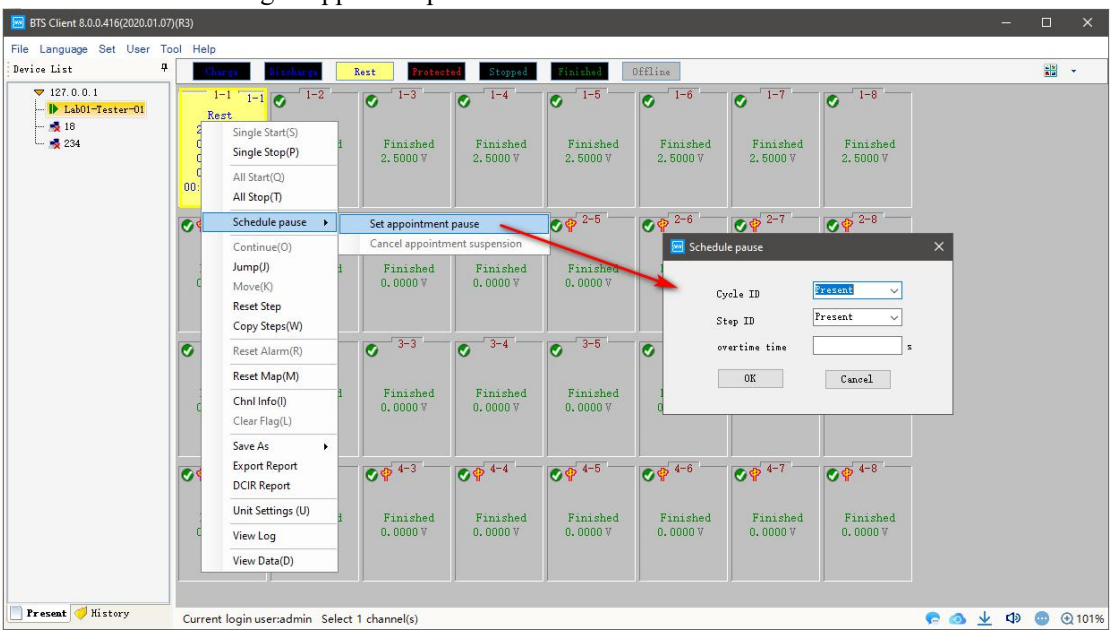


Figure 3.12.9 Set appointment pause

operation is as follows

1. Select the channel which need appointed pause, (A channel marked with a yellow border),as shown in the figure
2. right click→“set appointed pause”→“Pop up the appointed pause interface”
3. right click→“set appointed pause”→“Pop up the cancel appointed pause interface”

After setting the appointment pause, The corresponding channel will display a pause mark,indicates that the current cycle will be paused or the specified cycle will be paused after completion; When the number appears in the right corner of the pause mark,represents the pause after the completion of the current work step or specify pause after the work step is completed,the number represents the serial number of the work step.When the pause Settings need to be unset,select the option to cancel the appointment pause in the right-click menu.the mark of appointed pause on the channel will disappear;After the current work step or cycle is completed “pause”will appear on the channel

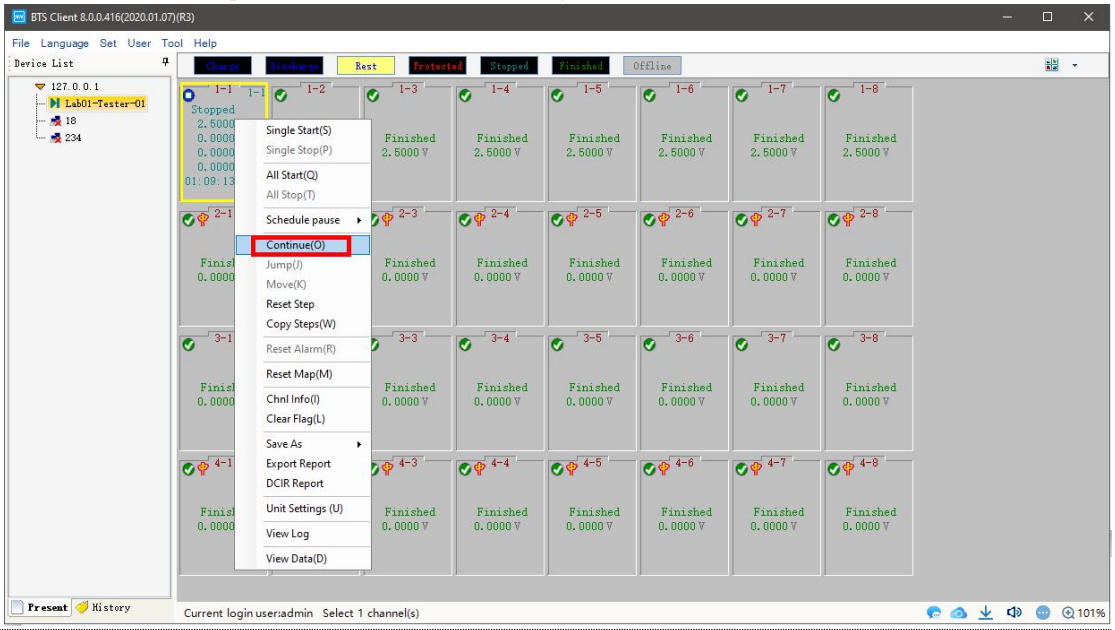
Note：This function only supports BTS82 and above BTS types

3.13.5. Continue/resume test

Sometimes you did continue/resume operations on the running tests to protect the data from being loss or due to some other reasons. And after that, you can to continue/resume the tests, then you can use this function.

Operation: Select the channels need to be ‘continue’, right click and choose

'continue', then the paused tests will resume and go on.



Note: Stop and continue can only be used on channels ongoing, for channels Finished/completed, this function makes no sense.

3.13.6. Jump

When the channel is executing a working step， the current work step can jump to the target work step,This operation maintains the normal continuation of the test data

method:

1. Double click the working step,when the working step background turns yellow, it is selected.
2. In the "Jump"interfaces,Fill the required working step number in Jump Step ID 1 , as shown in figure below:

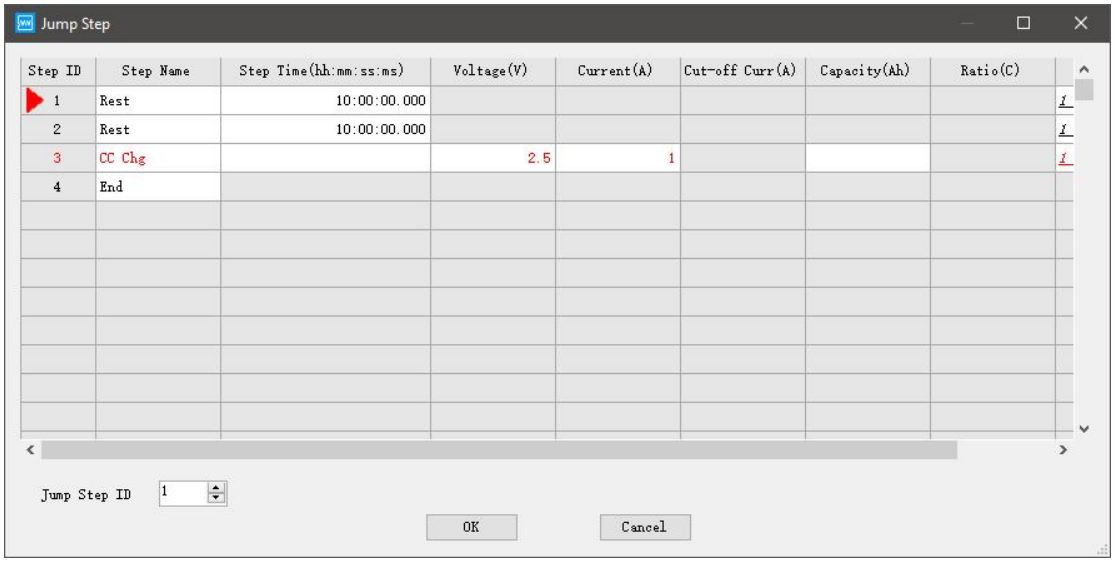


Figure 3.12.10 Steps jump

3.13.7. Channels move

Function: Migration of working step parameters and test data from one unfinished test channel to another completed test channel to continue testing,the purpose is to prevent the failure of this test due to channel damage.

operational approach:

1. Select both channels(test channel,Target channel after migration)
2. Right click→“channels move”;the target channel is not in the working state

	Note:this function only support for BTS80 and above BTS types

3.13.8. Test profile reset/modify

Function：When the user needs to modify the working step or parameters of the running channel, it can be achieved by resetting the working step

Operation method：

1. Choose the running channel need to modify the test profiles;
2. Right click and choose ‘reset step, then the test profile editor will show up

as screenshot below.

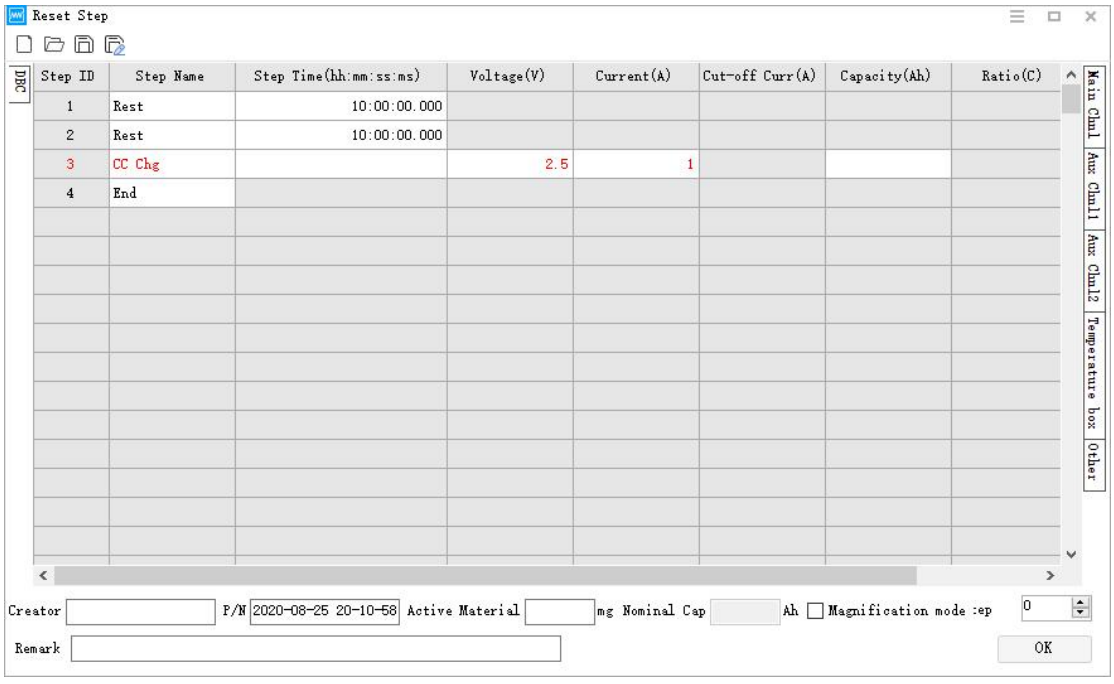


Figure 3.12.11 Reset test steps

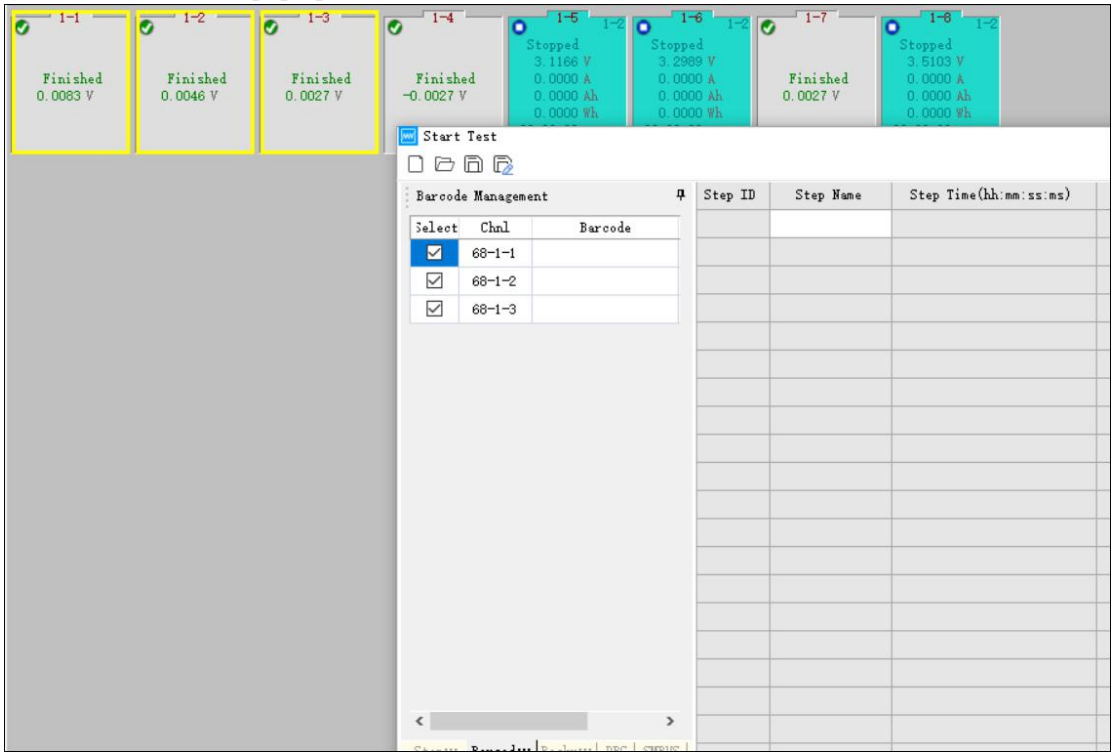
3.13.9. Bar-code reset

Function: Once the tests already started but operators find the bar-codes were wrong, then they

can use bar-code rest to modify the barcodes.

