

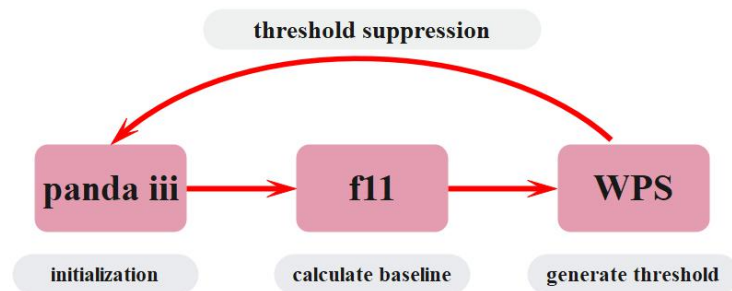
HERD 2021 beam test TRD host computer software

operating instructions

The software needs to be configured before formal data acquisition. Detailed description in the [Section 1](#) to [Section 5](#).

After configuration, you only need to click three buttons named **data acquisition**, **Trig Gen Off** and **stop** to complete data acquisition.

There is a brief block diagram about the host computer operation.



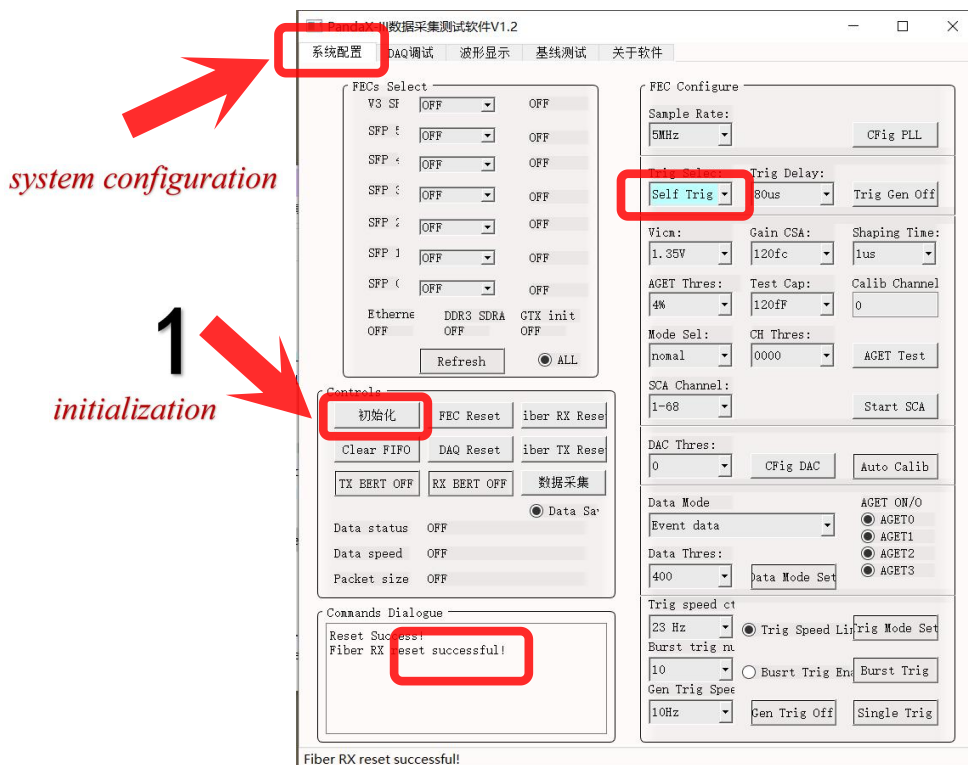
Please refer to the following for specific operation.

Section 1:

There is a file named **TRD** on the desktop, then click it and open software.



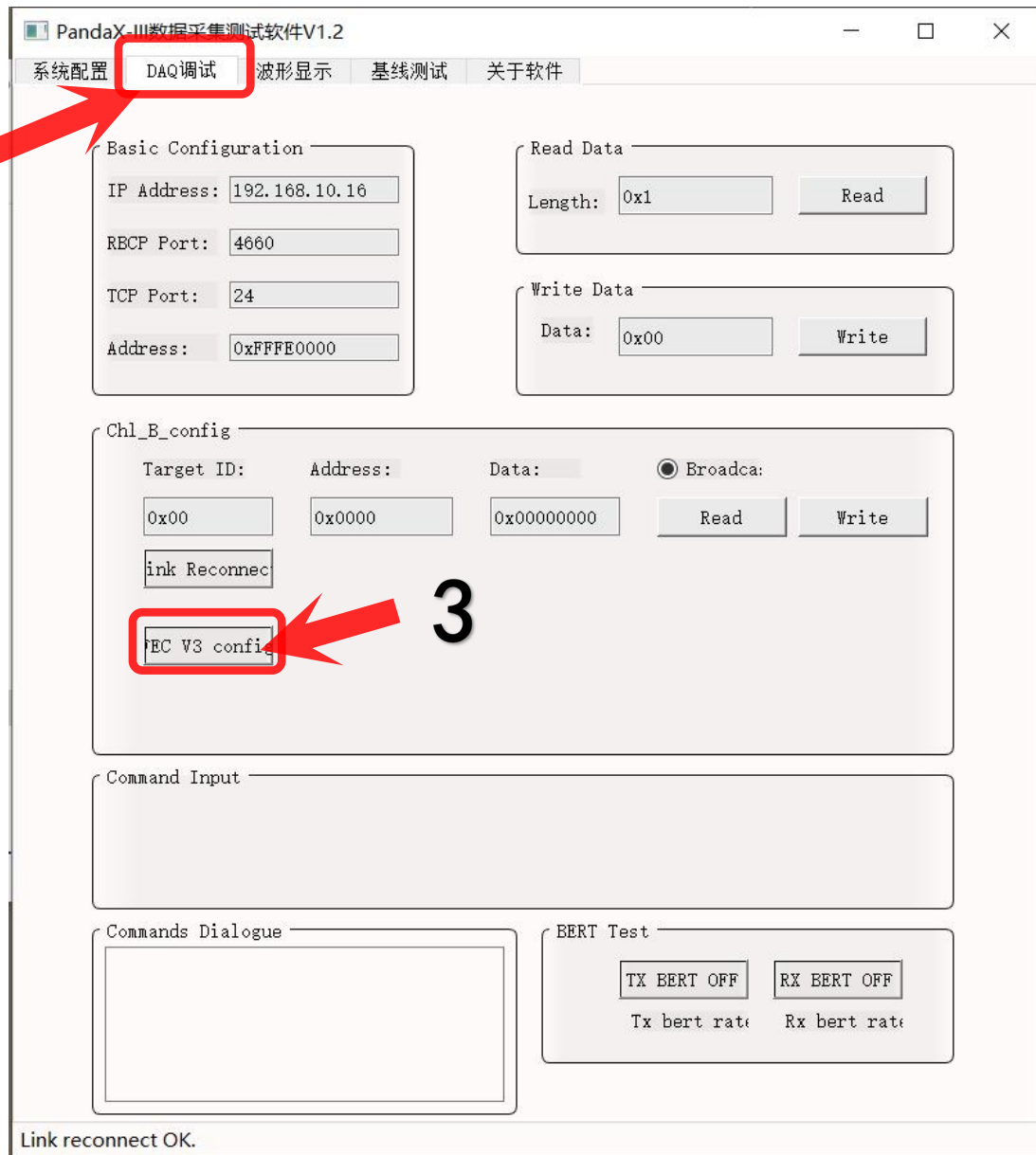
Step 1. Click *initialization*




Step 2. Click *DAQ debug*

Step 3. Click *FEC V3 config*

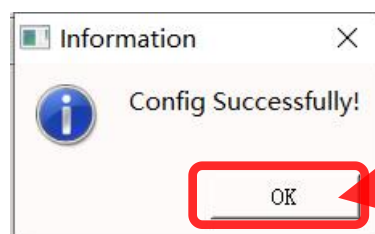
2
DAQ debug



Choose  FECV3ConfigFileNew.txt in the path of /Desktop/TRD/software, then wait for a few minutes.



