

APDU Commander

User's Guide

Version 1.01

2014/05/20

Revision History

Version	Date	Description
1.00	2013/9/20	Initial
1.01	2014/05/20	Correct some minor errors

System Requirement

- PC with one available USB port
- Operation System: Windows XP or Later
- Contactless Reader CL-2000
- Contactless card or Tag
- APDU commander Installer software

Hardware and Software Installation

1. Plug the reader into USB port.
2. Run “ Setup.exe” and follow the instruction on screen.
3. Reboot your PC or Re-Plug USB port again to enable software setting.
4. Click on and execute “APDU commander “.

1. Test Mode:

“Test Mode” provides measurement of sensing distance between the tag and this reader.

- **Operation step:**

1. Put the test card or tag on top of the reader.
2. Click on the “DistanceTest”. see Figure 1.
3. Pull-down the manu bar and select “SYNNIX CL-2000”. see Figure 1.
4. The ATR string will appear on the “Data Log” field.

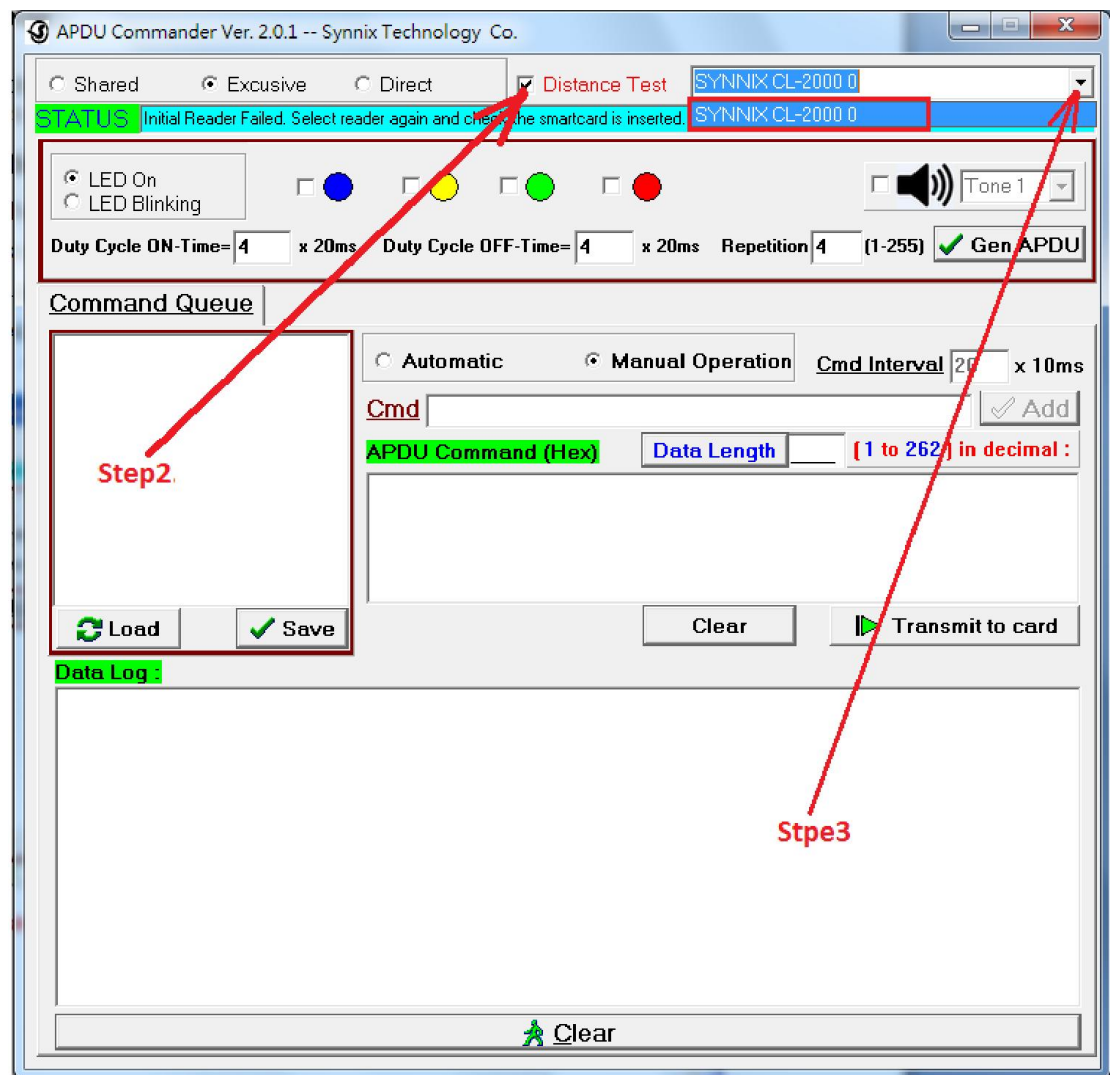


Figure 1

5. At this moment, the card's upward or downward movement will vary. In available sensing distance, the ATR string from card will be displayed continuously in "DataLog" field . If it exceeds the sensing distance, the ATR will not displayed. see Figure 2.