Operation steps:

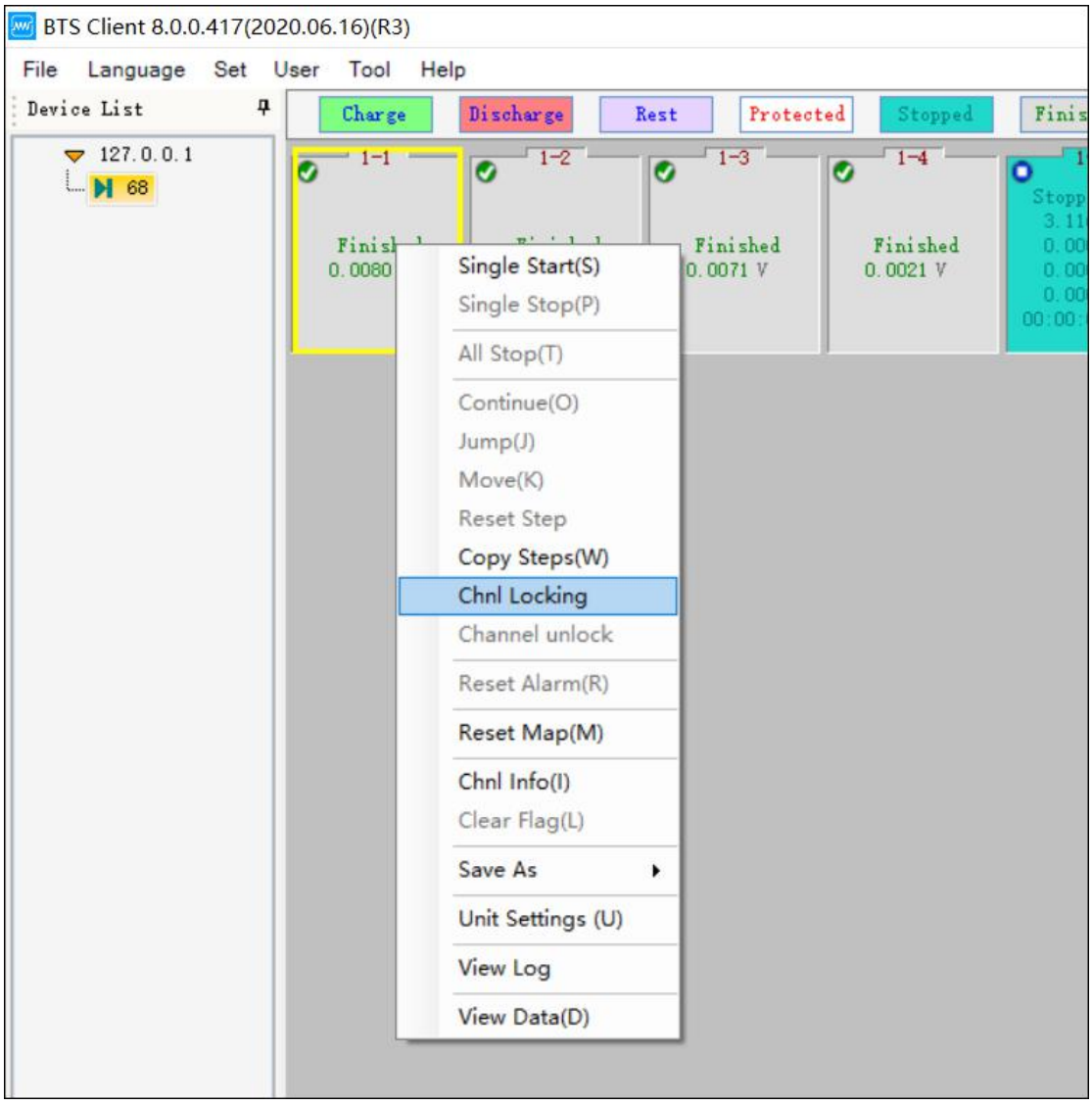
1) Choose the barcodes/channels need to be modified, right click and choose “bar-code rest”, the start test window will pop up, you can reenter or modify the barcodes here.

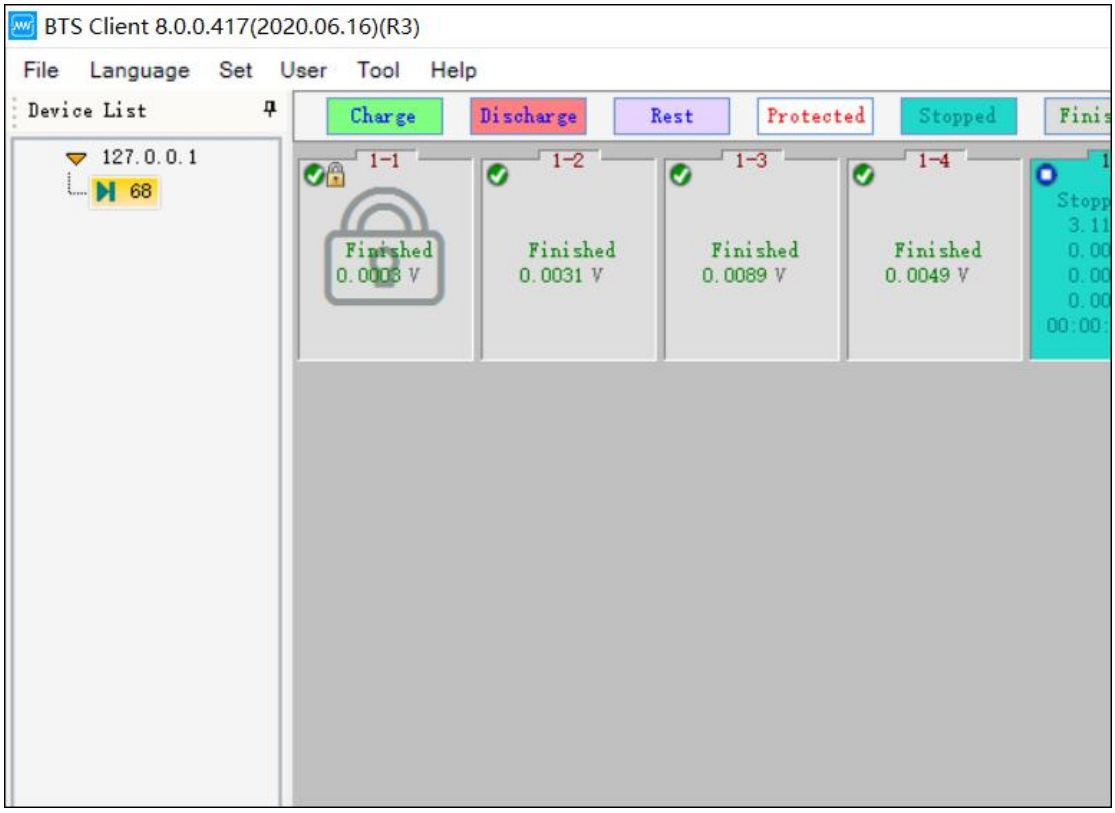


3. 13. 10. Lock/unlock channels

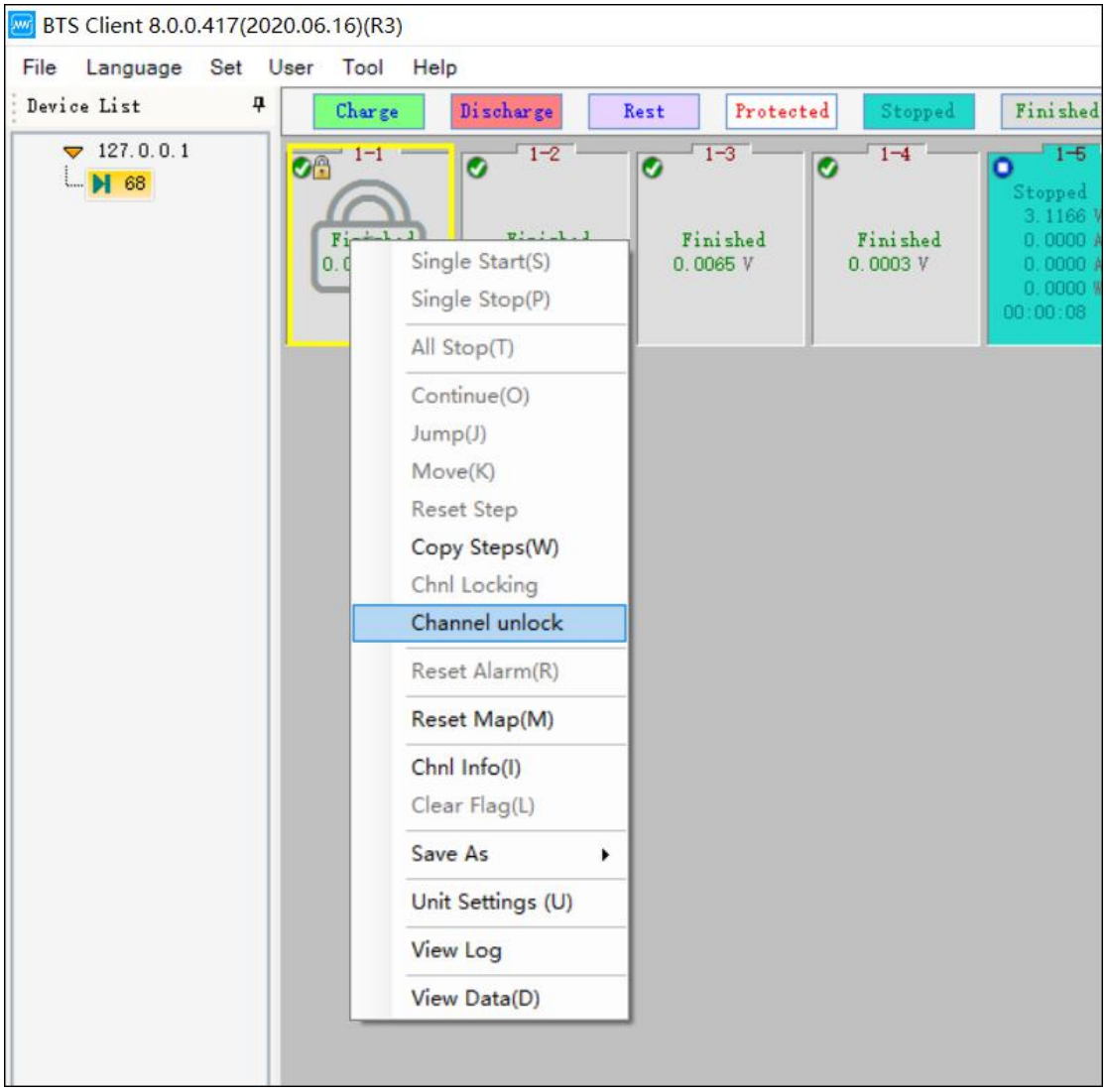
1, For some channels which are running important tests and you just don’t want others to touch them incidentally, then lock them up would be the best option here. Right click on the channels you want to lock and select ‘chnl locking’, then the channels will be locked with an icon . Pretty useful, right?

2, If you want to unlock the channels, just need to right click on the channels and choose ‘channel unlock’, then it will be unlocked.