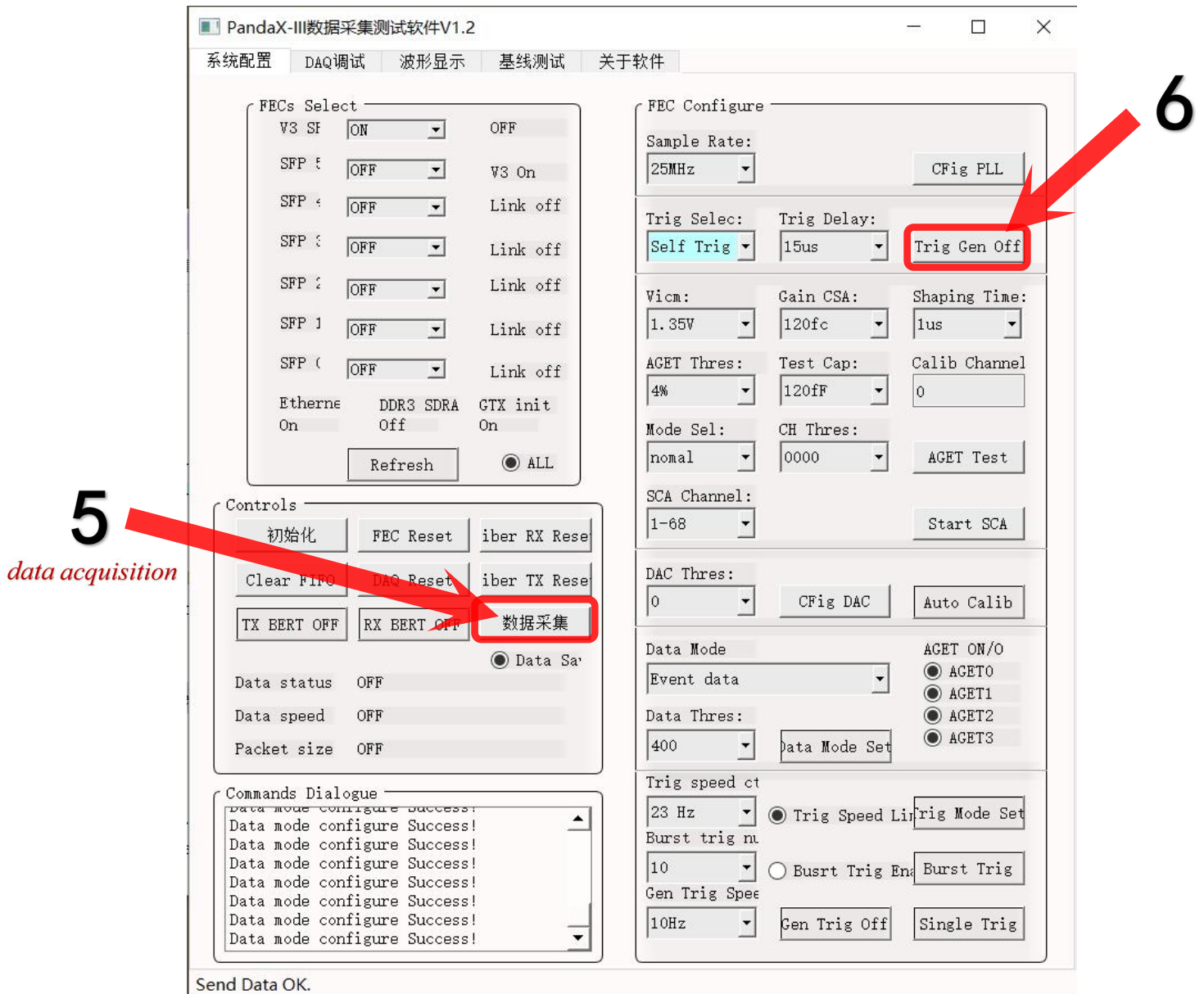
Step 4. Click *ok*



4

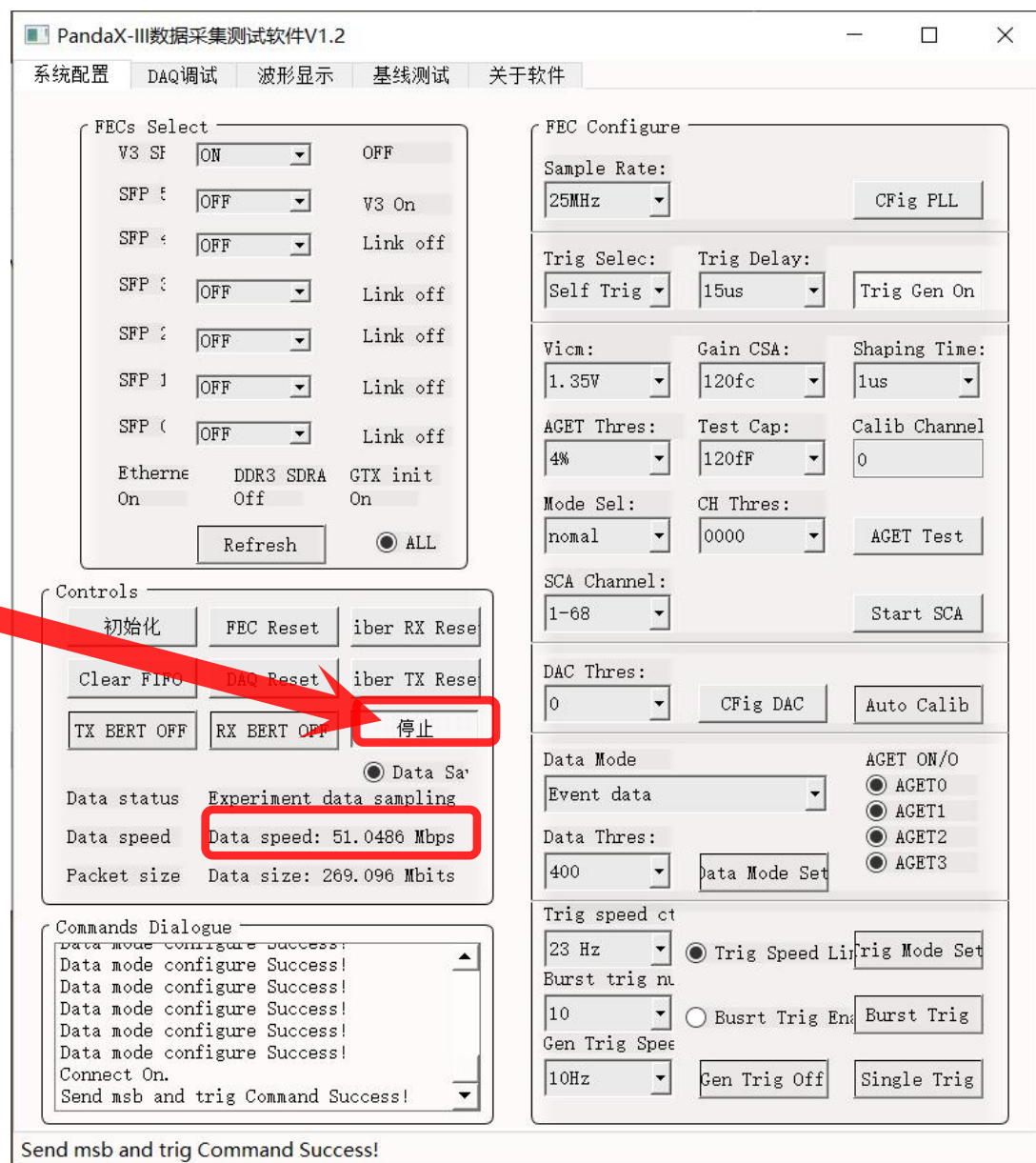
Step 5. Click *data acquisition*

Step 6. Click *Trig Gen Off*



Step 7. Click *stop*

7
stop




Click stop. Generally, the value of Data speed is about 51 Mbps. We can collect data for almost two seconds.