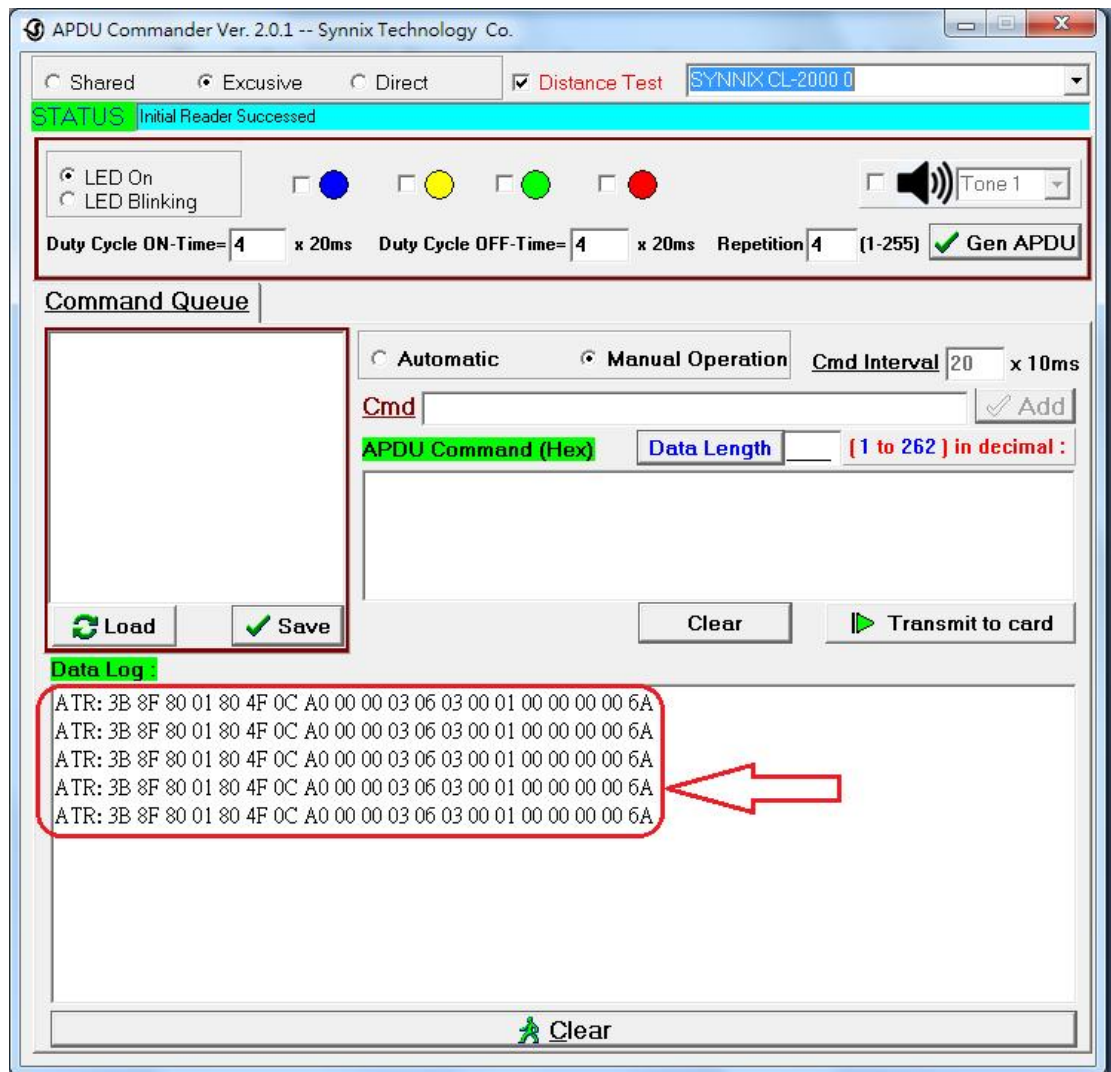


Figure 2

2. Normal Mode:

“Normal Mode” provides command transfer between reader and card, LED lights, buzzer, and script file controlling both in single-step execution or automatic execution.

2.1 Basic Operation – Establish a connection with your card or tag

1. Put the test card or tag on top of the reader.
 2. Click on the “Manual Operation”. See Figure 3
 3. Pull-down the manu bar and select “SYNNIX CL-2000”. See Figure 3
 4. The ATR string will appear on the “Data Log” field.
- After step 4, a connection between reader and card has been established. In the meanwhile, the central orange LED light of the reader will blinking.
 - Do not move the card during operation, otherwise the established connection will be disconnected.

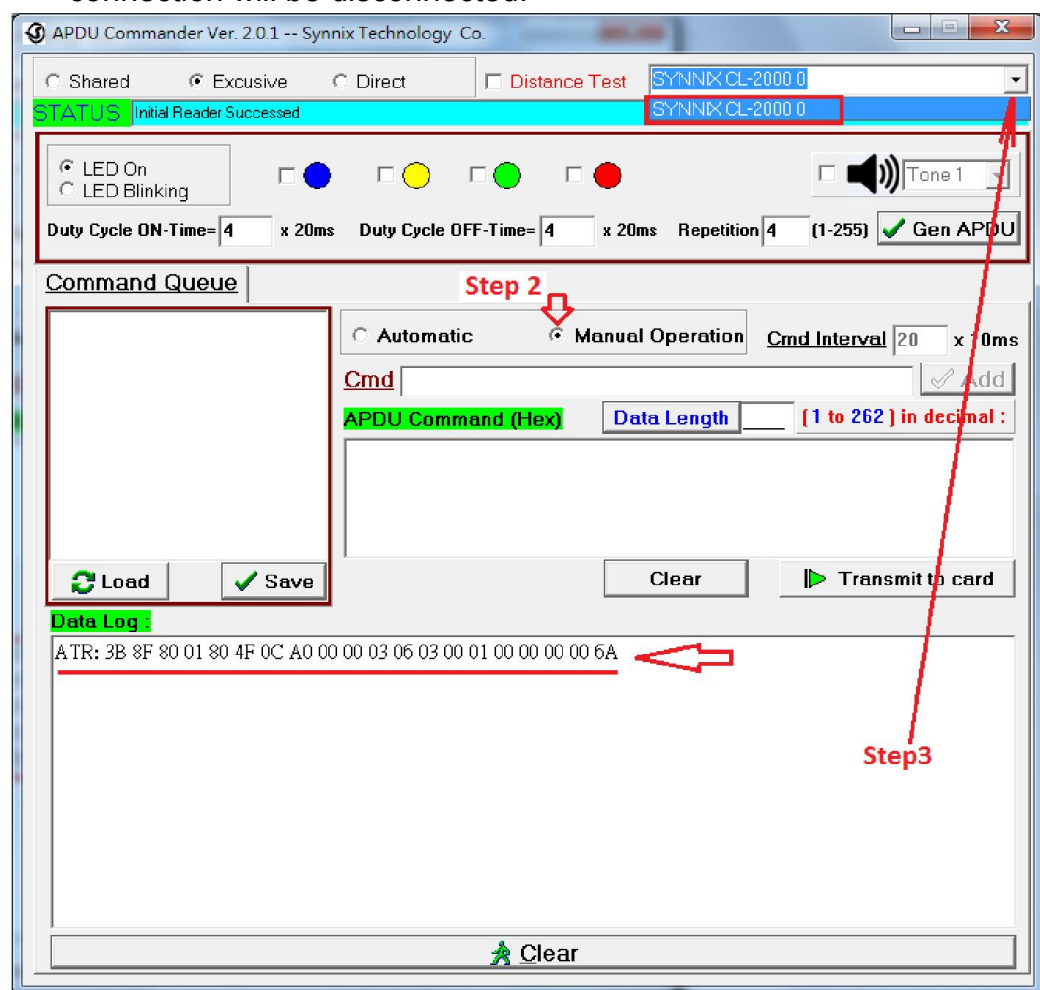


Figure 3

2.2 Transmit commands to the card or tag

- **Operation step:**

- Continuing the basic operation step 1~4 as described previously page.