BTS Client 8.0.0.417(2020.06.16)(R3)
File
Language
Set
User
Tool
Help
Device List
127.0.0.1
68
Charge
Discharge
Rest
Protected
Stopped
1-1
1-2
1-3
1-4
Finished
0.0080
0.0071 V
0.0021 V
Single Start(S)
Single Stop(P)
All Stop(T)
Continue(O)
Jump(J)
Move(K)
Reset Step
Copy Steps(W)
Chnl Locking
Channel unlock
Reset Alarm(R)
Reset Map(M)
Chnl Info(I)
Clear Flag(L)
Save As
Unit Settings (U)
View Log
View Data(D)



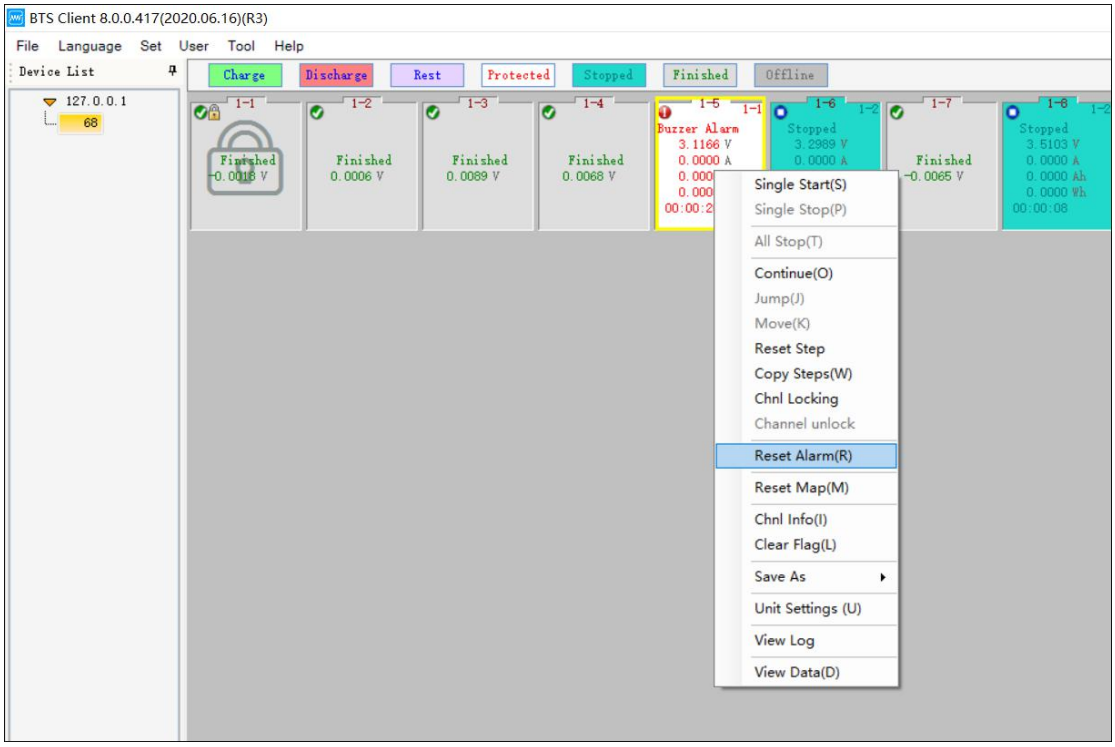
Choose the channels need to unlock.

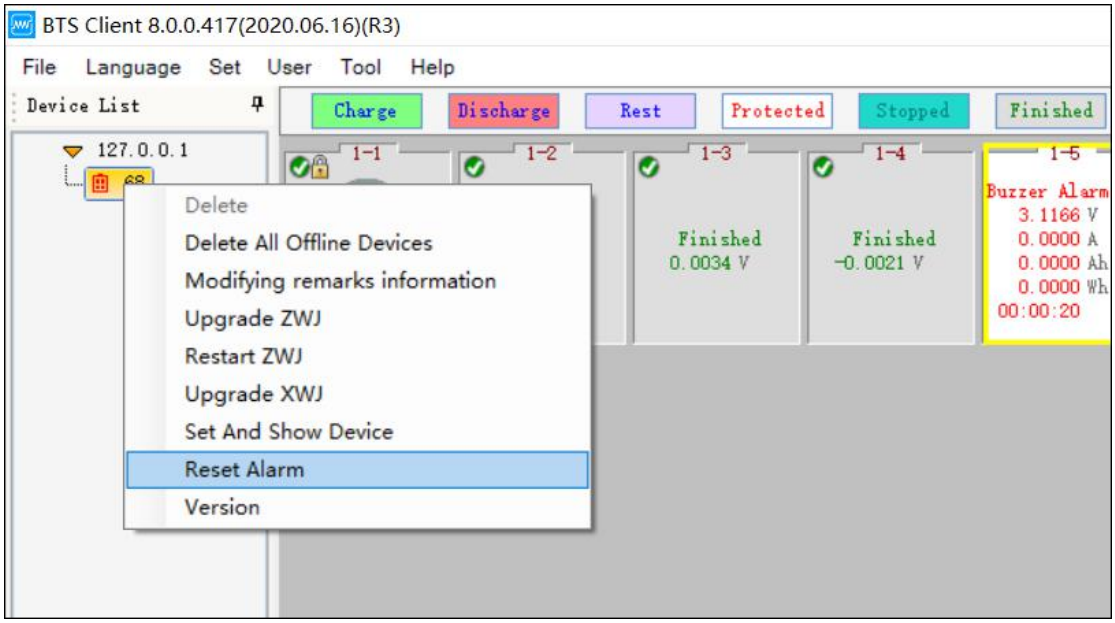


3. 13. 11. Reset alarm

1. Some channels were showing red exclamation mark due to safety settings triggered, in this kind of case, if you need to clear the warning, then right click
on the channels and choose ‘reset alarm’, then the warning message will be gone.

2. 2, If there are more than one channel were in warning status and you want to clear them all, then please right click on the mid machine ID, and choose ‘reset alarm’, then you can clear all the warning messages on all the channels under this mid machine.





3. 13. 12. Reset mapping

Set the mapping operation for the middle machine that has never been mapped, select the middle machine to be mapped (select in the device list, as shown in the figure below), click the right mouse button in the blank area on the right side of the interface → "reset mapping" → pop up " Settings mapping" interface.

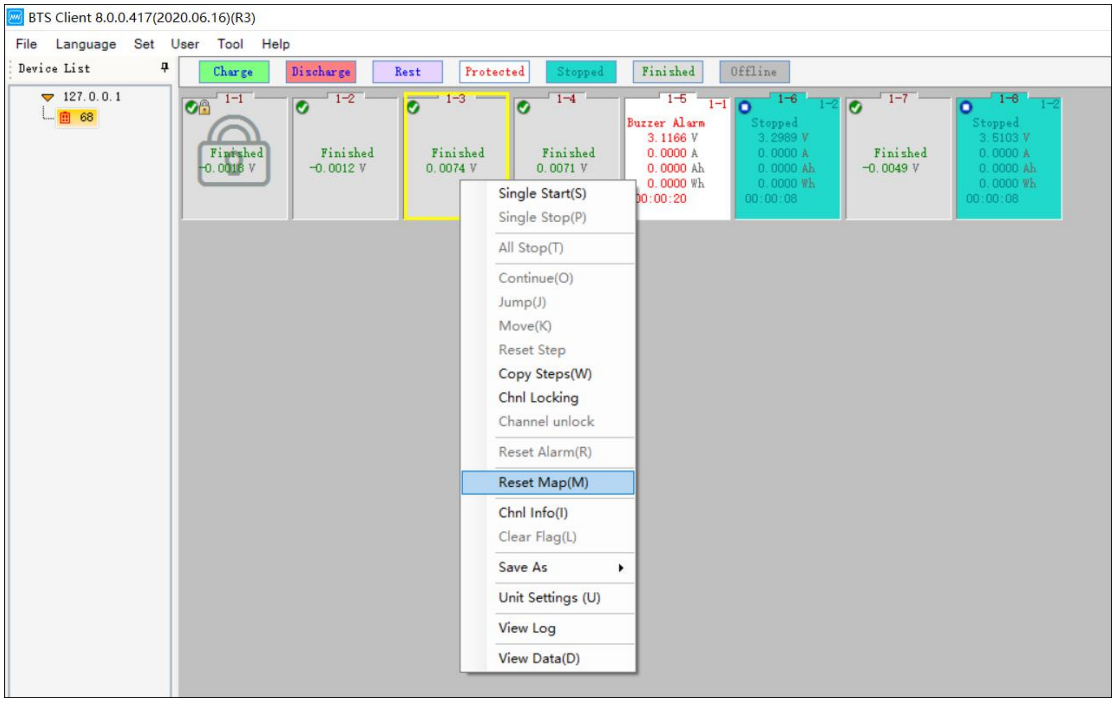


Figure 3.12.12 Channels mapping

1. Main channels mapping:

The main channel and the channel on the interface can be mapped arbitrarily, and the location of the main channel mapping is the location of the big box on the mapping interface.

Select a channel and right-click with the mouse to select "Main Channel Default Mapping". There are five main settings: 1*8, 1*16, 1*24, 1*32 and custom. Choose one of the mapping methods and the system will map all the main channels, as shown in the figure below. If you want to cancel a mapping channel, click the right mouse button on the channel and select "Cancel current channel"; if you want to cancel all mapping relationships, select "Clear All";

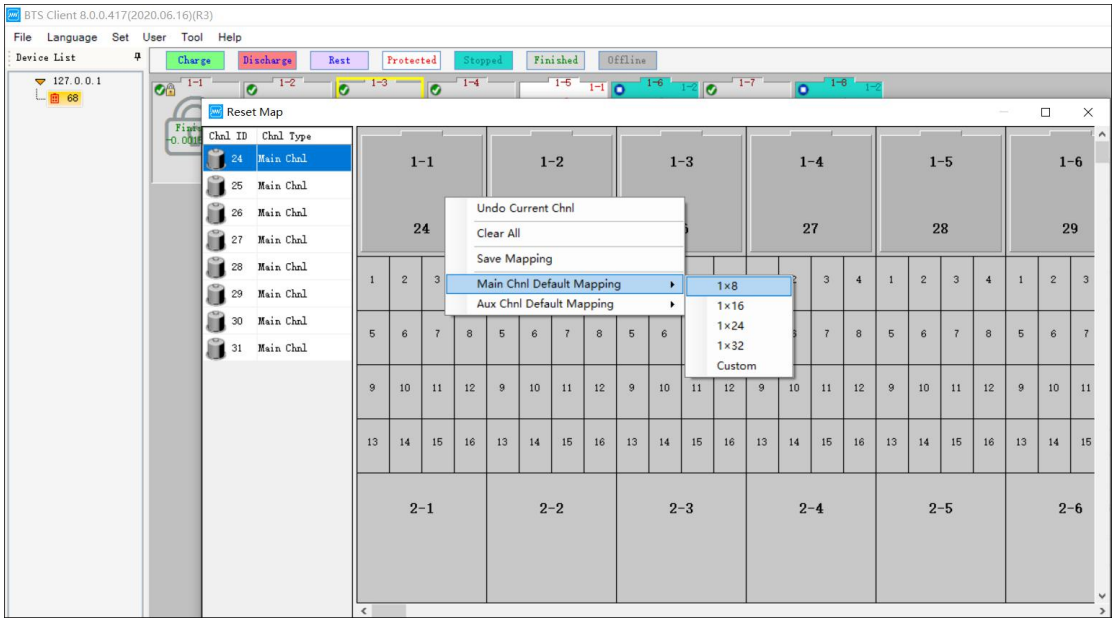
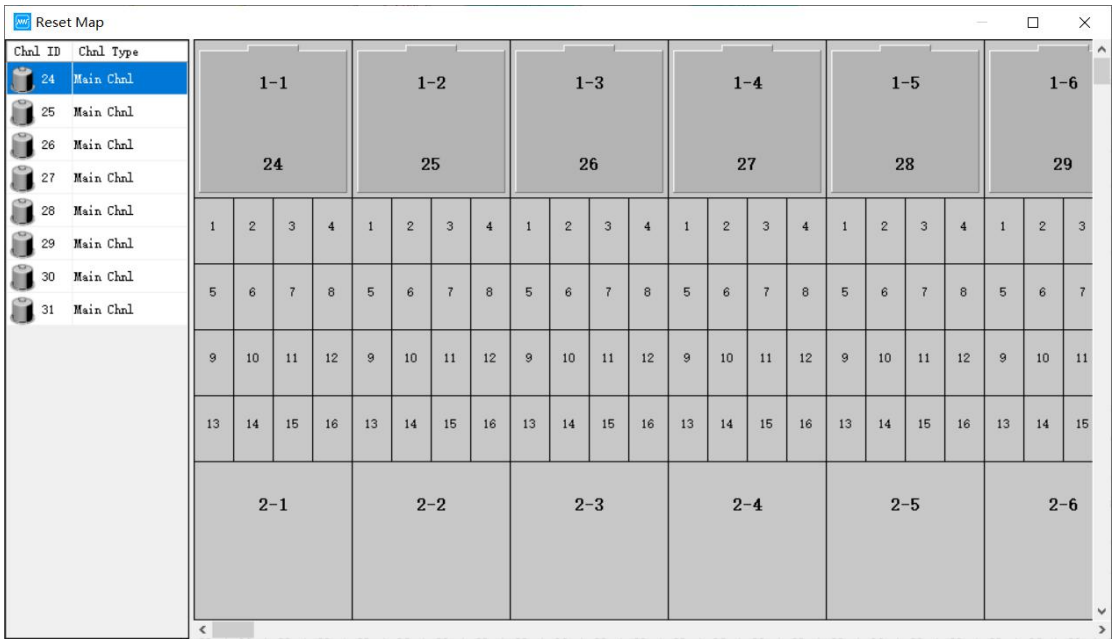


Figure 3.12.13 Channels mapping

Default mapping **1x8** means there'll be 8 channels on each row, 1x16 means there'll be 16 channels on each row.
1x24 means there'll be 24 channels on each row, and 1x32 means there'll be 32 channels on each row. 1x8 looks like the picture below.



And you can also customize mapping row*col, such as when you input 20 it means each row will have 20 channels. Maximum channels number on one row is 32, so if you input 32, then col will be 8 automatically.