The data that we just generated will save in this path automatically:

> TRD > software

Section 2:

There is a file named **TRD** on the desktop and click it. Then click  f11

and  f11.exe

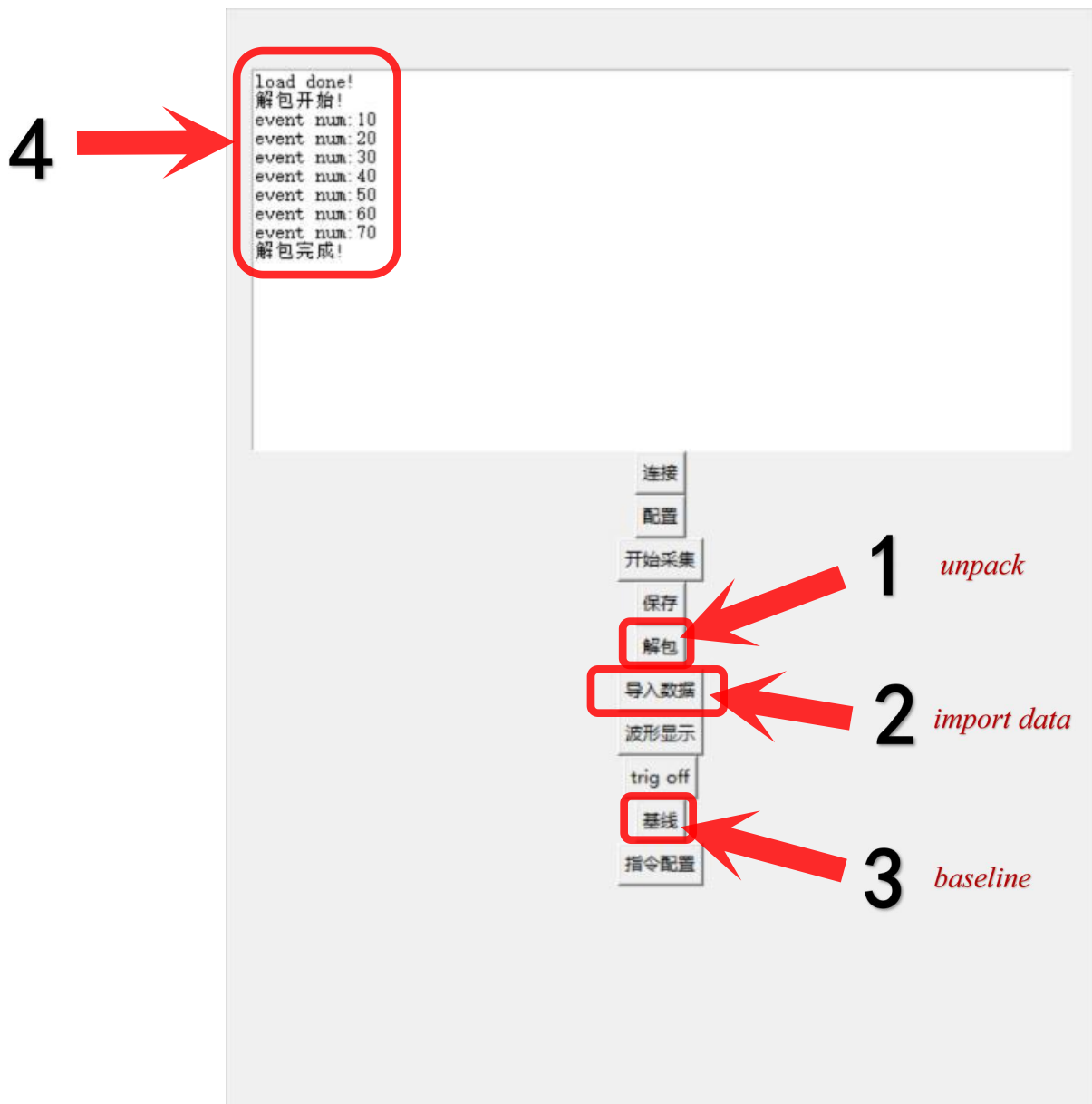
Step 1. Click *unpack*

Step 2. Click *import data*

Click 1, then 2, then chose the data generated in the section 1 step 7, then click 3.

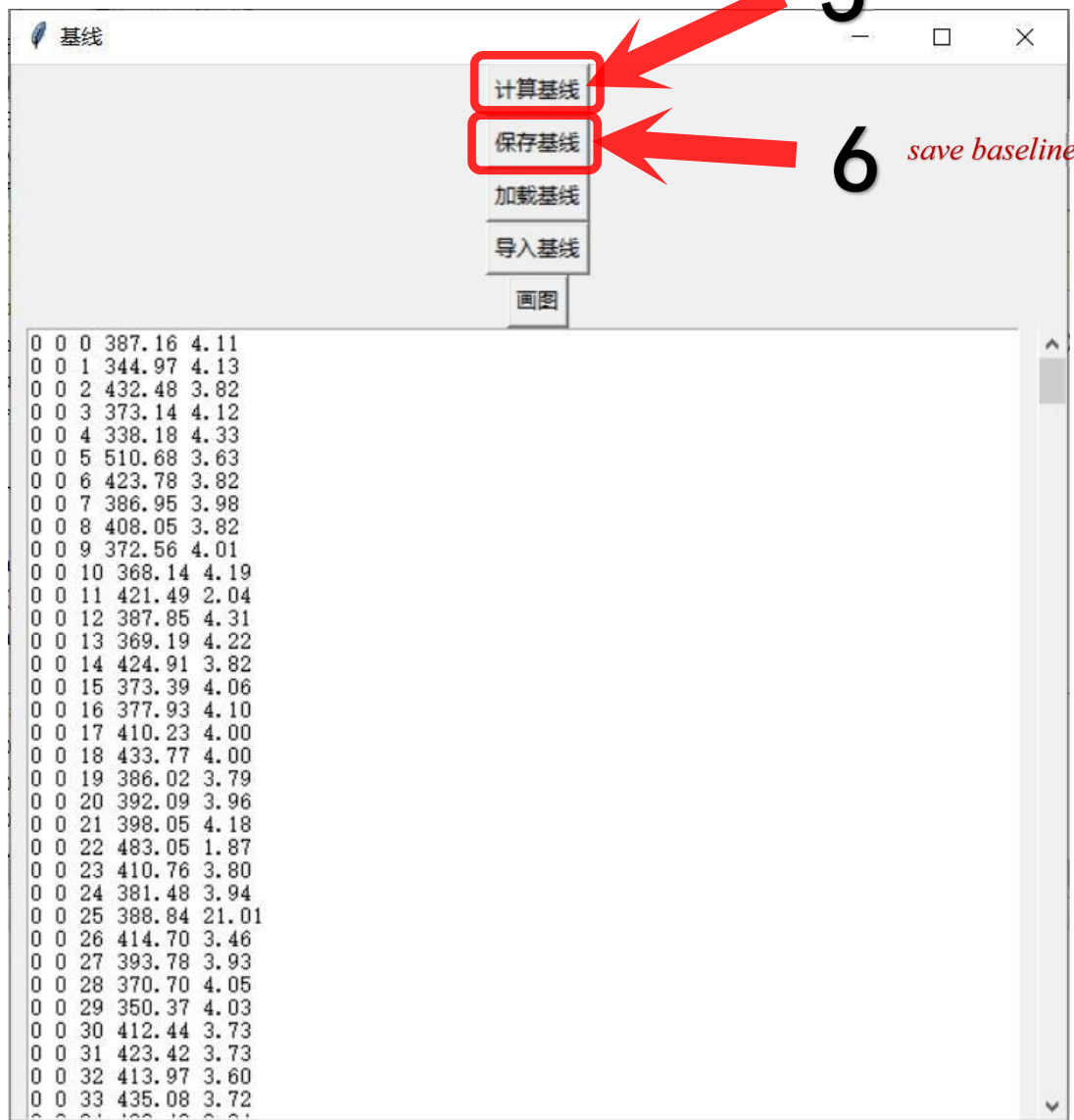
Step 3. Click *baseline*

it will **appear 4** when you operate all successfully.



Step 5. Click *calculate baseline*

Step 6. Click *save baseline*



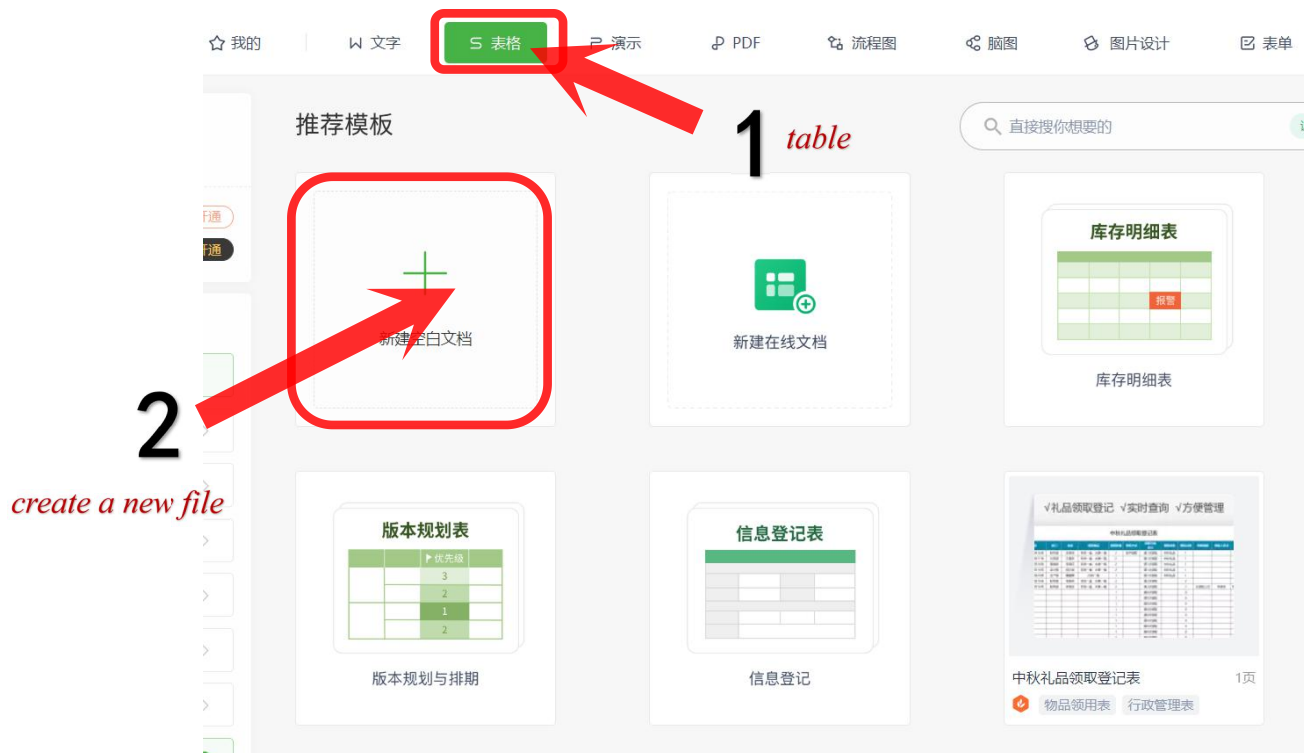
Section 3:



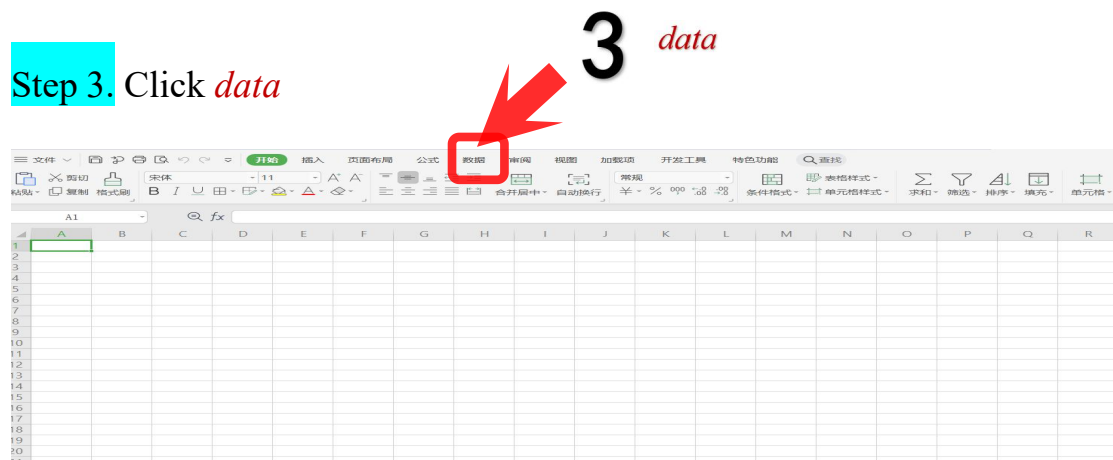
After you click 6, you should save it on desktop, Then click on the desktop and create a new blank table like this:

Step 1. Click *table*

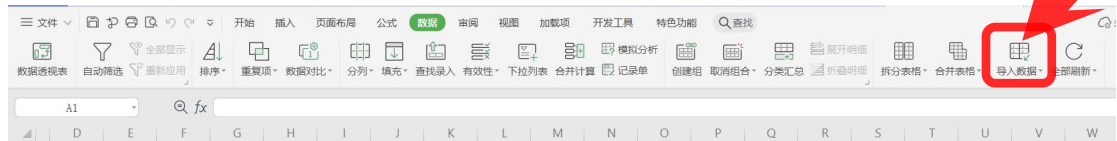
Step 2. Click *create a new file*



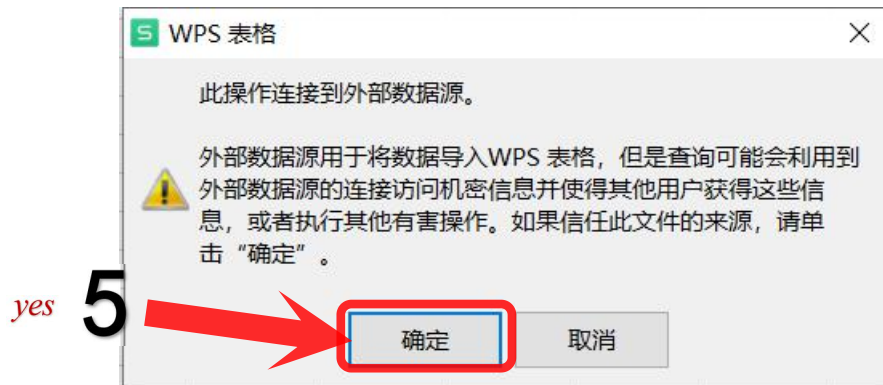
Step 3. Click *data*



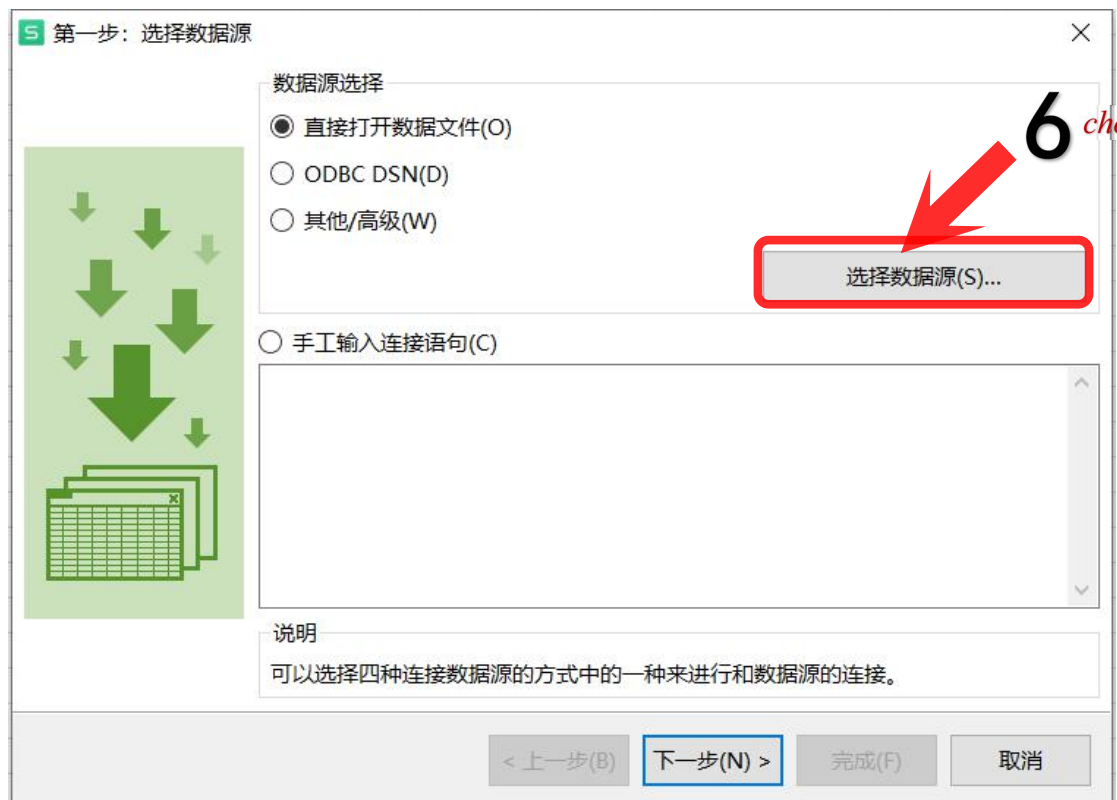
Step 4. Click *import data*



Step 5. Click *yes*



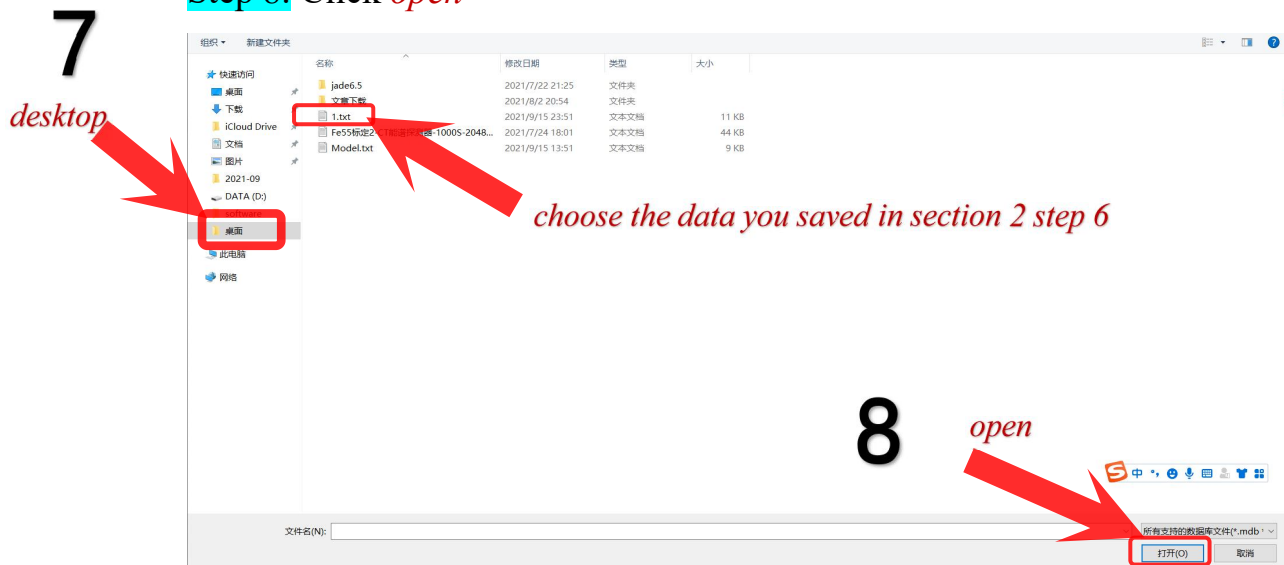
Step 6. Click *choose data source*



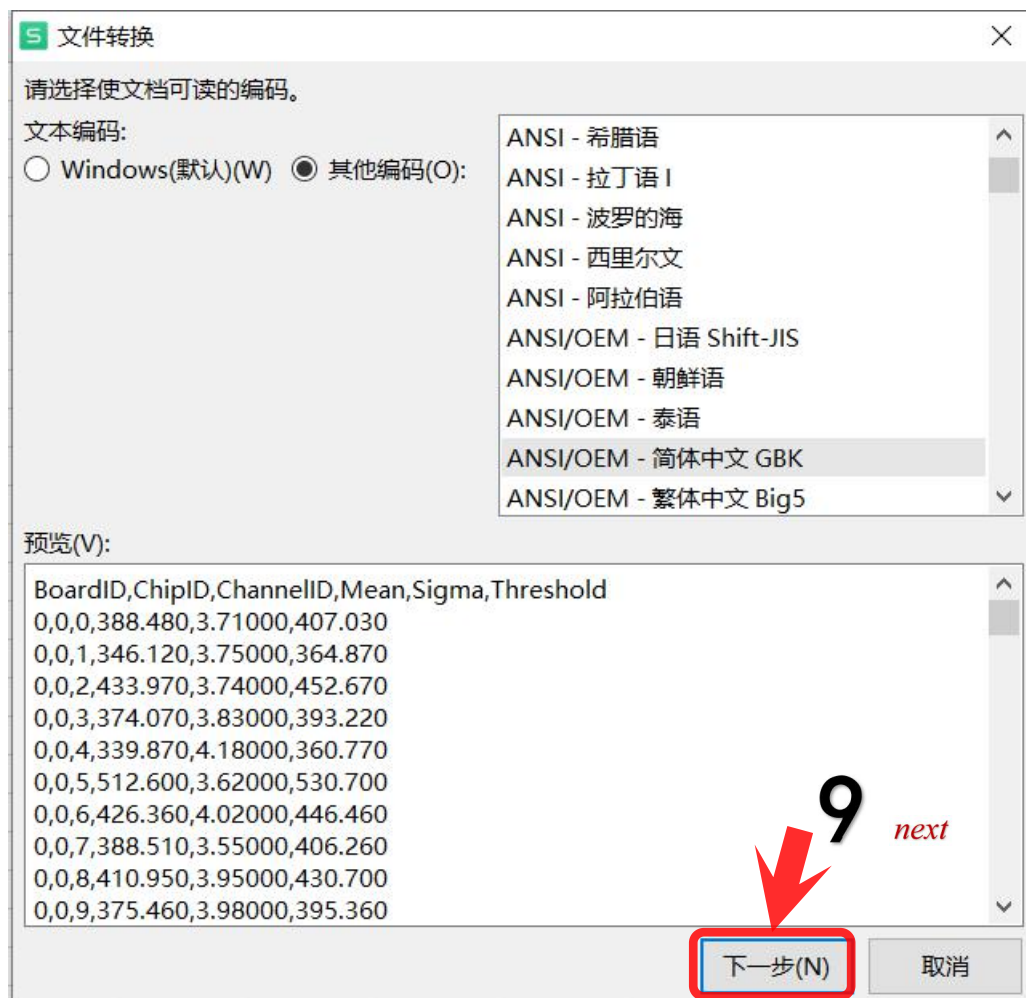
choose the data that we generated in section2, and the data saved in desktop.

Step 7. Click *desktop* and choose the data you saved in section 2 step 6

Step 8. Click *open*



Step 9. Click *next*



Step 10. Click *separator*

Step 11. Click *next*

10
separator

文本导入向导 - 3 步骤之 1

文本分列向导判定您的数据有分隔符。
若一切设置无误，请单击“下一步”，否则请选择最合适的数据类型。

原始数据类型

请选择最合适的文件类型：

☒ 分隔符号(D) - 用分隔字符，如逗号或制表符分隔每个字段

☐ 固定宽度(W) - 每列字段加空格对齐

导入起始行(R): 1

预览选定数据

1	BoardID,ChipID,ChannelID,Mean,Sigma,Threshold
2	0,0,0,388.480,3.71000,407.030
3	0,0,1,346.120,3.75000,364.870
4	0,0,2,433.970,3.74000,452.670
5	0,0,3,374.070,3.83000,393.220
6	0,0,4,339.870,4.18000,360.770
7	0,0,5,512.600,3.62000,530.700
8	0,0,6,426.360,4.02000,446.460
9	0.0.7.388.510.3.55000.406.260

取消 < 上一步(B) 下一步(N) > 完成(F)

11
next

Step 12. Click *space*

Step 13. Click *next*

12
space

文本导入向导 - 3 步骤之 2

请设置分列数据所包含的分隔符号。在预览窗口内可以看到分列的效果。

分隔符号

☒ Tab键(T) ☐ 分号(M) ☐ 逗号(C) ☒ 连续分隔符号视为单个处理(R)

☒ 空格(S) ☐ 其他(O): 文本识别符号(Q): "

数据预览

BoardID	ChipID	ChannelID	Mean	Sigma	Threshold
0,0,0	388.480	3.71000	407.030		
0,0,1	346.120	3.75000	364.870		
0,0,2	433.970	3.74000	452.670		
0,0,3	374.070	3.83000	393.220		
0,0,4	339.870	4.18000	360.770		
0,0,5	512.600	3.62000	530.700		
0,0,6	426.360	4.02000	446.460		
0.0.7	388.510	3.55000	406.260		

取消 <上一步(B) 下一步(N)> 完成(F)

13
next

Step 14. Click *finish*

文本导入向导 - 3 步骤之 3

请设置每列的数据类型。

列数据类型

☒ 常规(G)
☐ 文本(T)
☐ 日期(D) MDY
☐ 不导入此列(跳过)(I)

目标区域(E):
 =\$A\$1

“常规”数据格式将数值转换成数字，日期值会转换为日期，其余数据则转换成文本。
☒ 按负号跟踪负数(M)

数据预览

BoardID	ChipID	ChannelID	Mean	Sigma	Threshold
0,0,0,388.480,3.71000,407.030					
0,0,1,346.120,3.75000,364.870					
0,0,2,433.970,3.74000,452.670					
0,0,3,374.070,3.83000,393.220					
0,0,4,339.870,4.18000,360.770					
0,0,5,512.600,3.62000,530.700					