5. Input card's APDU command.

6. Click on “Transmit to card” button.

7. See return value from the card. See Figure 4.

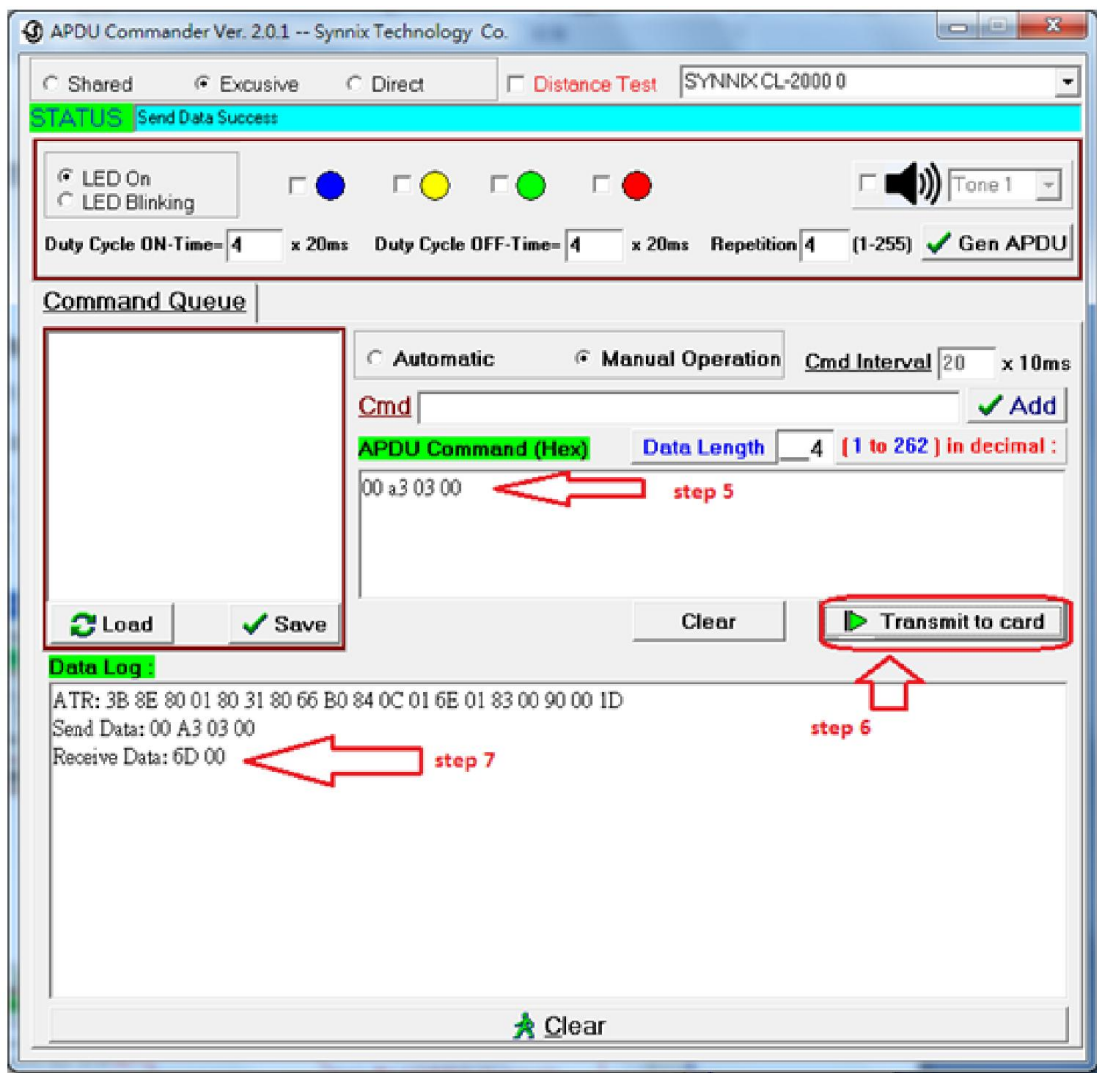


Figure 4

2.3 LED and Buzzer Operation – Operating with a card

- **Operation step:**

- Continuing the basic operation step 1~4 as described previously page.
- 5. Click on the “Exclusive” ◦
- 6. Check the LED and Buzzer options you wish.
 - Blue , Yellow , Green and Red with LED Blinking or LED On options you can check.
 - 3/2.4/1.7 and 1.2Khz from Buzzer Tone1~4 you can select.
- 7. Fill the parameters of duty-cycle and repetition for LED and buzzer.
 - Each unit is 20 msec for Duty-On and Off time.
 - All parameters are from 1~256.

Example for step 6 and step 7:

If you want to make Blue LED and Green LED blinking 3 times. LED ON duty is 100msec, LED OFF duty is 40msec and buzzer tone set 3KHz. See Figure 5.

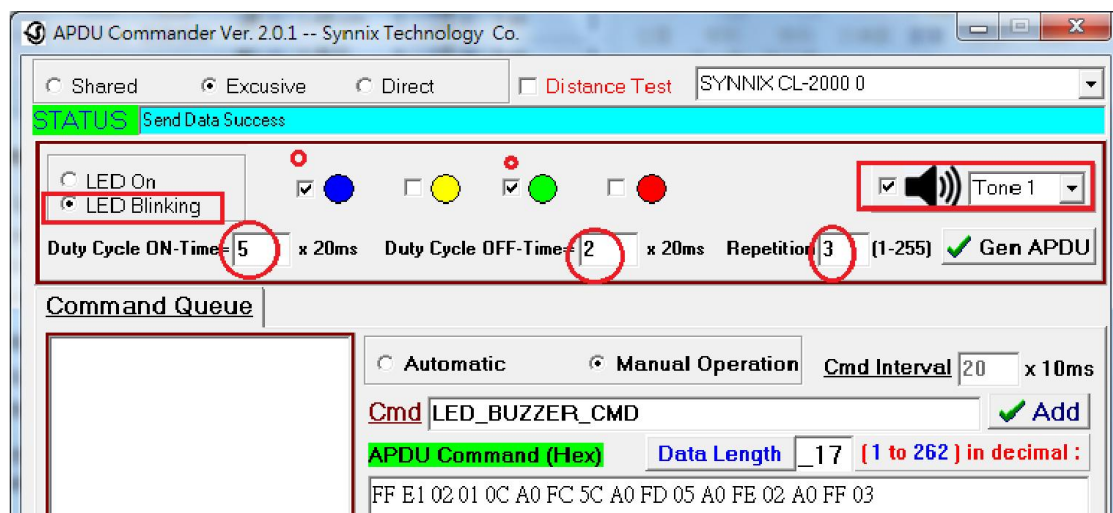
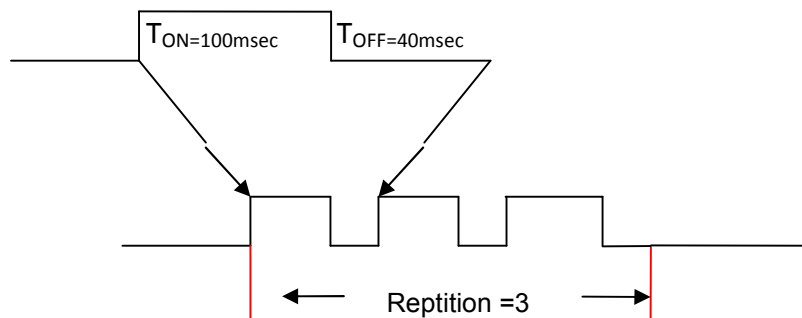


Figure 5

8. Click on “GenAPDU” button.
This step will generate the new APDU command form LED and buzzer options you checked and you filled. See Figure 6.