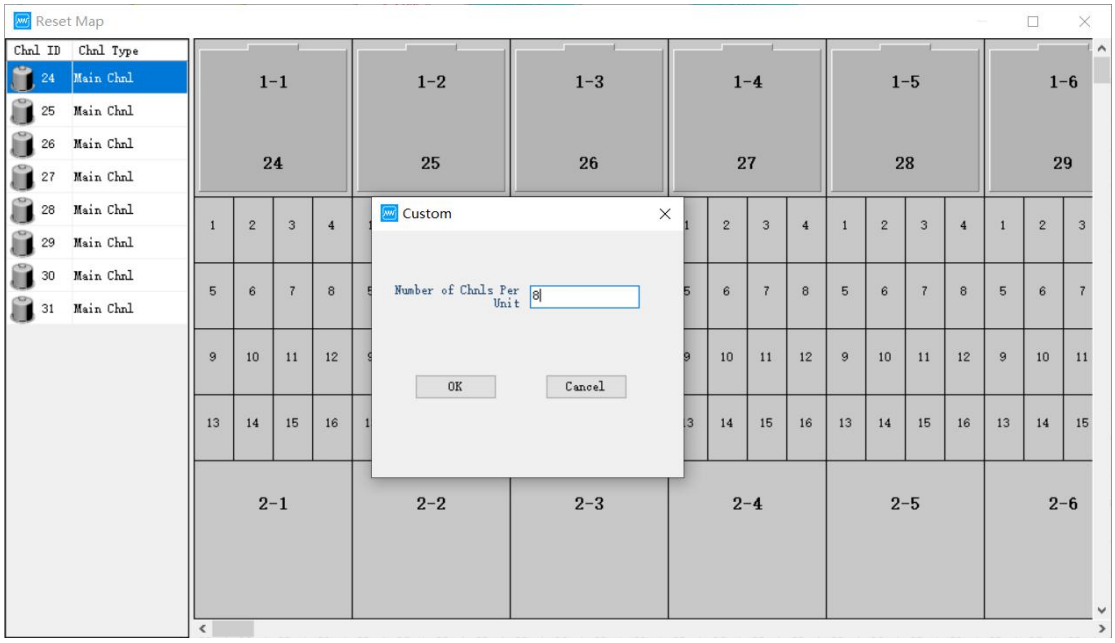


Figure 3.12.14 How many channels you want them to show in a row

Aux channels mapping: Right click on the main channel needs to add aux channels, select menu 'aux channels mapping as default' which means the aux channels will

be mapped to main channels in average. After the mapping operation, right click again and choose 'save mapping'. Please refer to the picture below.

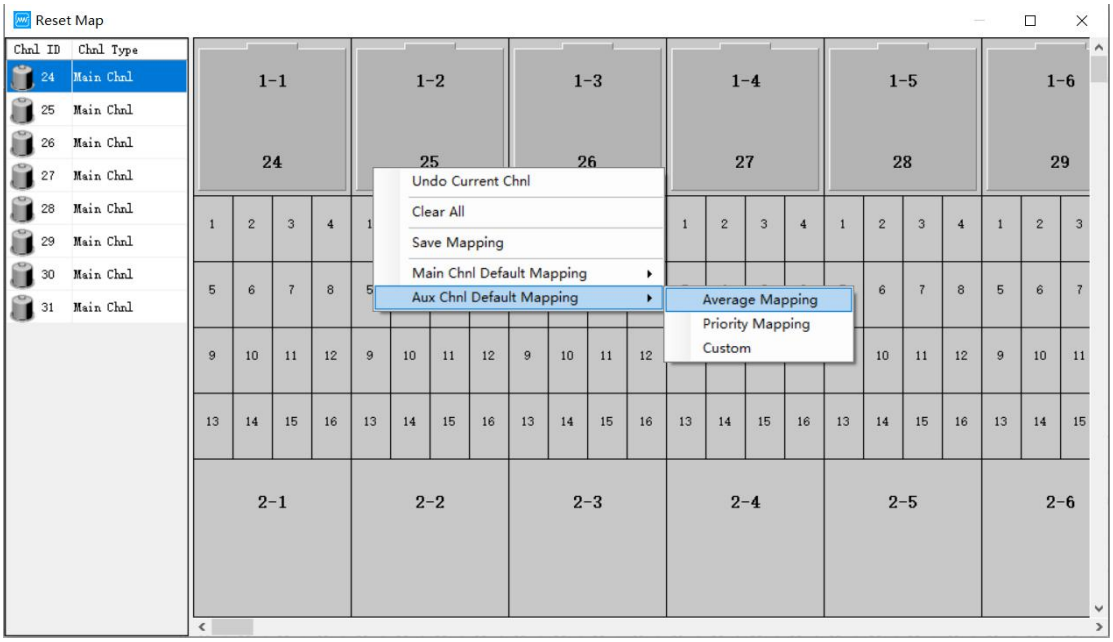


Figure 3.12.15 Aux channels mapping

	Note: Yellow icon in above picture means channels not mapped yet, purple Icon means aux channels not mapped yet. And once the channels were mapped, the color will be gray, and the channels can't be mapped again.
	Note: The battery icon in front of the mapped main channel turns from yellow to gray, that is, it cannot be remapped; if you want to cancel the current mapped channel, click the right mouse button on the channel and select "Cancel current channel"; if you select "Clear all", cancel All mapped channels.
	Note: If you want to cancel the mapping of an auxiliary channel, click the right mouse button on the auxiliary channel and select "Cancel current channel". To cancel all the mappings, select "Clear all". At this time, the mapping of all main channels and auxiliary channels will be cleared.

3.13.13. Channels copy

Function: When the channel ranges are the same, copy the step parameters of one channel to another or multiple channels.

Operation method:

1. Select the target channel;
2. Right-click → "Channel Copy" to enter the channel copy interface, as shown in the figure below;

3. Click "Select Channel" in the lower right corner of the interface to enter the channel selection interface;
4. Select the channel number to be copied.

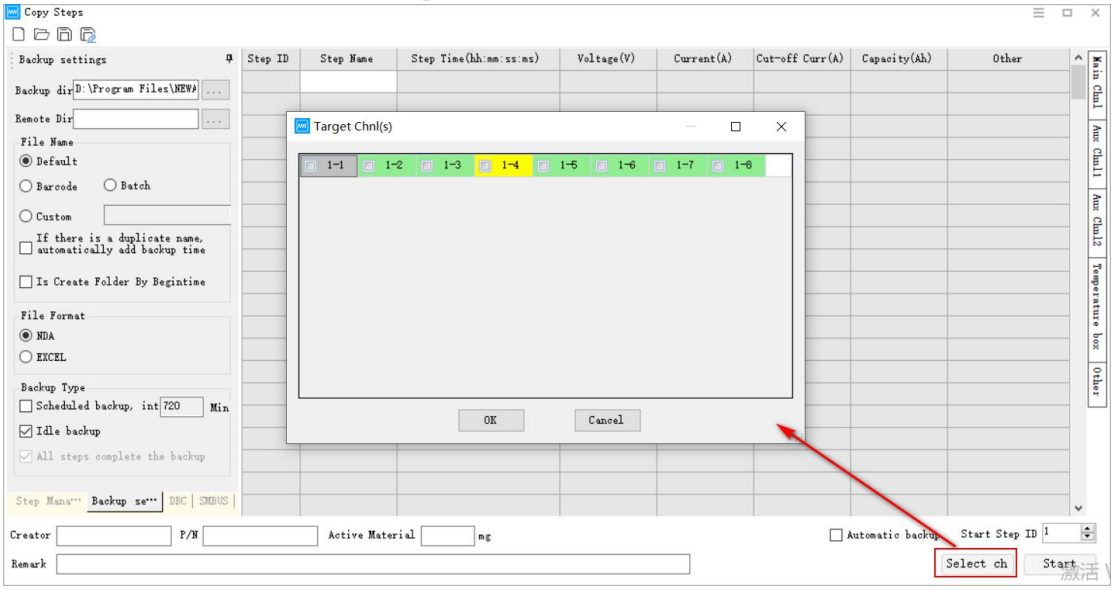


Figure 3.12.16 通道复制

3.13.14. Clear mark(reset channels)

Some functions can only be operated when the channel is completed. For protected or stopped channels, use the clear flag to change the channel status to completed.

Operation method:

1. Select the target channel in the channel area
2. Right click "clear mark"

3.13.15. Units settings

According to the different test purposes of users, set the corresponding unit parameters to provide a flexible and simple setting platform.

Operation method:

Right-click on the channel --> "Unit customization", select the unit to be set --> "OK", at this time, the data unit in the test data has been displayed according to the unit parameter set by the user, as shown in the following figure:

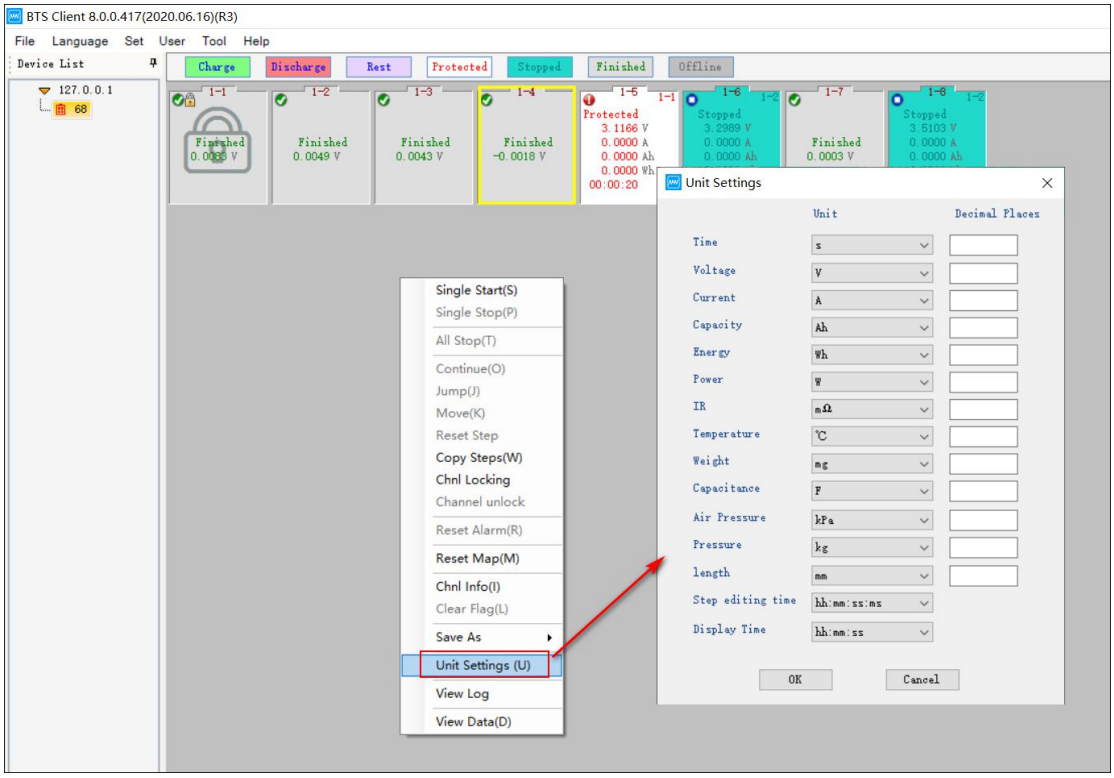


Figure 3.12.17 Units setting in BTS client

3.13.16. Check log

The BTS logs are included local logs and equipment logs. The local logs are user operations recorded by the client. The equipment logs are the channel test status changes recorded by the central computer and abnormal and prompt information during the test.

Operation method:

Select the channel, right-click --> Log, and the log list will open as shown in the figure below:

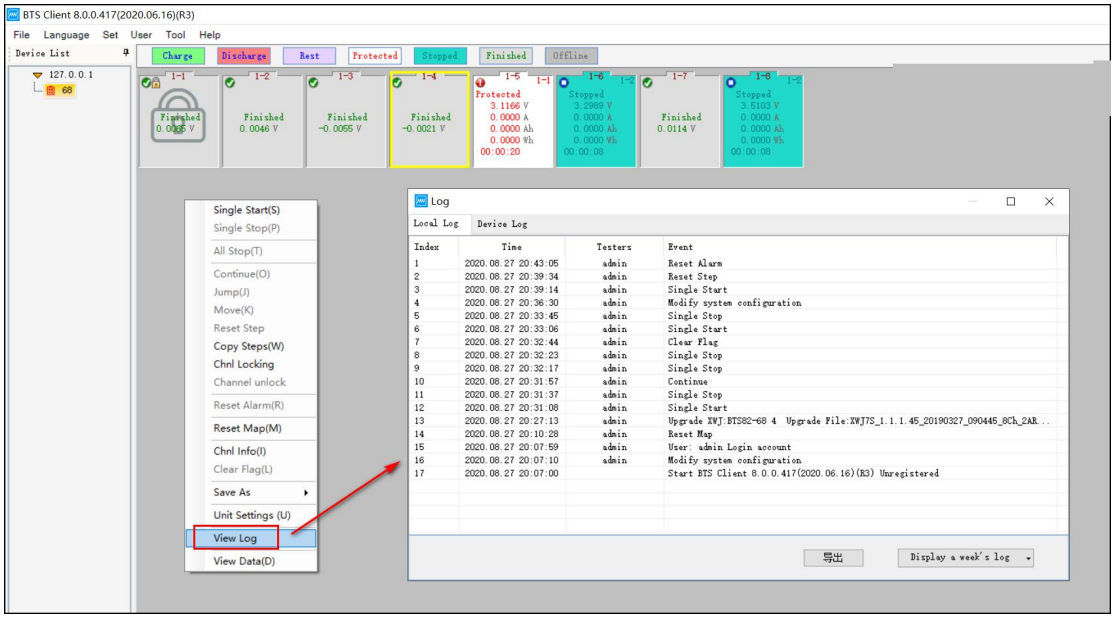


Figure 3.12.18 BTS log view

For local logs, you can double-click to view further information. For example, reset the mapping to view the mapping information before and after mapping, as shown in the following figure:

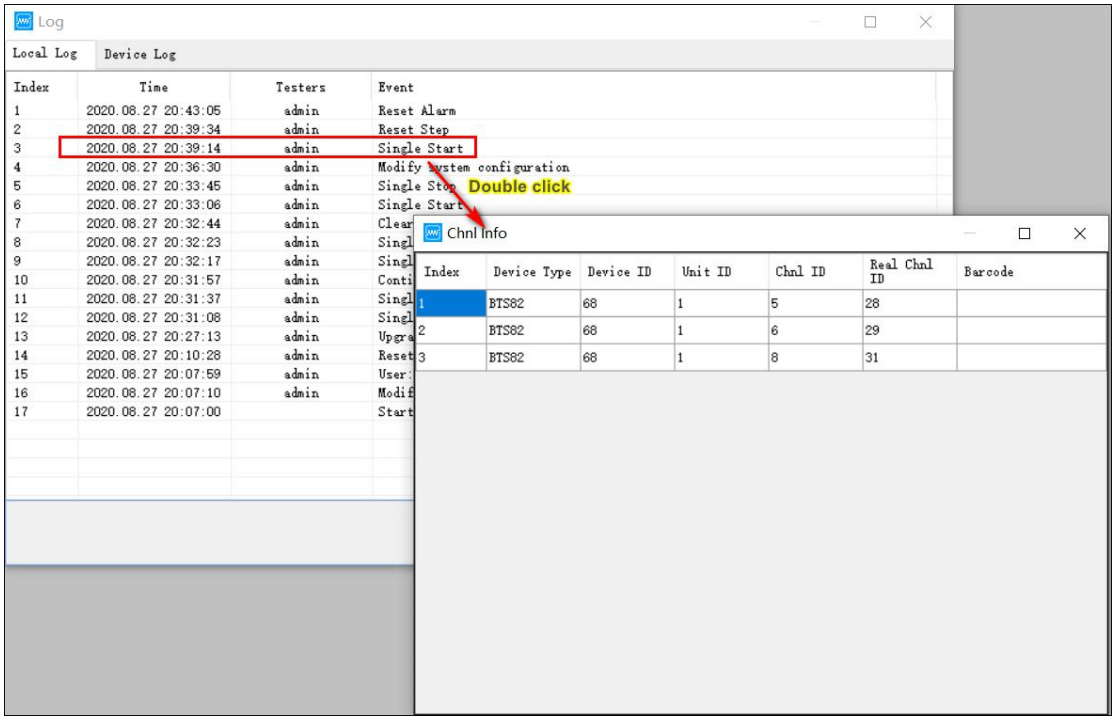


Figure 3.12.19 Double click to see log details

3.13.17. Channel data

Right-click → "Channel Data" to open the test data of the selected channel. Now you can analyze the corresponding channel test data, the interface is shown in the figure below, click icon , then the curve setting interface will appear. Under the "Curve Setting" interface, select the parameters represented by the X coordinate axis and the Y1 and Y2 coordinate axes. The default parameter settings are: X means "time", Y1 means "empty", Y2 means "empty", Y3 means "empty", Y4 means "empty", and then click the color under the label attribute then you can set up the color of the curves in the graph area. There are also other short-cut function on the tool bar, such as curves comparison, Data filter, Cycle layer data expand, Steps layer data expand, Sampling layer data expand, Excel file export, DCIR calculation，Switch between data area and graph area.

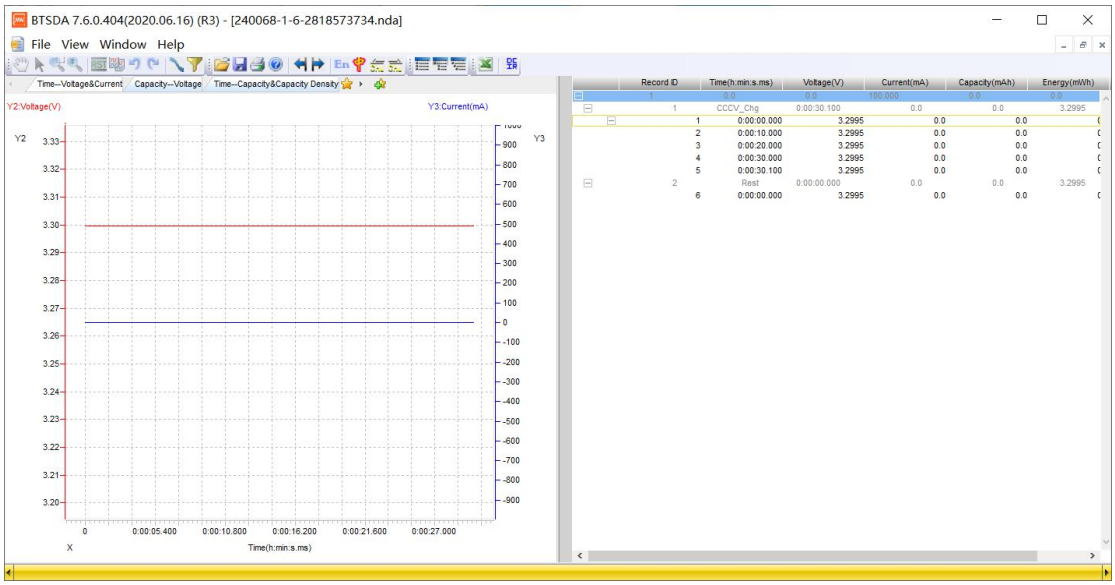


Figure 3.12.20 BTSDA interface

3.13.18. Channel data/Test data save as

Test data can be viewed through "Channel Data" and "Save Data As".

Channel data operation method:

Click the right-click menu --> "Channel Data" to open the test data of the selected channel, and then analyze the data through the BTSDA software.

How to save data as:

Click the right-click menu --> "Save Data As", select "Nda File" or "Excel File" and then select the export path, as shown in the following figure:

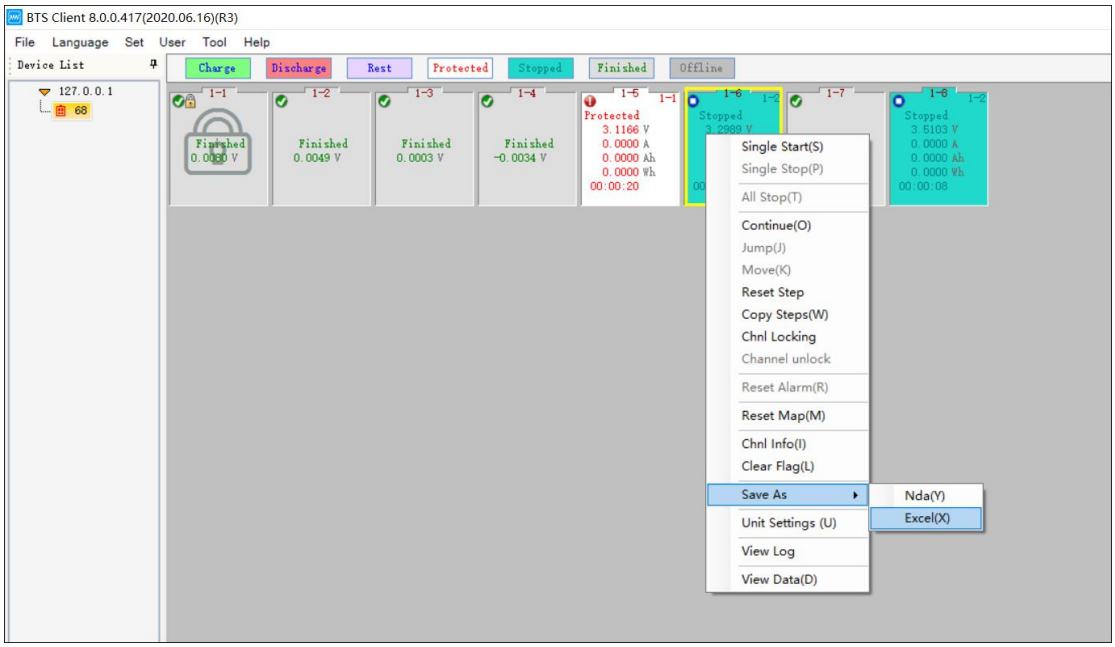


Figure 3.12.21 Save Neware NDA test data as other files format

The naming format of the data saved as file can be configured through the system settings, as shown in the figure below：

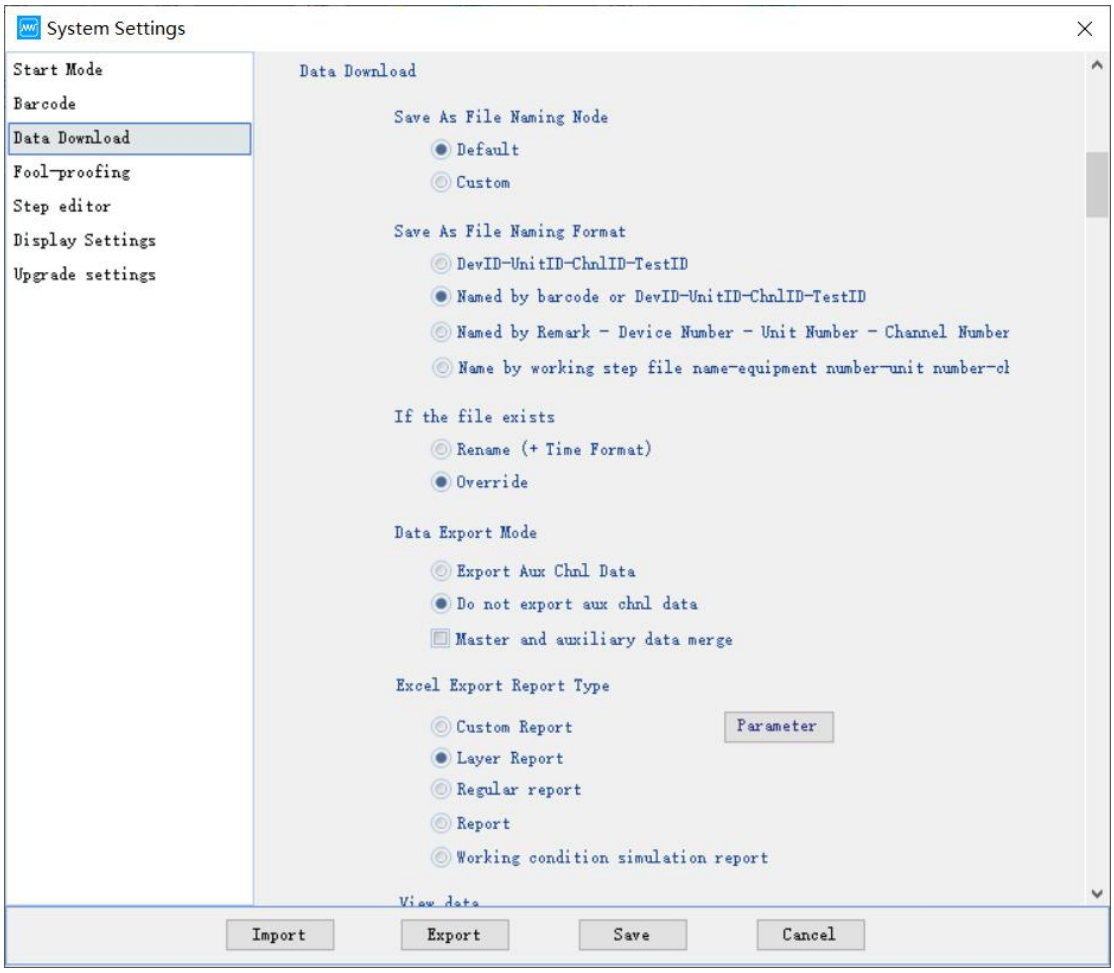


Figure 3.12.22 Save data as other formats

3.13.19. Channels information

Query the channel information to learn the detailed information of the selected channel. For example, you can view the current channel range, channel number, execution step status, software version and other detailed information, this icon indicating the currently executing step.

Operation method:

1. Select the channel to be viewed (the selected mark means that the channel has a yellow frame);
2. Double-click or right-click "Channel Information".

1. The range information of dual-range equipment can be viewed through the battery range information on the channel information interface.