取消 <上一步(B) 下一步(N)> **完成(F)**

14 *finish*

Step 15. *apply this formula to the column F*

	A	B	C	D	E	F	G	H	I	J	K
1	fec	chn	chip	mean	std						
2	0	0	0	394.01	4.79	=D2+5*E2					
3	0	0	1	350.66	4.02						
4	0	0	2	440.87	4.49						
5	0	0	3	379.25	4.7						
6	0	0	4	350.43	4.38						
7	0	0	5	516.9	4.2						
8	0	0	6	432.11	4.03						
9	0	0	7	393.56	5.01						
10	0	0	8	418.74	4.23						
11	0	0	9	381.68	5.09						
12	0	0	10	374.75	4.98						
13	0	0	11	nan	nan						
14	0	0	12	397.21	4.43						

15
apply this formula to the column F

	A	B	C	D	E	F	G	H	I	J
1	fec	chn	chip	mean	std					
2	0	0	0	394.01	4.79	417.96				
3	0	0	1	350.66	4.92	375.26				
4	0	0	2	440.87	4.49	463.32				
5	0	0	3	379.25	4.7	402.75				
6	0	0	4	350.43	4.38	372.33				
7	0	0	5	516.9	4.2	537.9				
8	0	0	6	432.11	4.03	452.26				
9	0	0	7	393.56	5.01	418.61				
10	0	0	8	418.74	4.23	439.89				
11	0	0	9	381.68	5.09	407.13				
12	0	0	10	374.75	4.98	399.65				
13	0	0	11	nan	nan	#VALUE!				
14	0	0	12	397.21	4.43	419.36				
15	0	0	13	382.17	4.28	403.57				
16	0	0	14	433.84	5.19	459.79				
17	0	0	15	381.45	4.54	404.15				
18	0	0	16	385.35	4.33	407				
19	0	0	17	418.82	4.68	442.22				
20	0	0	18	445.7	4.64	468.9				
21	0	0	19	397.33	4.41	419.38				
22	0	0	20	400.94	5.46	428.24				
23	0	0	21	407.97	4.92	432.57				
24	0	0	22	nan	nan	#VALUE!				
25	0	0	23	417.22	4.16	438.02				
26	0	0	24	391.07	5.37	417.92				
27	0	0	25	nan	nan	#VALUE!				
28	0	0	26	423.72	4.16	444.52				
29	0	0	27	401.41	4.84	425.61				

Step 16. *delete the last row*

272	0	3	66	403.03	6.4	435.03		
273	0	3	67	379.29	4.75	403.04		
274	0							

16

delete the last row

Then save this excel file on the desktop with the default format (.csv), which is explained by the following pictures.

Step 17. Click *file*

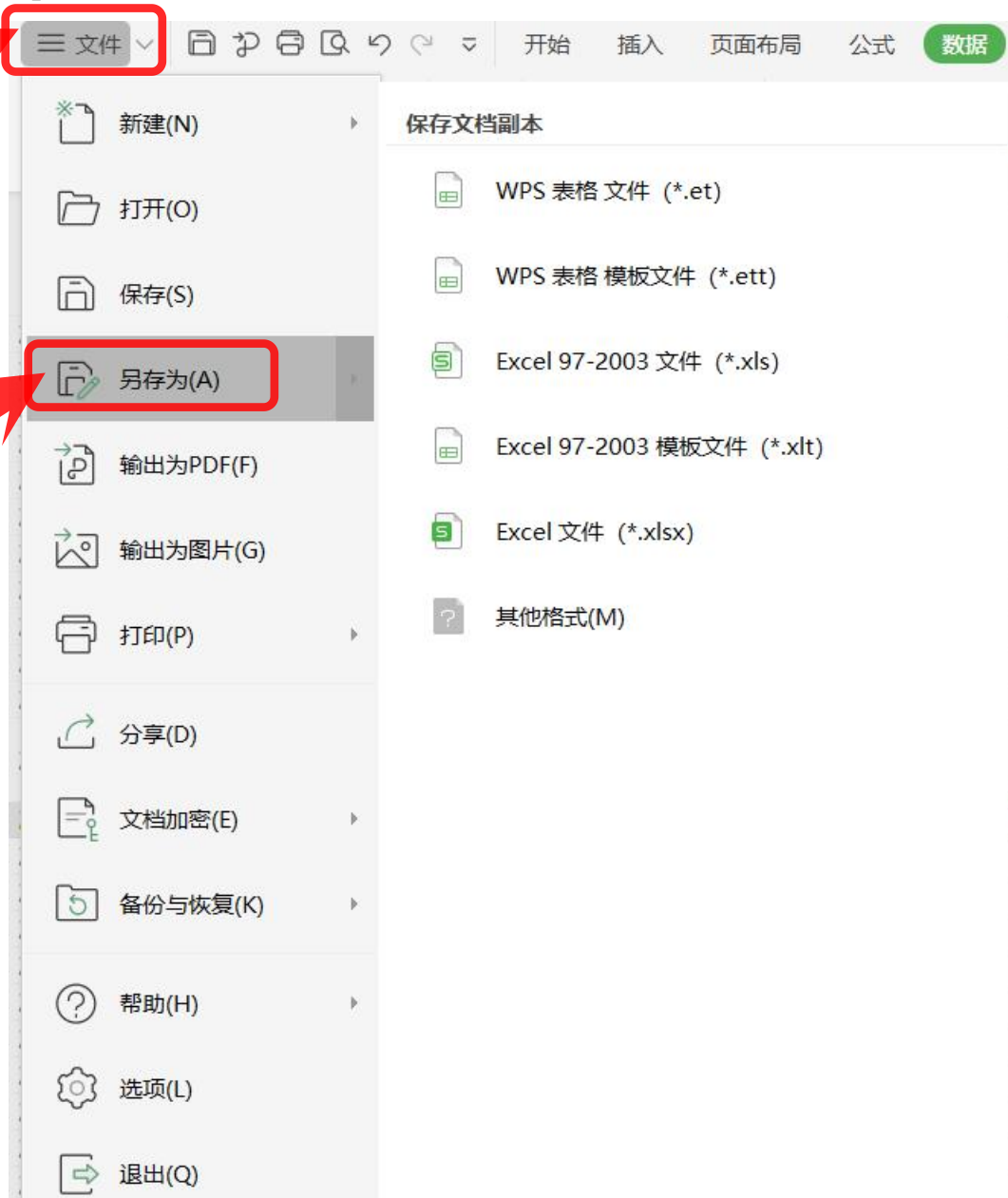
Step 18. Click *save as*

17

file

18

save as

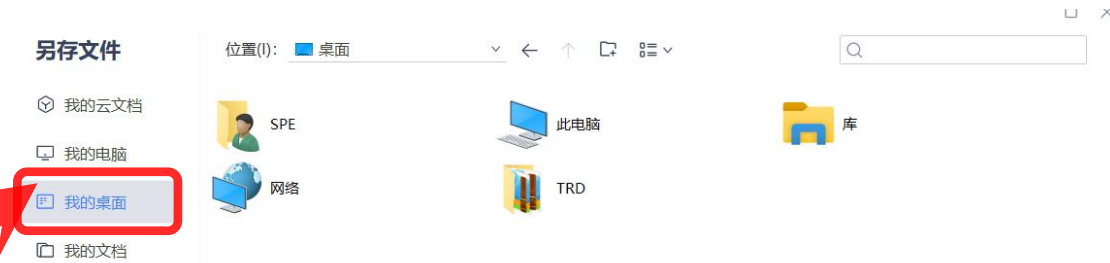


Step 19. Click *my desktop*

Step 20. Set *file name and file type*

Step 21. Click *save*

19
my desktop



20

file name

file type

文件名(N): 123.csv
文件类型(T): CSV (逗号分隔)(*.csv)

save

21

保存(S) 取消

Step 22. Click *yes*



22
yes

Terminate WPS software once you finish above steps.