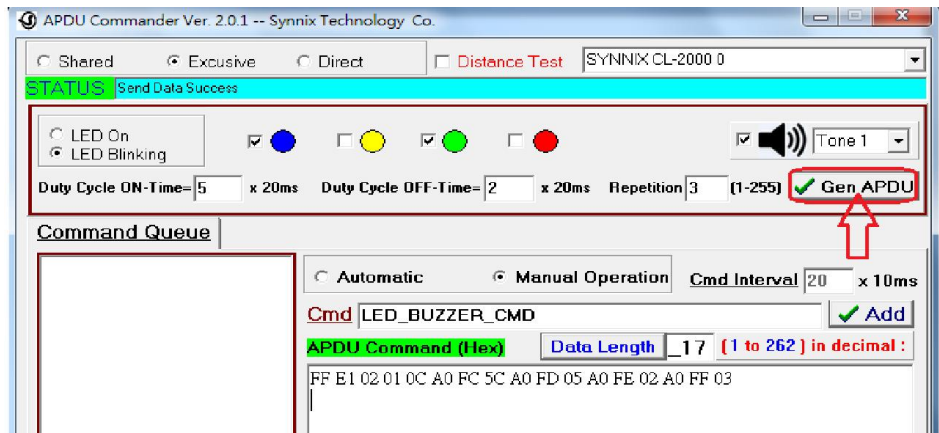


Figure 6

9. Click on “Transmit to card” button. See Figure 7.
This step will send the command to card from APDU command field.

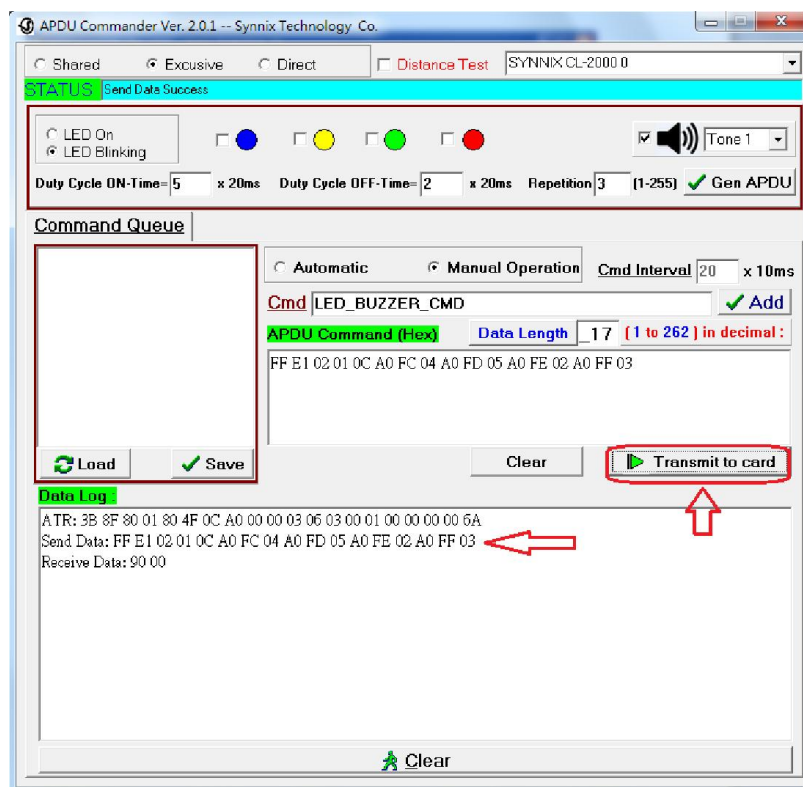


Figure 7

- Do not move the card during operation step 1~9, otherwise the established connection will be disconnected.
- Please refer to “6.2.12.LED_Buzzer Control” on CL-2000 technical manual for details

2.4 LED and Buzzer Operation – Operating without card

- Do not put card or tag on top of the reader.

1. Click on the “Direct” . See Figure 8.
2. Pull-down the manu bar and select “SYNNIX CL-2000”. See Figure 8.
3. No ATR string appear on the “Data Log” field. See Figure 8.