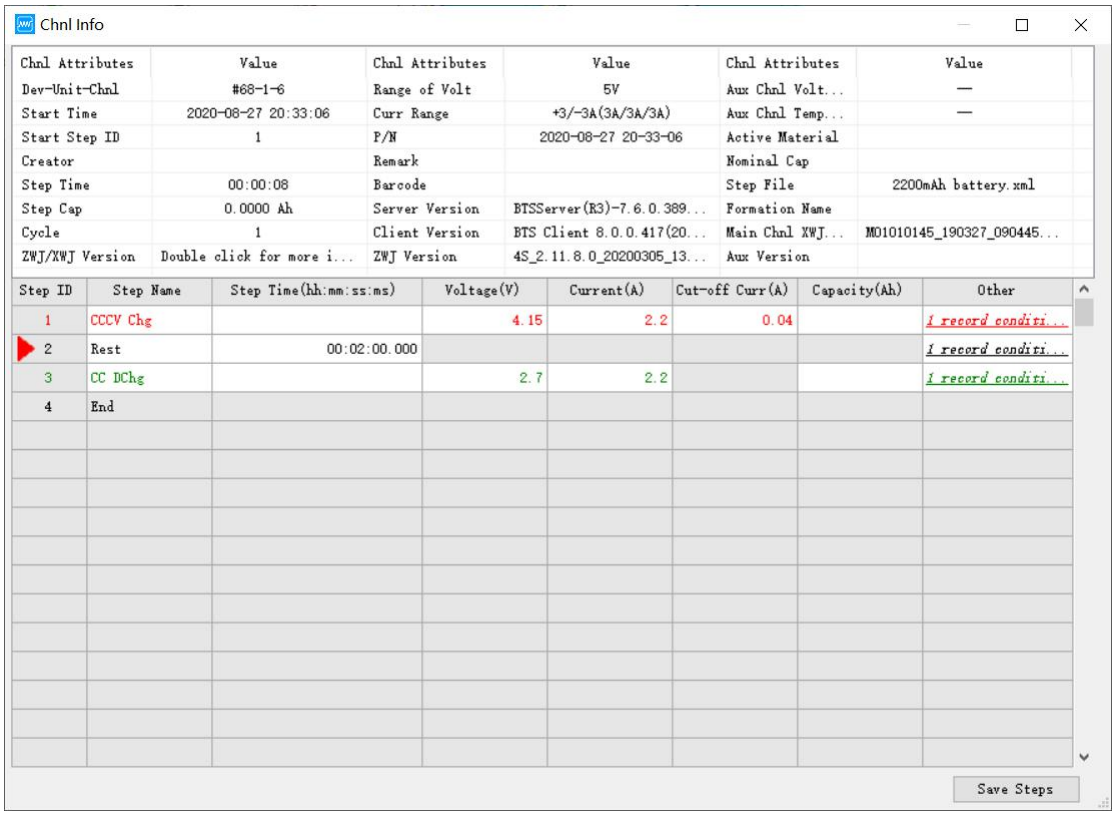


Figure 3.12.23 Check channel/profile info while running

In the "Channel Information" interface, double-click the "Middle Computer/Lower Computer Information" item in the channel attribute column to view more detailed information, as shown in the following figure:

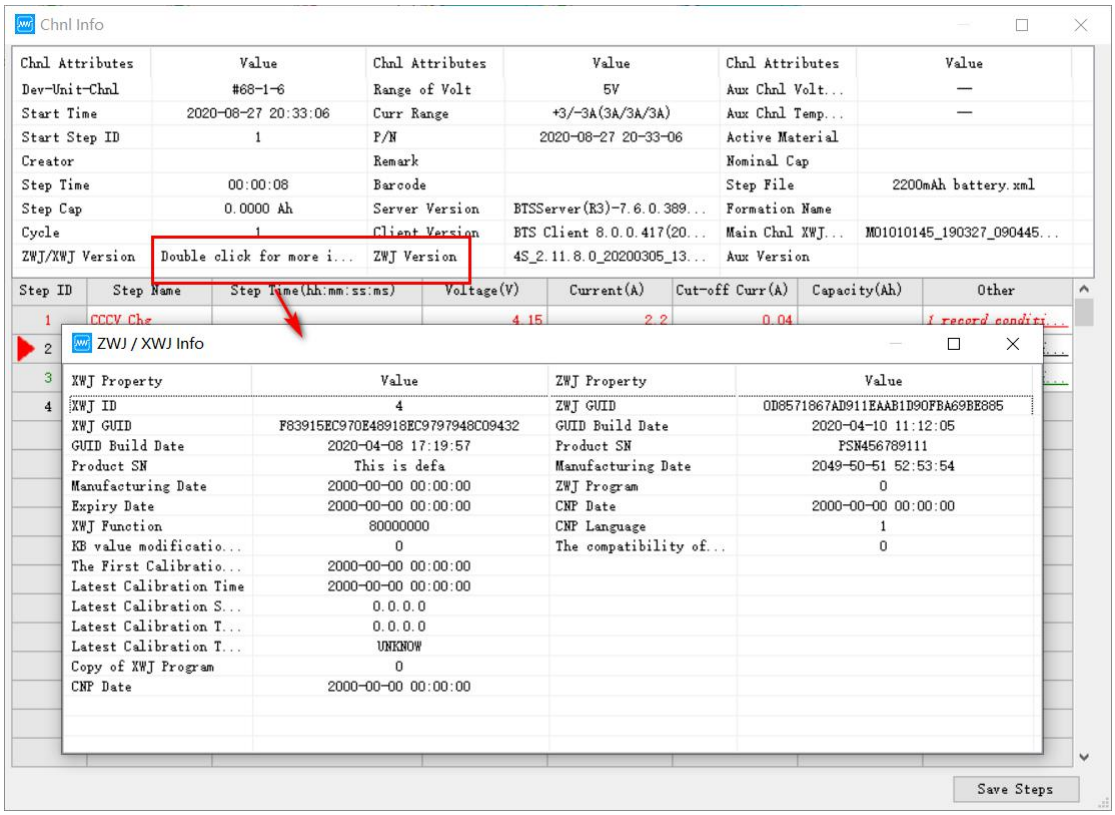
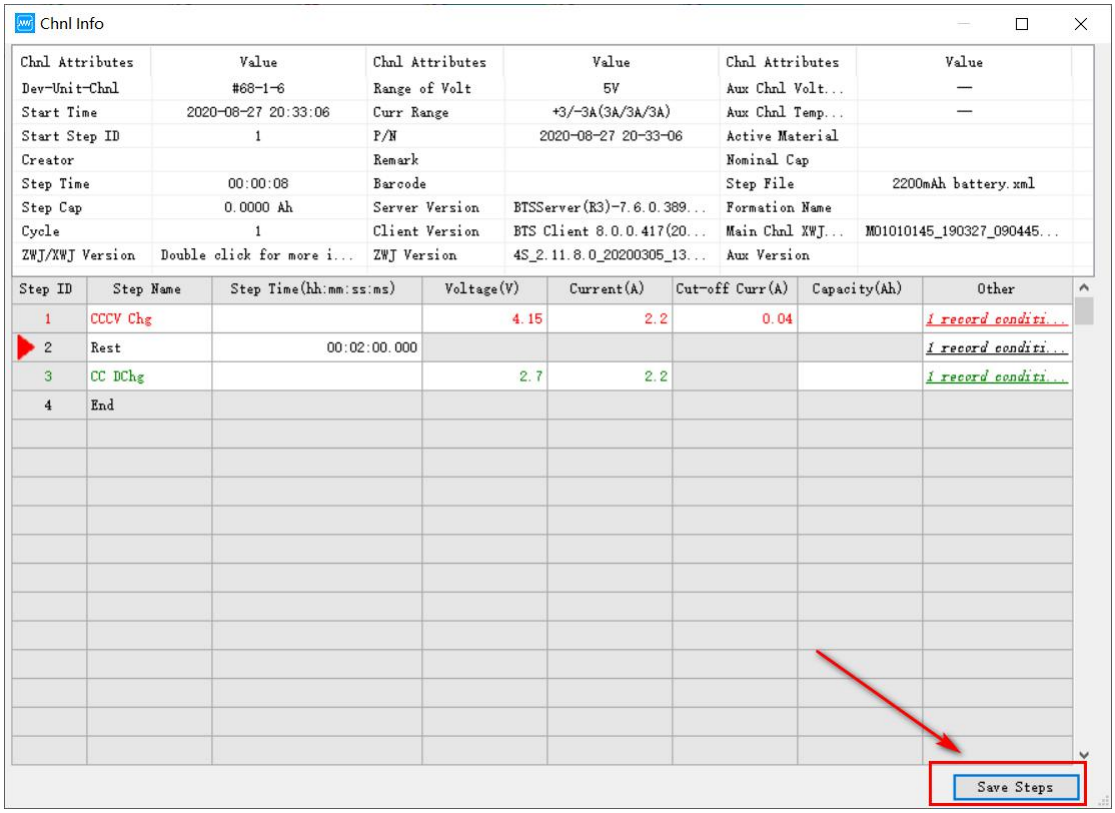


Figure 3.12.24 Check mid machine and tester info in detail

Click Save step to save the current step

operating:

Click the save step button, and the save path will pop up and enter the step file name, as shown below:



3.14. List view

The channel state parameters are displayed in the form of a list, and the list display interface has the same functions as the channel graphic display interface for starting test, stopping test, and viewing data.

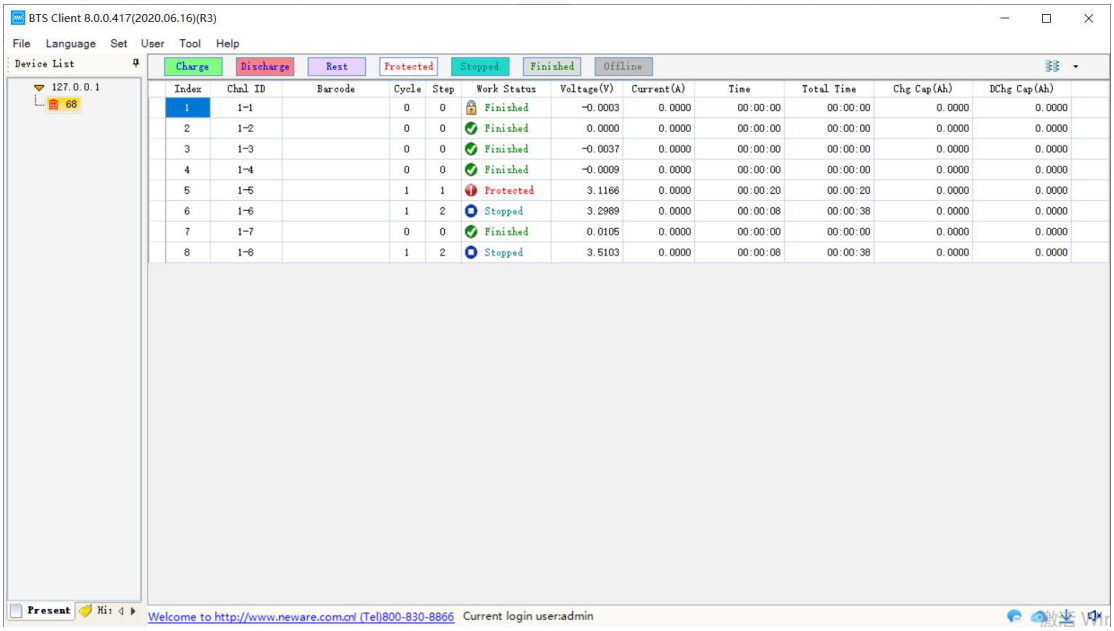


Figure 3.13.1 List view mode

3.14.1. Right menu functions

The list interface and the channel graphical interface have the same right-click menu function, as shown in the following figure:

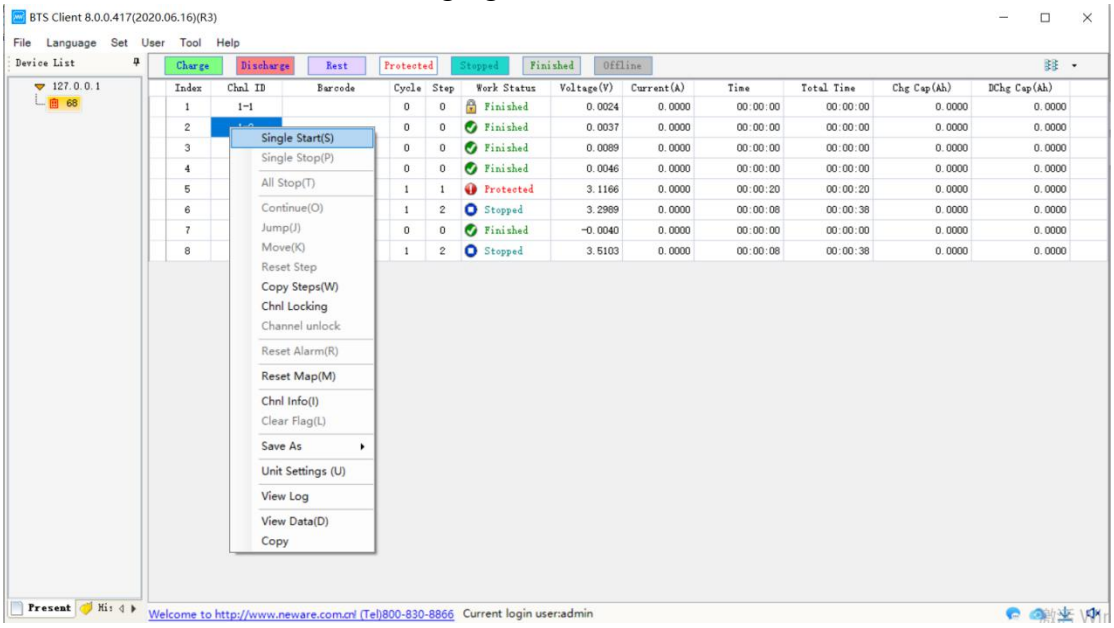


Figure 3.13.2 Right menu in the list view mode

3.14.2. Display parameters setting

List display can configure the column parameters to be displayed.
Operation method:
1. Place the mouse on the head of the list;
2. Right click --> tick the parameters to be displayed.