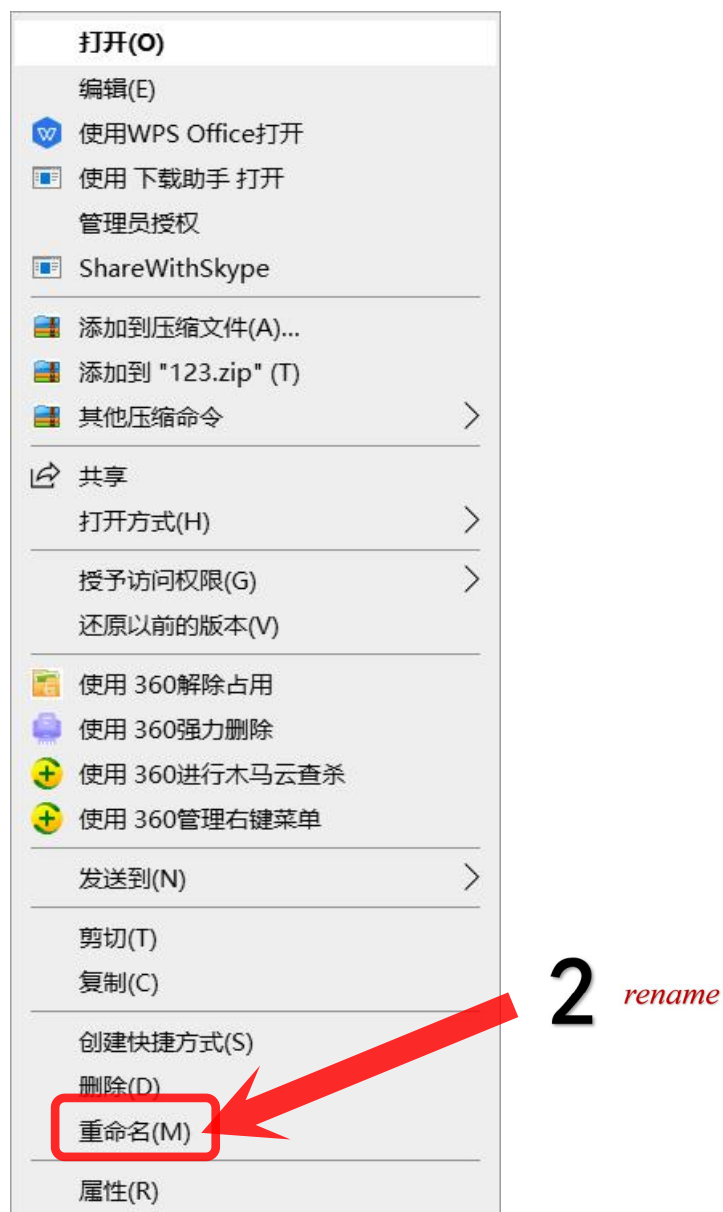
Section 4:

Then you should change the format of the file that you just saved in the desktop. You need to convert .csv into .txt

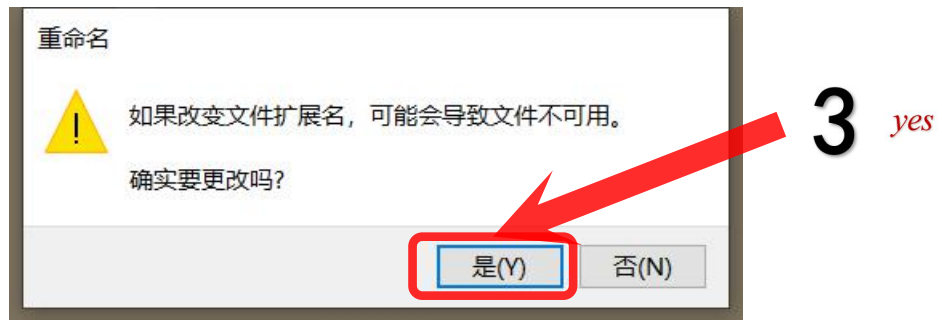
Step 1. Right click



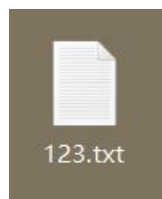
Step 2. Click *rename*



Step 3. Click *yes*

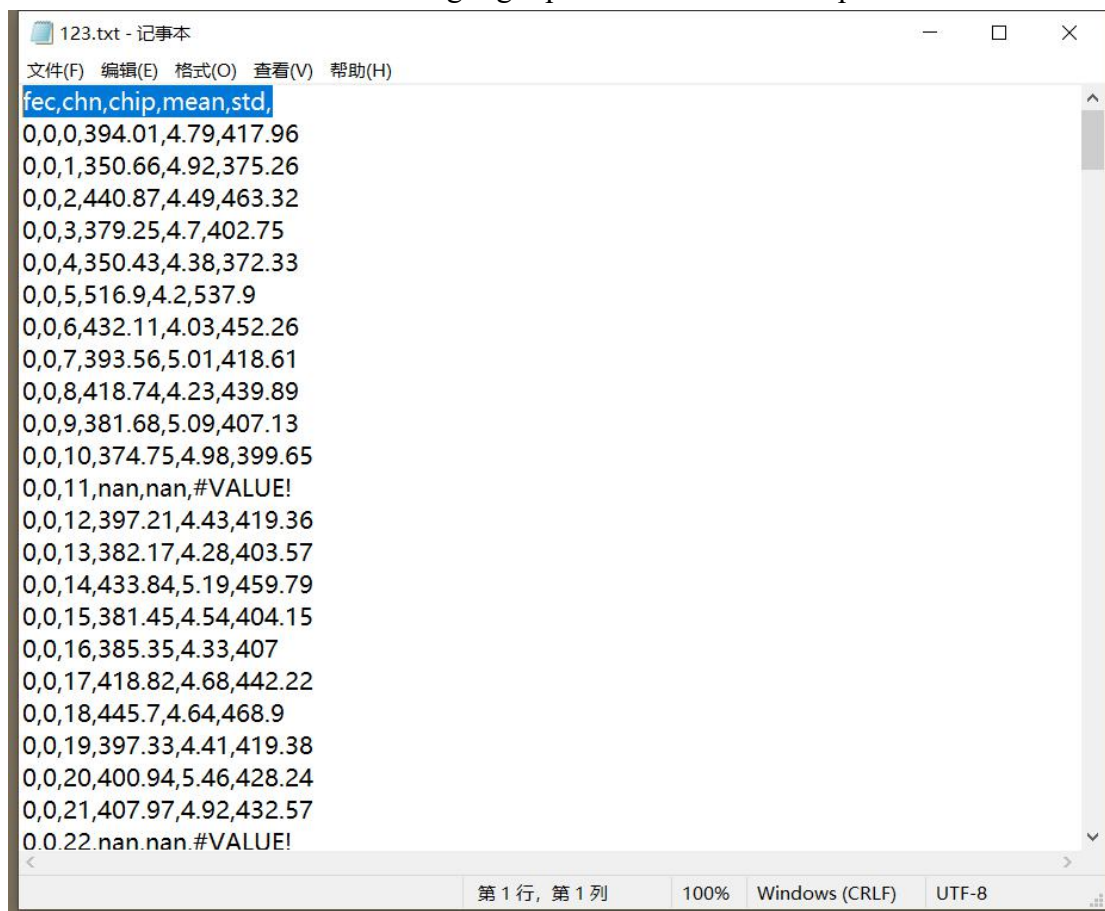


Now we have a .txt file.



Next step, open this .txt file.

Modificate the first line like the highlight part shown in the next picture. Then save it.



*123.txt - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

BoardID,ChipID,ChannelID,Mean,Sigma,Threshold

0,0,0,394.01,4.79,417.96

0,0,1,350.66,4.92,375.26

0,0,2,440.87,4.49,463.32

0,0,3,379.25,4.7,402.75

0,0,4,350.43,4.38,372.33

0,0,5,516.9,4.2,537.9

0,0,6,432.11,4.03,452.26

0,0,7,393.56,5.01,418.61

0,0,8,418.74,4.23,439.89

0,0,9,381.68,5.09,407.13

0,0,10,374.75,4.98,399.65

0,0,11,nan,nan,#VALUE!

0,0,12,397.21,4.43,419.36

0,0,13,382.17,4.28,403.57

0,0,14,433.84,5.19,459.79

0,0,15,381.45,4.54,404.15

0,0,16,385.35,4.33,407

0,0,17,418.82,4.68,442.22

0,0,18,445.7,4.64,468.9

0,0,19,397.33,4.41,419.38

0,0,20,400.94,5.46,428.24

0,0,21,407.97,4.92,432.57

0,0,22,nan,nan,#VALUE!