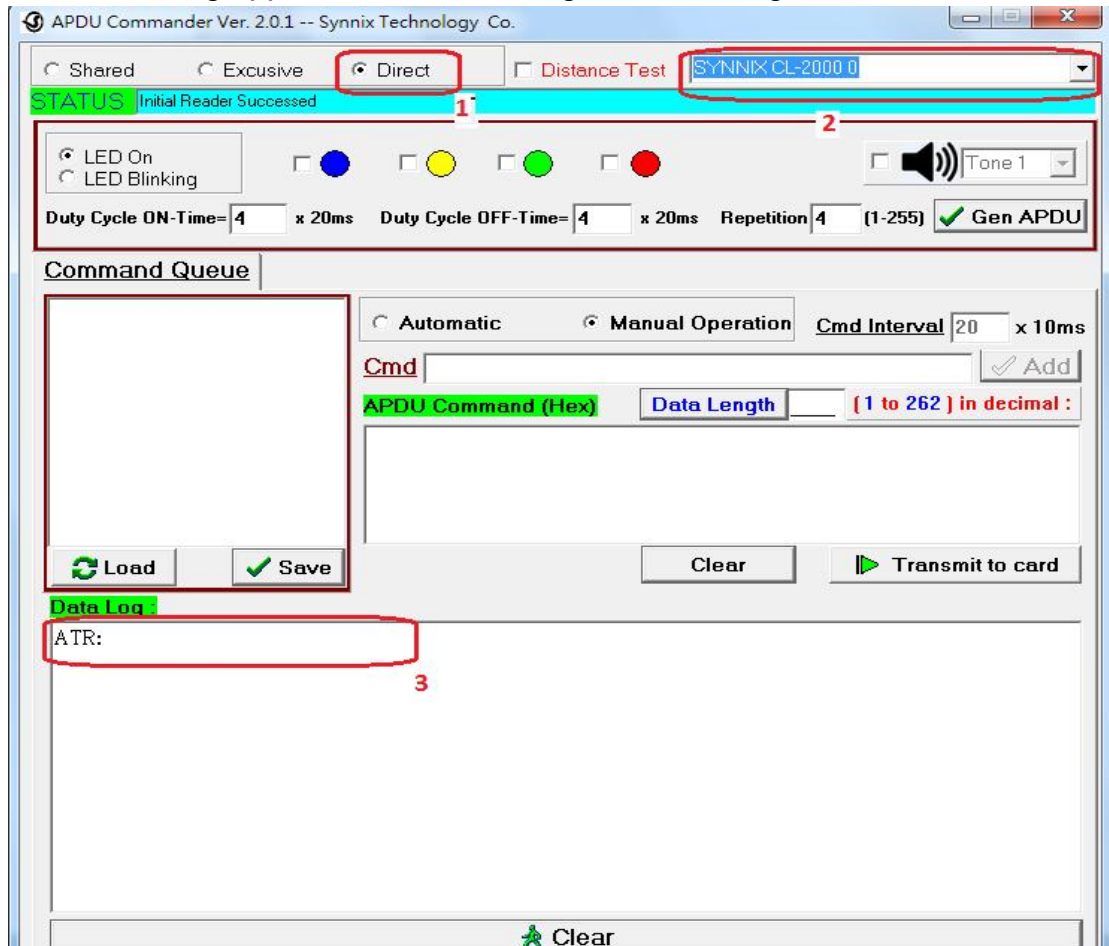


Figure 8

4. Check the LED and Buzzer options you wish.
 - Blue , Yellow , Green and Red with LED Blinking or LED On options you can check.
 - 3/2.4/1.7 and 1.2Khz from Buzzer Tone1~4 you can select.
5. Fill the parameters of duty-cycle and repetition for LED and buzzer.
 - Each unit is 20 msec for Duty-On and Off time.
 - All parameters are from 1~256.

Example for step 4 and step 5:

If you want to make Blue LED and Green LED blinking 3 times. LED ON duty is 100msec, LED OFF duty is 40msec and buzzer tone set 3KHz. See Figure 9

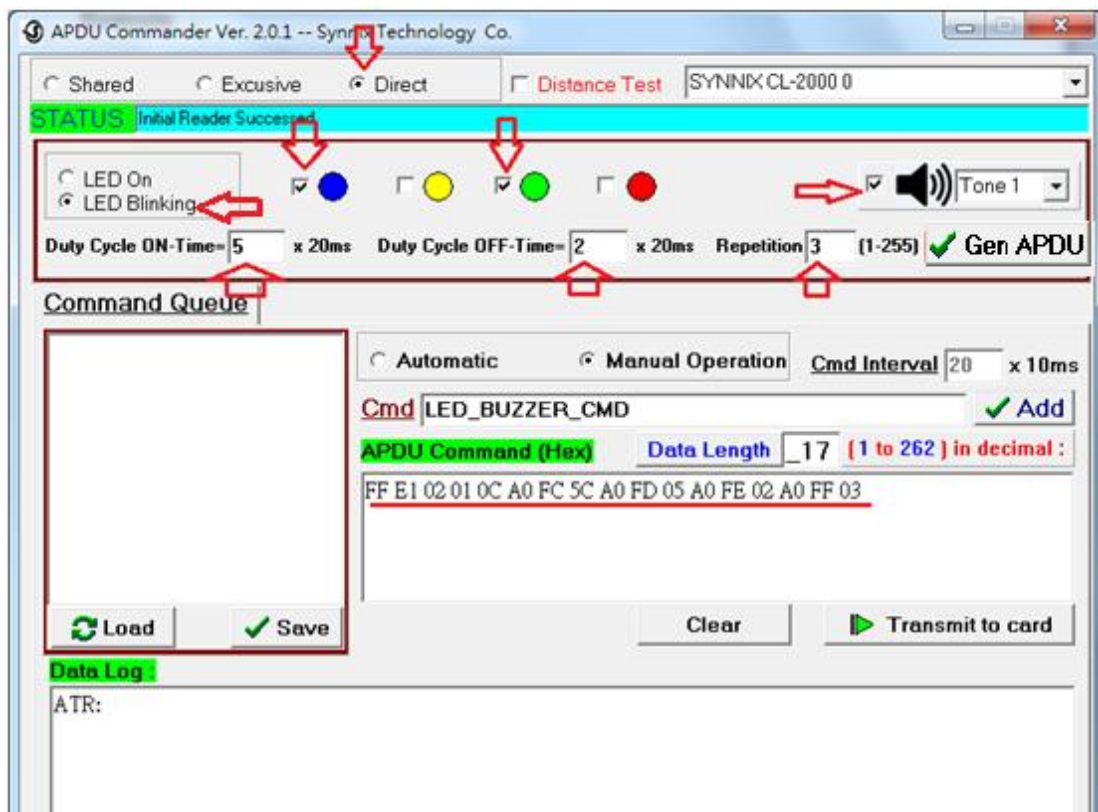


Figure 9

6. Click on “GenAPDU” button.

This step will generate the new APDU command form LED and buzzer options you checked and you filled. See Figure 10.