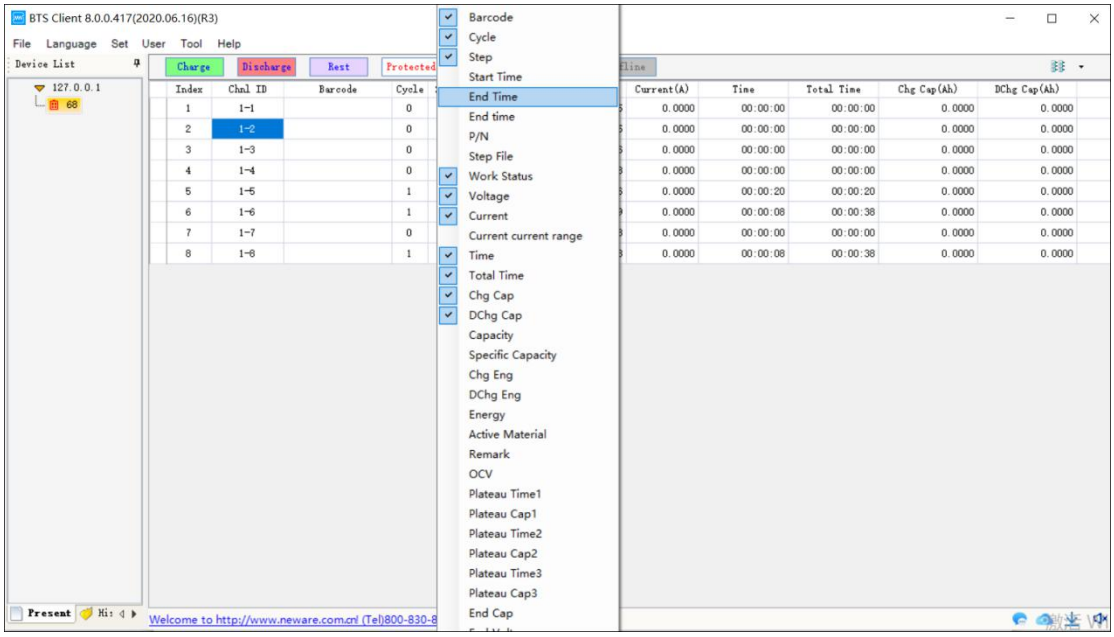


Figure 3.13.3 Configure the fields of list view mode

3.14.3. Bar-code input

The bar code entry function is displayed in the list. Right-click on the bar code entry column has: delete bar code, clear bar code, batch generate bar code, import bar code, export bar code, copy and other functions.

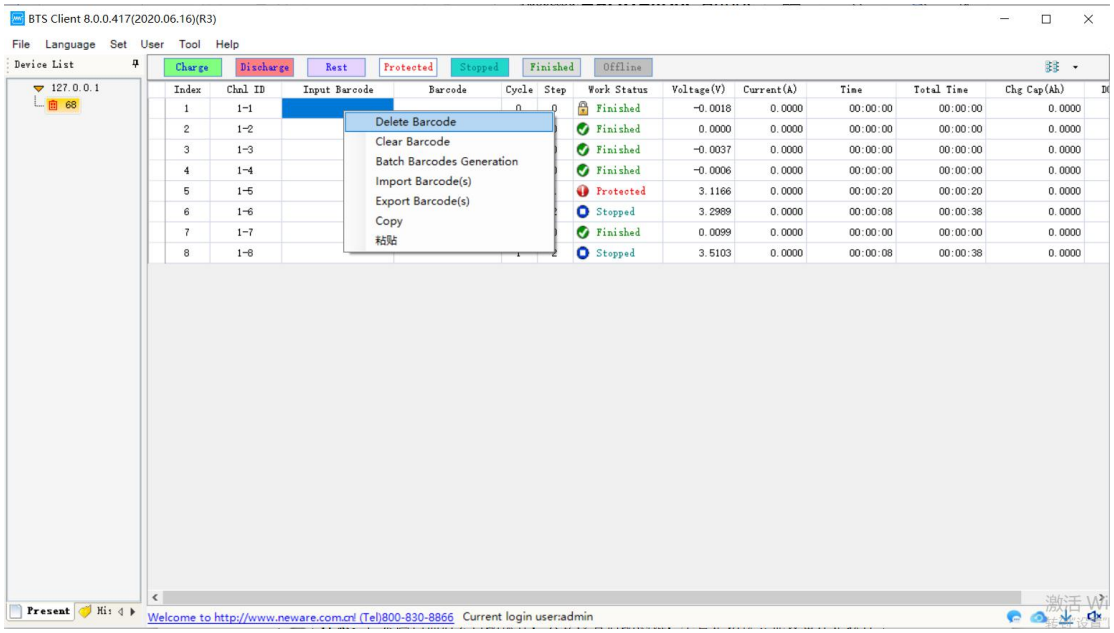


Figure 3.13.4 Input barcode

1. Input bar-code

① Manually enter or scan the bar code to start the test at a single point, and the bar code can be bound to the test data of the corresponding channel.

② Operation method:

③ In the list display, check "Enter barcode" (the newly entered barcode, which will be used in the next test) and "Barcode" (the barcode currently being tested);

④ Select the channel number corresponding to the input bar code column, double-click the left mouse button to enter the input mode, and you can also use the code scanner;

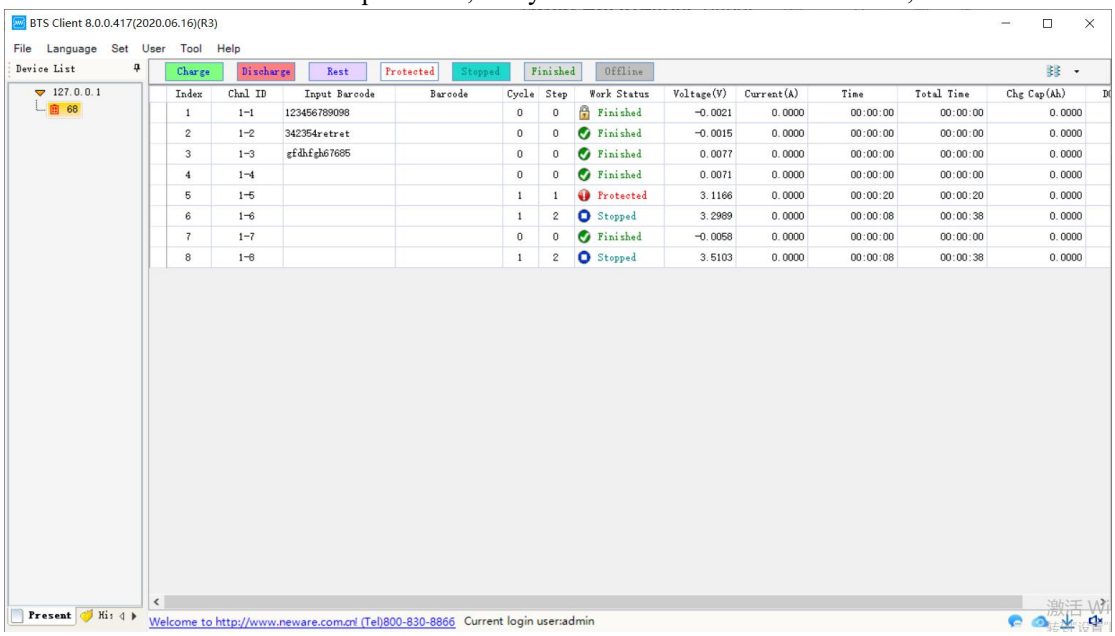


Figure 3.13.5 Barcode input

⑤ After entering the barcode manually, press Enter or scan the barcode with a barcode scanner, just make sure the input focus in in the correct barcode field;

⑥ The edit box automatically jumps to the next selected channel, and continues to scan the barcode;

⑦ Single-point start the corresponding channel after scanning is completed.

Note:

1. The barcode will be automatically saved after scanning. As long as the test is not started, whether it is switching other devices or restarting the software, after switching back, the scanned barcode still exists.

2. When selecting the "Enter barcode" menu, the display boxes of other columns cannot be selected, otherwise the corresponding right-click menu will not be displayed.

3. The channel that has not selected "Enter barcode" cannot scan the barcode. If the channel selected to enter the barcode is not continuous, after scanning the current channel, it will skip to the next entered channel instead of the next channel number.

4."Barcode input" column can import and export barcode, "Barcode" column can export barcode to txt format, this function is useful.

2. Delete

In the bar code entry column, select the channel which bar code needs to be deleted, right-click to delete the bar code then.

3. Clear/delete all

In the bar code entry column,right click to clear bar code,all bar codes will be cleared then.

4. Generate bar-code in a batch

For the convenience of testing, the software can generate continuous bar codes in batches.

Operation method:

1. Select the edit box in the "Enter barcode" column;

2. Right click --> "Generate barcodes in batches";

3. Enter the initial barcode in the batch bar code generation window --> "OK".

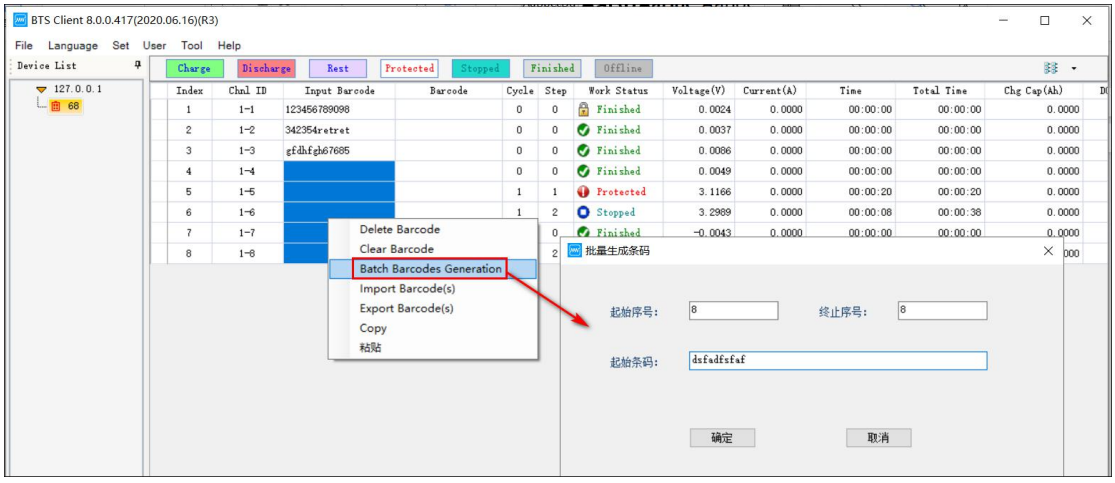


Figure 3.13.6 Generate barcodes in a batch

5. Import

Select the bar code entry column, select the channel to import the bar code, right-click and select import bar code file, after confirming, you can import the bar code file.

Note：Barcode input/import will start from the selected channel.

6. Export

Select input bar code or bar code column, right-click and select export bar code, the whole column bar code export will be saved as TXT file.

7. Copy

Select the bar code to be copied and right-click to copy.

3.15. Capacity grading

The battery is sorted according to its performance,this software can set the sorting conditions and view the sorting results.

3.15.1. Grading settings

Sorting is calculated using the test data from the last cycle

Description of sorting:

Discharge capacity:The discharge capacity of the last discharge step in the last cycle.

Discharge time:Discharge time of the last discharge step in the last cycle.

Platform time: in the last cycle, the time when the last discharge step reaches the specified platform voltage;

Platform capacity: The capacity when the last discharge step reaches the specified platform voltage in the last cycle;

Open circuit voltage:Voltage of the first recorded data in the last cycle

Discharge median voltage: in the last cycle, the voltage corresponding to half of the discharge capacity of the last discharge step;

Constant current charging time:The time taken by the last constant current charging step in the last cycle.

Charge and discharge efficiency:The capacity of charging step/discharging step in the last cycle.

Recovery voltage:recovery voltage of the last discharge step in the last cycle.

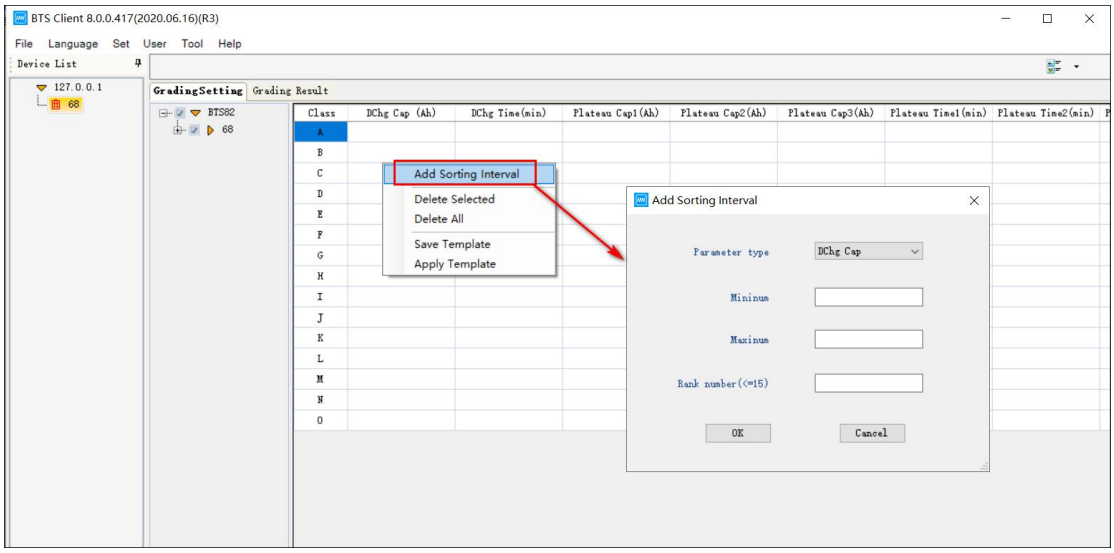
Interval sorting setting:

Method 1:Double-click the text box,enter each interval in XX-XX (minimum-maximum) format.