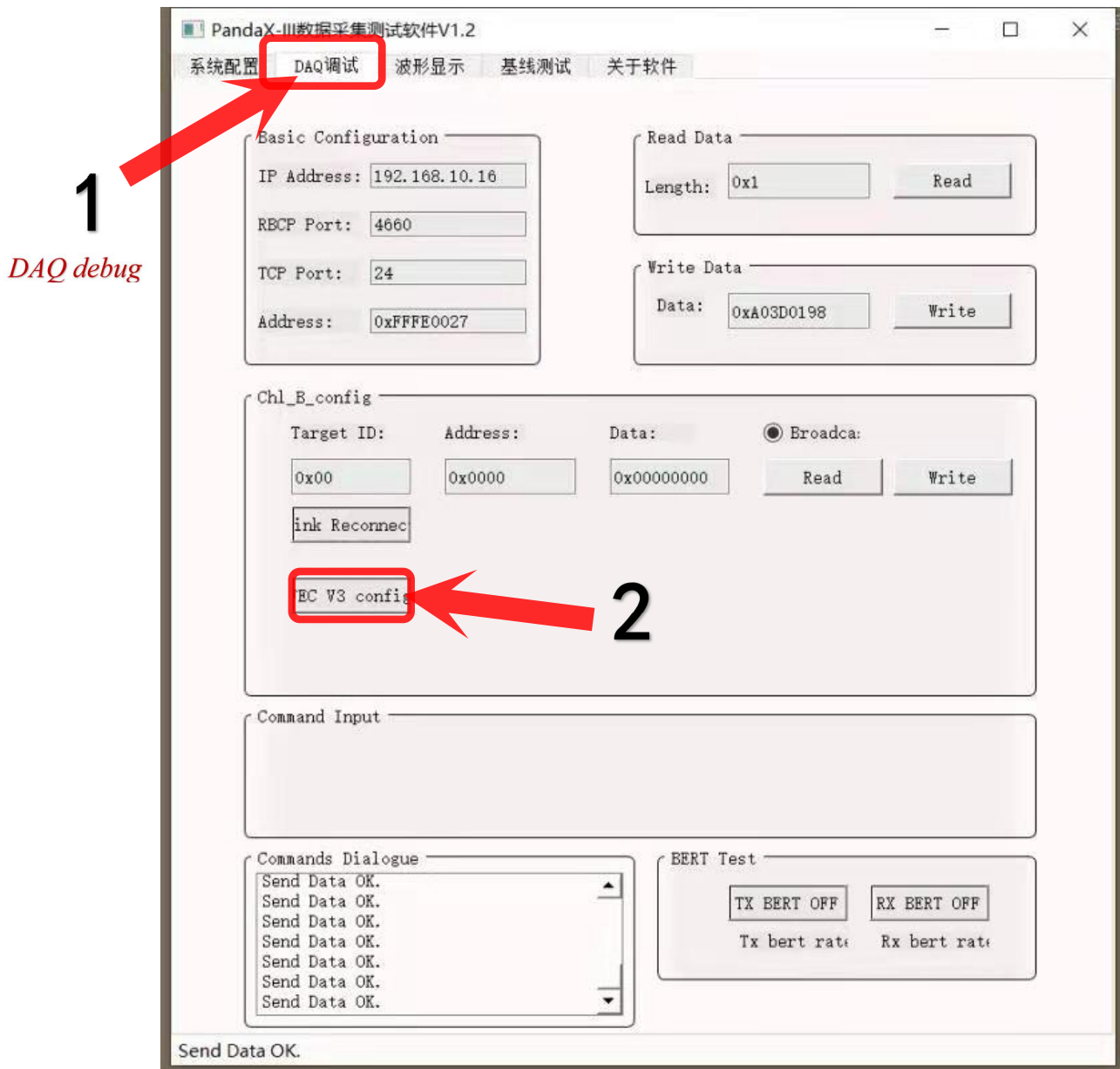
第 1 行, 第 1 列 100% Windows (CRLF) UTF-8

Section 5:

Return to software shown in the very start, and reconfigure.

Step 1. Click *DAQ debug*

Step 2. Click *FEC V3 config*



Select file from /Desktop/TRD/software

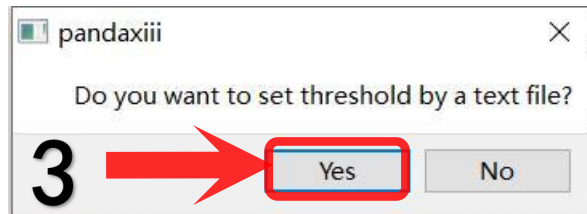
FECV3ConfigFileNew - 2.txt

Note that they are different files :

 FECV3ConfigFileNew - 2.txt and  FECV3ConfigFileNew.txt

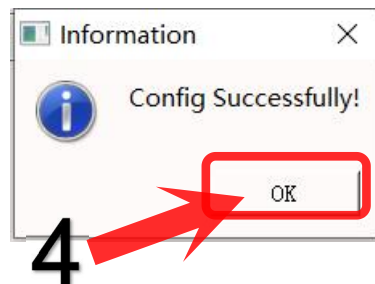
on section 1 step 3.

Step 3. Click *yes*



Then choose the .txt file we saved on the desktop in the end of Section 3 and wait a few minutes.

Step 4. Click *ok*

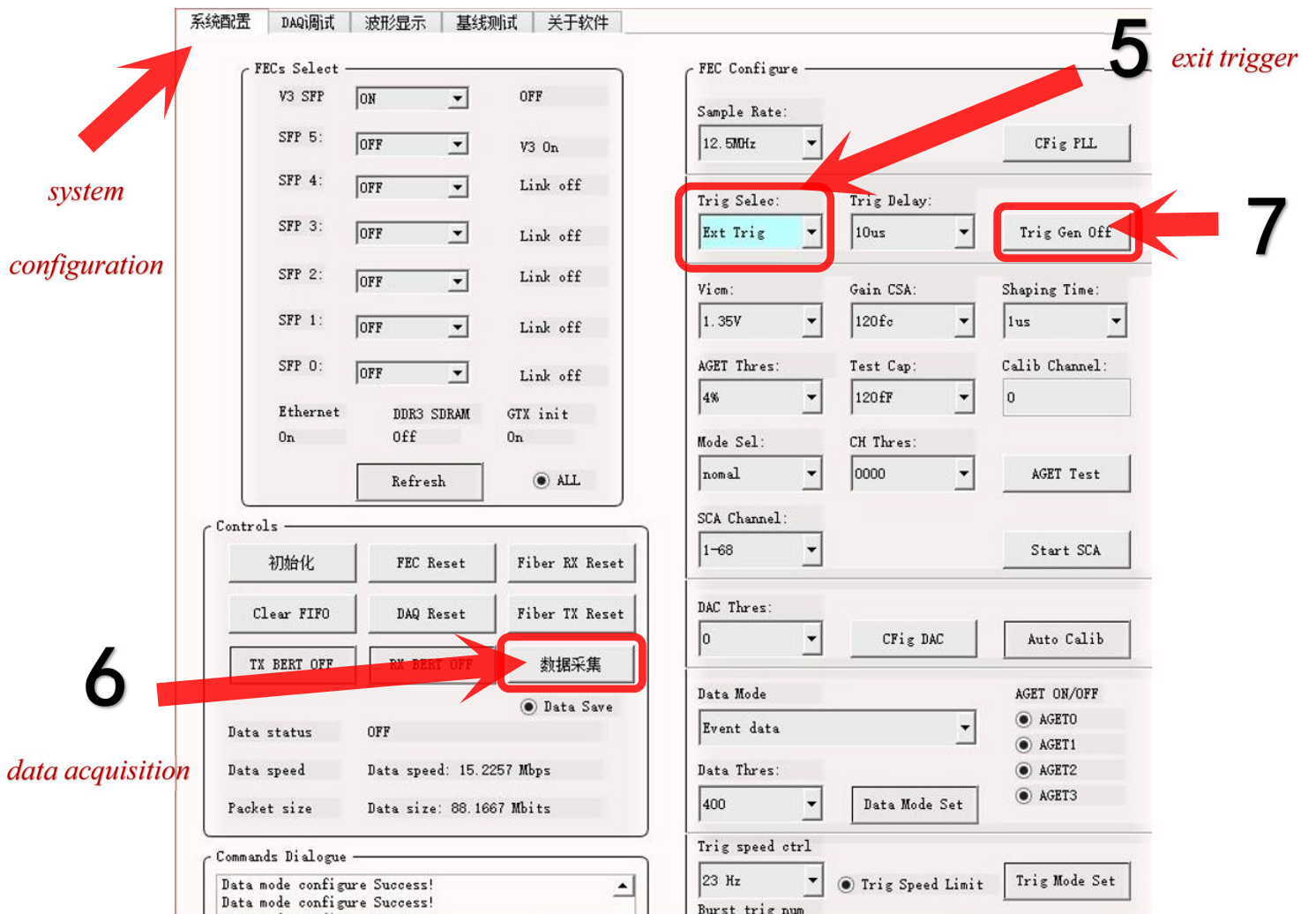


If you connect the exit trigger through RJ45 interface, then we need to select the 'exit trigger' in this step, and collect data by repeating steps like section 1 step 5 and 6.

Step 5. Select the *'exit trigger'*

Step 6. Click *data acquisition*

Step 7. Click *Trig Gen Off*



If we have enough data , we click stop and the data we just tested save in path:
/Desktop/TRD/software.

Step 8. Click *stop*