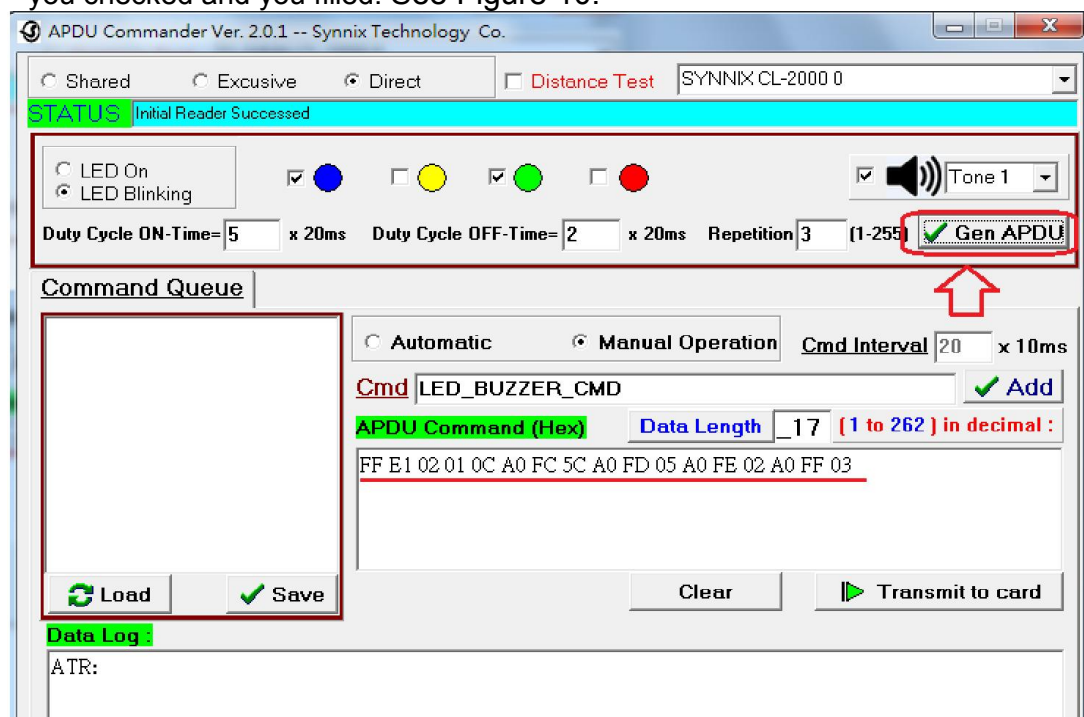


Figure 10

7. Click on "Transmit to card" button. See Figure 11.
This step will send the command to card from APDU command field.

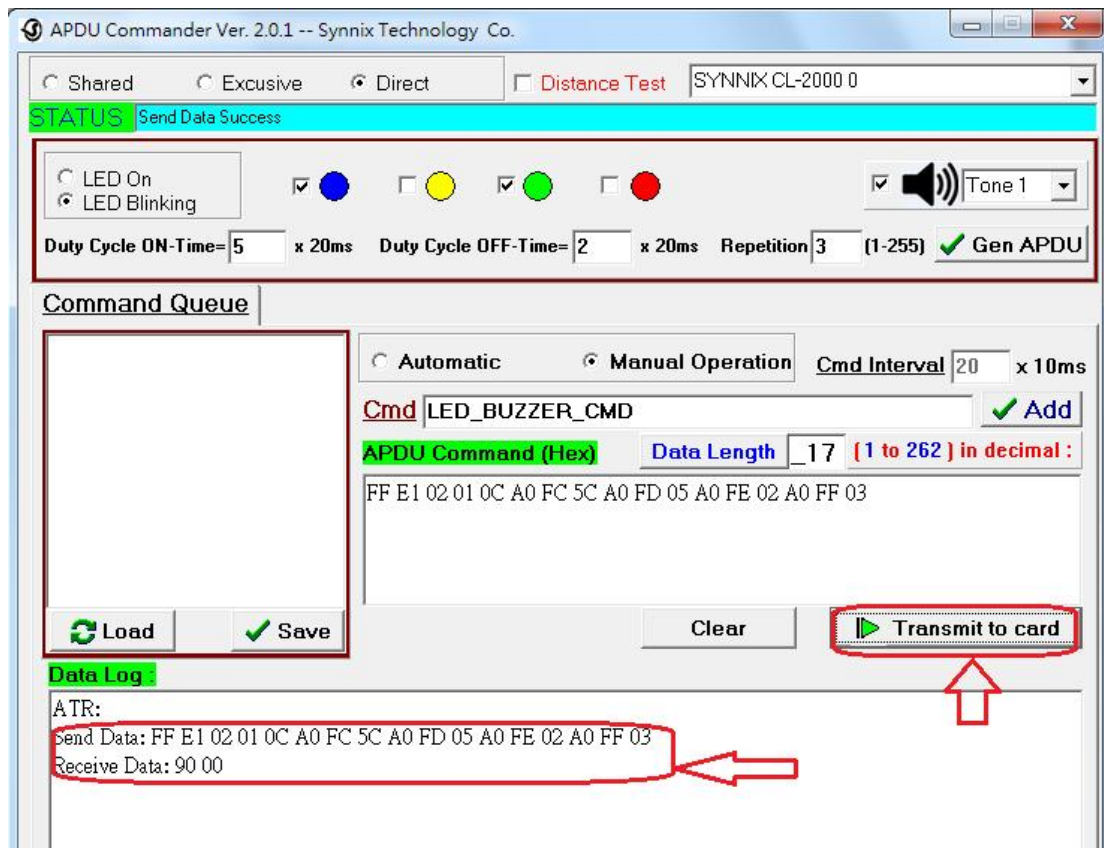


Figure 11

- If an error message of **"DCT_PCSC_SCARDTRANSMIT_ERR of Receive Data"** appear on screen after you click on "Transmit to card" button. It may be because the parameters are not set in registry file. The parameter of "EscapeCommandEnable" should be set to 1 . Please reinstall CL-2000 Installation Wizard again and reboot before use. Or manually modify registry file by yourself. Please refer to CL-2000 User Manual, Chapter "5.5. Enable ESCAPE IOCTL" for more detailed information.

2.5 Load Script File

The script file includes a series of APDU command. it's in text format. User can edit script file you own by text editor very easily.

Script file is usually used for debugging purposes, In the course of a series of APDU is often hide bugs, software developer can utilize single-step or automatic execution functions to find the bug out..

- **Operation step:**

- Continuing the basic operation step 1~4 as previous page, and with included “contactless_smart card test.txt” for example.