Method 2:right click→add grading criteria

Sorting steps can be saved as a file，or can be also loaded from a saved file.

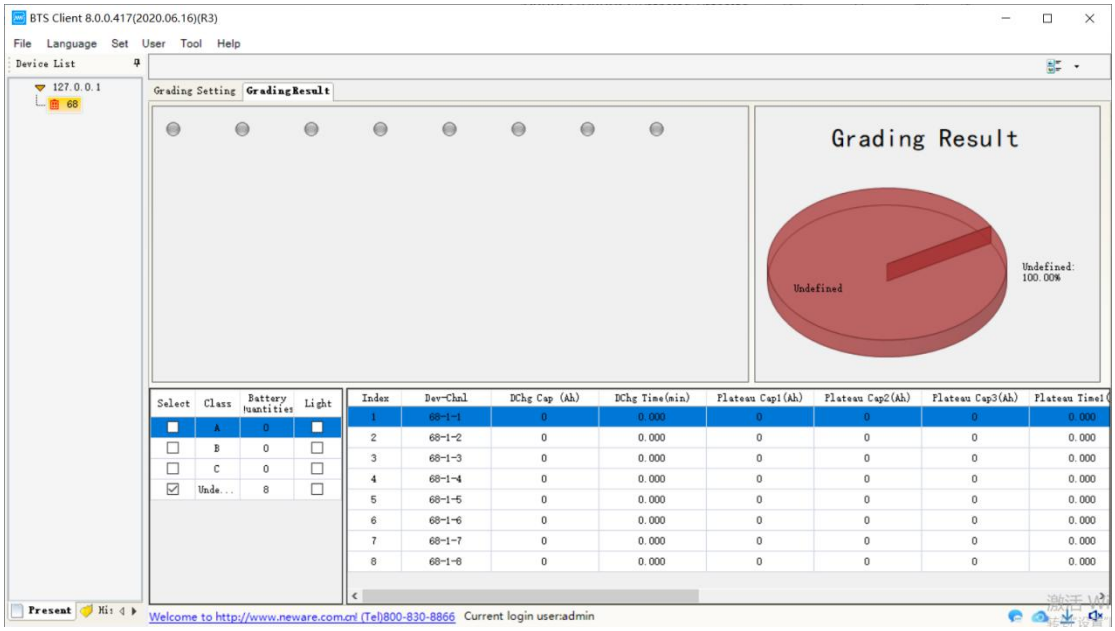
Sorting can operate on multiple equipment simultaneously， default is to operate the current equipment,what if more than one equipment needs to be operated, select the corresponding equipment in the list on the left side.



3. 14. 1 Grading criteria settings

3. 15. 2. Grading result

Click “sorting” button after setting sorting conditions,the software will be sorted according to the conditions set,it will automatically jump to the sorting result interface after sorting, you can also light up the channels in the grading result interface,It is convenient for users to choose batteries according to the sorting results,shown as follows:

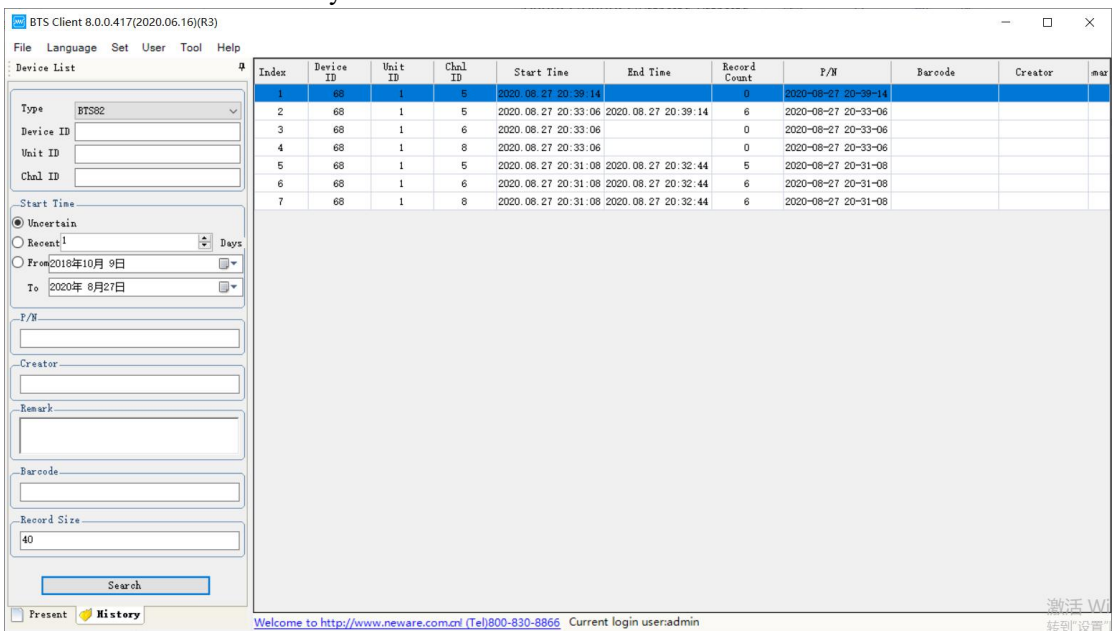


3. 14. 2 Grading result

3. 16. History Of Test Results

History of interfaces provide the functions of searching historical data, viewing historical data, exporting historical data, etc.

Click 历史 to enter the history of interfaces.shown as follows:

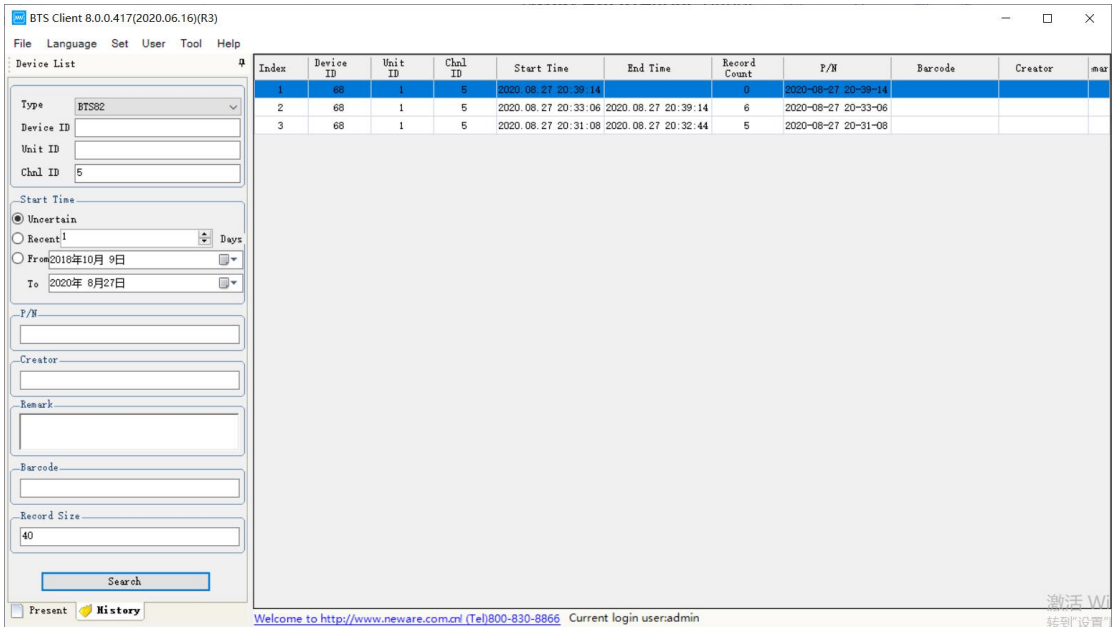


3.15.1 Historical data search

This is how to:

1. Set 查询条件 ,such as type selection:BTS82,input equipment number:01,input unit number:1,click 搜索 ,the corresponding search results are displayed in the list, shown as follows

2. Set 查询条件 ,such as input start up time,battery number,creator,remarks, etc.Fuzzy conditions can also be entered in each text, click on 搜索 , the corresponding search results are displayed in the list,please keep in mind that the relationship of all the search criteria is 'AND', which means more criteria will get you less results.



3.15.2 Historical data search

4. Appendix

4.1. FAQ

Q：How many channels could control by one mid machine? what is the rationale?

A： One mid machine could monitor 1600 channels, rationale is the maximum data acquisition frequency could be 10Hz,which means record one test data in 0.1 seconds(If the data record frequency is 1Hz,mid machine could monitor 2000 channels.

Q: The reason for the failure of searching the mid machine by host computer?

A：There are two possibilities

1. There is no networking between the host computer and the mid machine
2. The host computer and the mid machine are not connected in the same network segment, so that cannot be connected.

Q：How to operate other servers on the current system?

A： When the BTS 8.0.0 client is installed on other computers and the battery test is performed, as long as the device list on the main interface of the current computer BTS 8.0.0, right-click the server version and select Add Server, click to fill in the IP of other servers, and then OK. View and operate test equipment on other servers on the current client.

Q：How long can the BTS 8.0.0 client view the test data?

A： As long as the database has data, there is no limit to the number of query days.

Q：When looking at the bar code information in the channel, the original battery bar code information is missing

A： It cannot be moved when the bar-code is connected with channel, otherwise the information might be lost.

Q：Why can't barcode be scanned into the channel?

A： The channel cannot perform any operations during the bar-code scanning,otherwise, it cannot be scanned into the bar code box.

Q：Why does the voltage is fluctuate as displayed on the client interface when the test is suspended?

A： When the device is connected to the battery, the interface displays the actual battery voltage; if the device is not connected to the battery, because the device is in an open circuit state, the input impedance is high, the device sampling line is easy to collect the crosstalk voltage of the external environment, so the displayed voltage will be random Beating.

4.2. Precautions on use

Before you use Neware's products, please pay attention to the following items:

The model of the power lines should match the power of the equipment， check the voltage rating before connecting the equipment to the power outlet， to make sure the required voltage and frequency match the actual power supply.

·Do not mix new and old batteries or different models

·When multiple equipment are running simultaneously,don't put the equipment too close,in case air back-flow or air preheating,and also it is not conductive to maintenance.

·Do not uninstall the circuit board without authorization,to effectively avoid future errors that can cause equipment harm or communication error.

·Before using the device, please turn on the power to check whether the device is normal and whether the battery clamp probe is damaged. If it is damaged, it cannot be used and a label is attached for timely maintenance.

·When the battery is clamped,please note that the anode and cathode of the battery should be properly connected to the anode and cathode of the clamps.

·The battery will be damaged if the distance between clamps is too small,if the distance between clamps is too big,it will affect the accuracy of the test data.

·Please set the working steps correctly during the test,which will damage battery and even cause safety accidents.

·When the internal temperature of the equipment exceeds 50℃,please check whether the fan is working properly.

·If voltage and current data of a channel are unusual during the test, please stop using this channel immediately,mark it and contact Neware's after-sales department immediately.

4.3. Repair and Maintenance

The equipment you choose is a product with excellent design and outstanding workmanship,it should be used with caution.The following suggestions will help you use the warranty service effectively

·To ensure the best performance of the equipment with high precision， calibration operations are recommended in every six months.

·Uninstall the previous version before upgrading or reinstalling a new version of software.

·Please follow the instructions in this manual, do not try other methods.

·Keep equipment dry.Electronic circuits can be corroded by wet weather and liquids

·Equipment should be kept clean,do not use or store the equipment in dusty or dirty,this will damage a series of electronic components.

·Do not store the equipment in high temperatures,high temperatures may damage the device or battery.

·Do not store the device in cold temperatures. When the device warms to its normal temperature, moisture can form inside the device and damage it.

·Do not drop, knock, or shake the equipment and battery.

·Only use a soft, clean, dry cloth to clean the surface of the equipment.

·Please use parts certified by Neware, unverified parts might cause hardware issue or even more serious problems.

·Make a backup to keep your important data safe(test data)

·Careful and maintenance use of equipment helps improve equipment performance,our long-term customer survey and after-sales service practice show that equipment failure is caused by improper operation or careless maintenance in many cases,when faced with equipment which is not functioning properly, please read the instruction manual carefully or contact with Neware customer service for consultation.

4.4. After sales and service

·Free technical training:Neware provides free technical training before and after sales,we have professional technical engineers at your service,you are welcome to visit us.

·Telephony Support:If user have any questions or need further information please feel free to contact us when using Neware products,the consultation time is based on Neware's timetable.

·Troubleshooting and support:Receive notification from the customer that Neware's products are out of order or not working normally,if it cannot be corrected by Neware's telephony support,Neware will solve the problem as soon as possible during service hours,to correct, repair or adjust or replace component of the product.

4.5. Contact NEWARE

Thank you very much for using Neware products,we hope that Neware's products will be your right-hand assistant during the test.

Please contact us if you have any questions about our products.

Website: www.newarebattery.com

Hot-line: 0755-83108866，83108867，83108868