5. Click on “Automatic” .

6. Click on “ Load” button.

7. Select script file "contactless smart card_test.txt". See Figure 12.

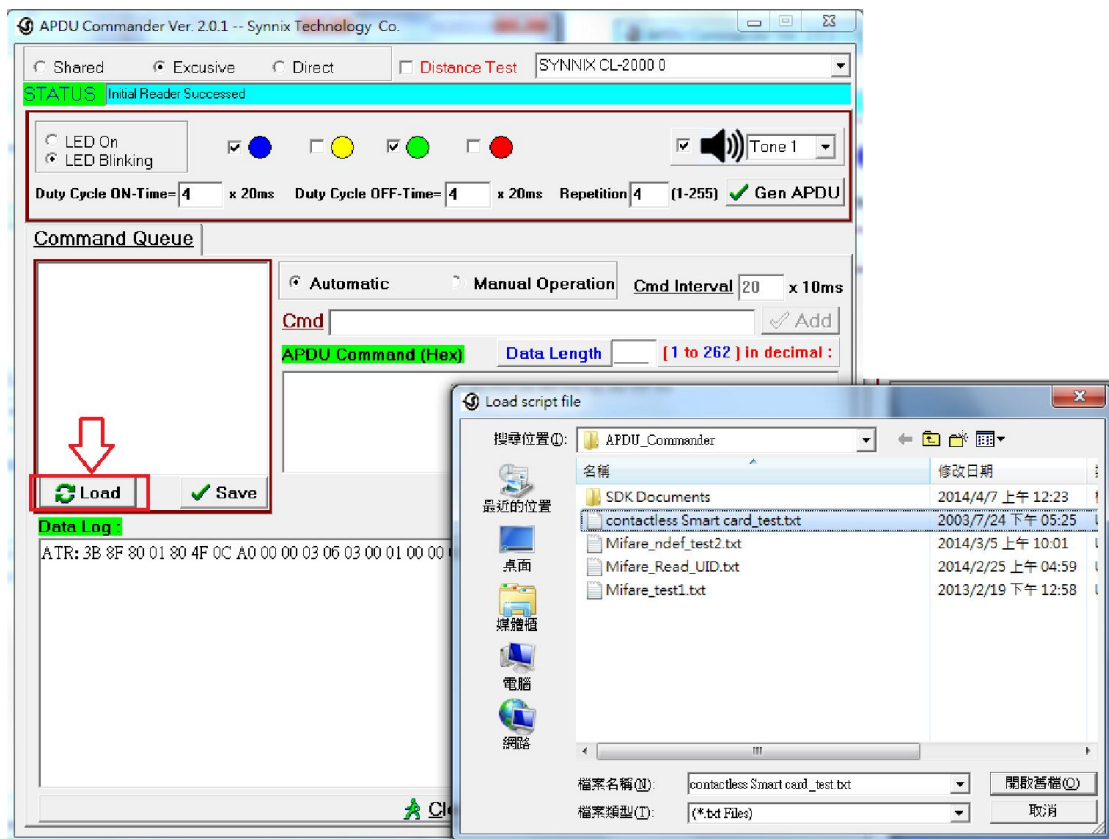


Figure 12

8. Click on “Transmit to card” button.

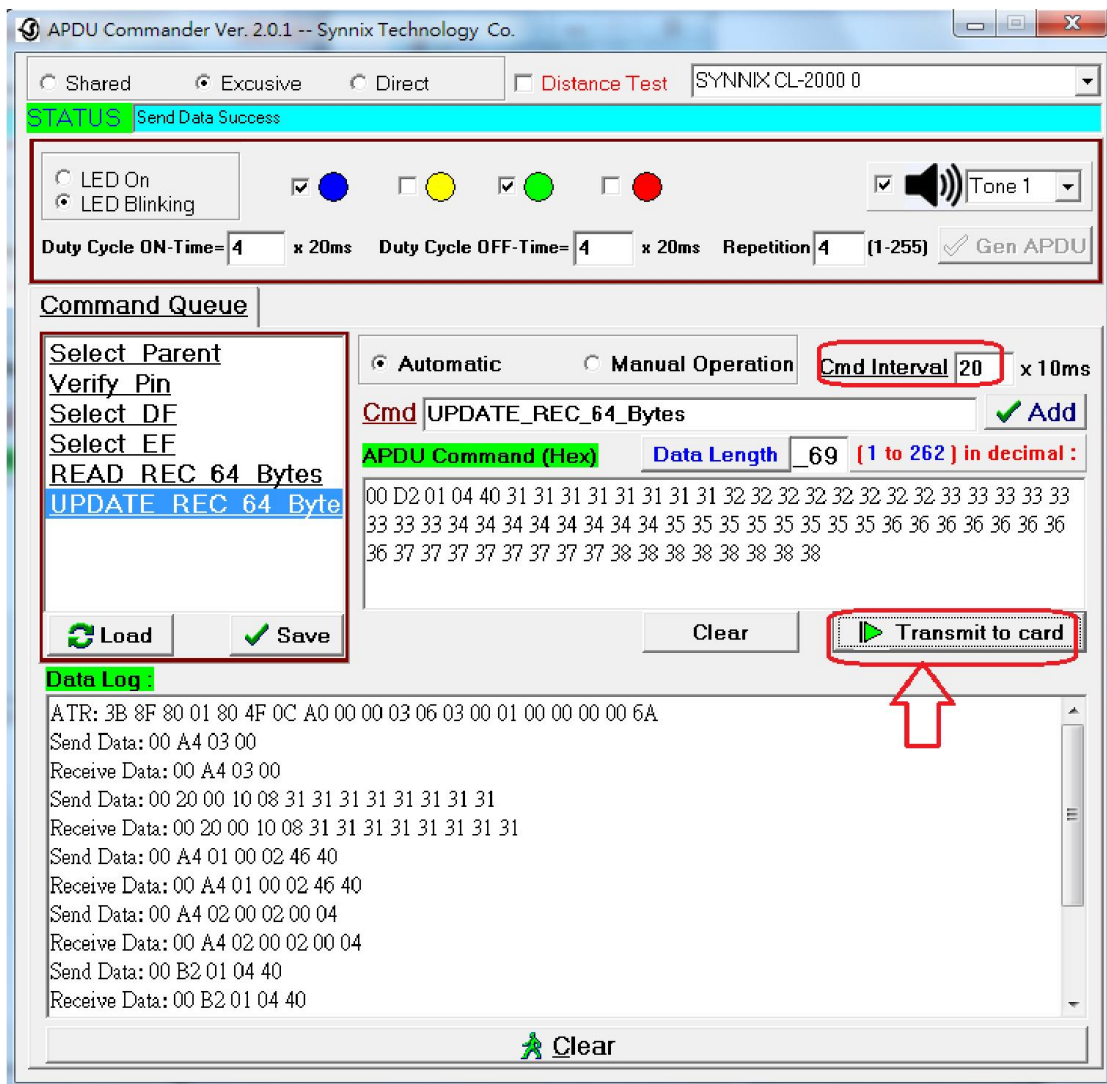


Figure 13

9. The APDU Commander will transmit all commands to the card from top to bottom.

- The values of “Cmd Interval” will change the speed between two commands. See Figure 13.
- “Single-step” execution:
If you click on “Manual” instead of “Automatic”, Only one selected command will be performed. It will not transmit entire command to the card. See Figure 14.

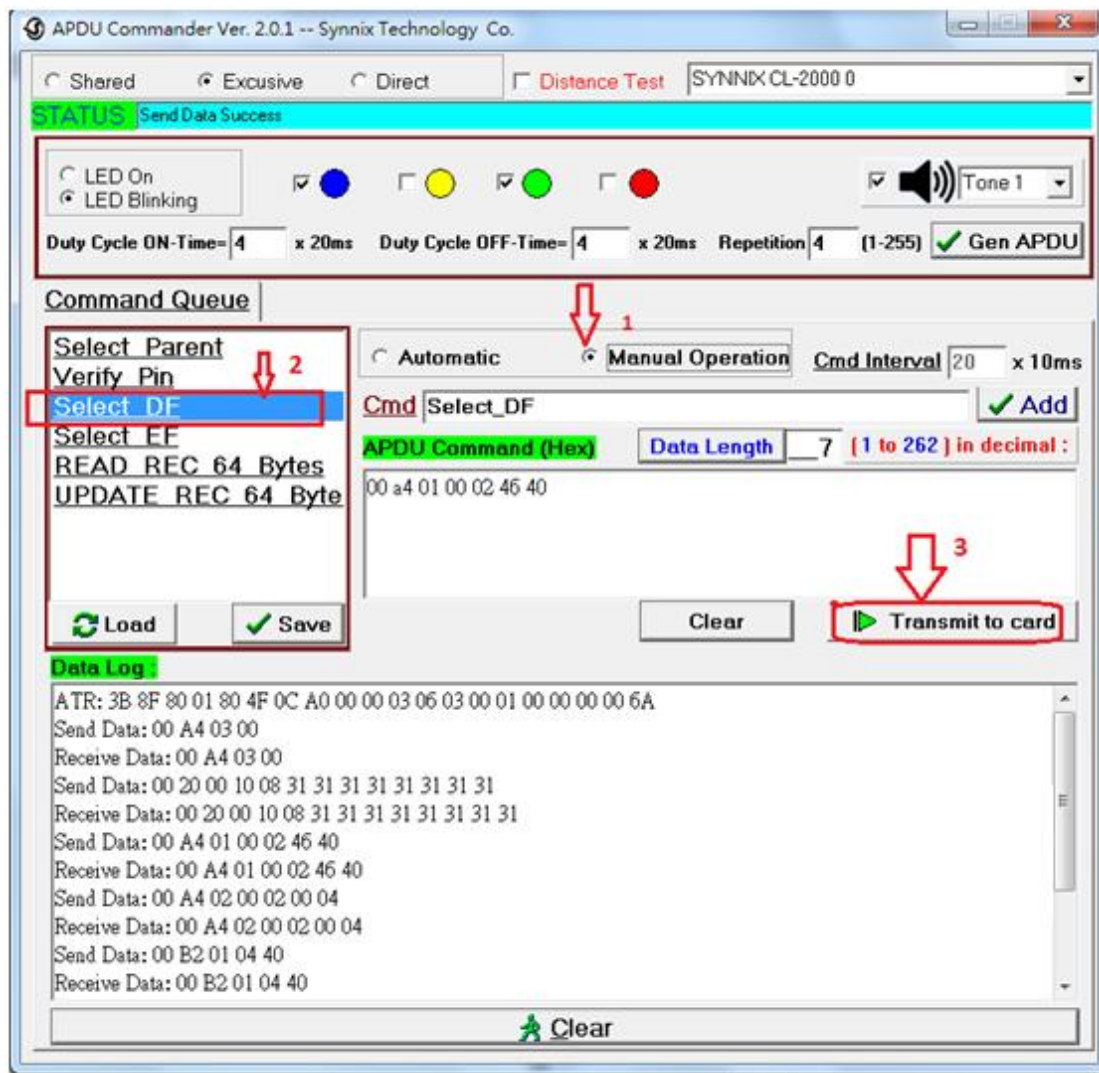


Figure 14

2.5 Save script file

- **Operation step:**

- Continuing the basic operation step 1~4 as described previously page
- 5. In the " Cmd" field, Enter a friendly name for the APDU command later you would want to inputted. See Figure 11.
- 6. In the "APDU Command(Hex)" field, Input APDU command then click on "Data length" to calculate length of command you inputted. See Figure 15.
- 7. Click on "Transmit to card" and see the result.

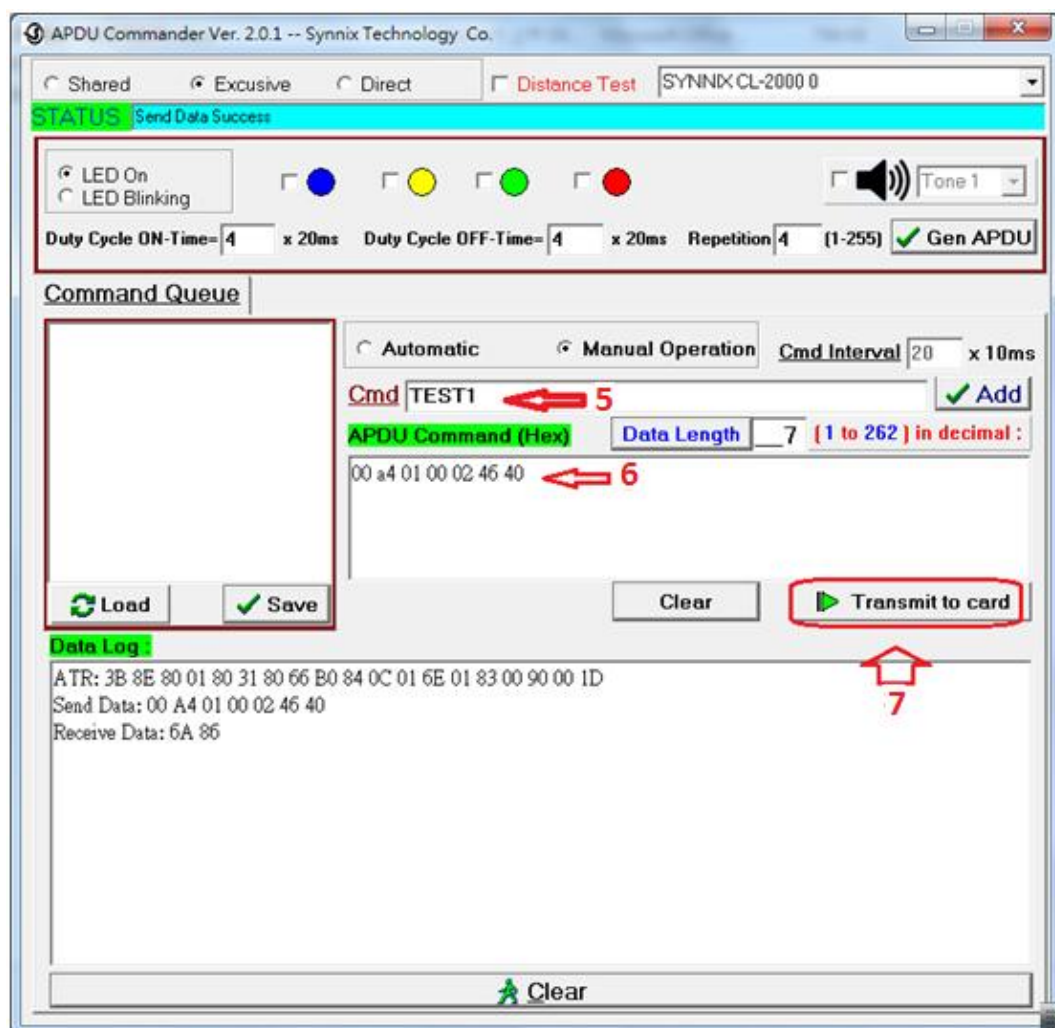


Figure 15

- 8. Click on "Add" button to add this command into command queue.
- 9. Repeat step 5~8 to add more commands into command queue.
- 10. Click on "Save" button to save all commands from command queue. See Figure 16.

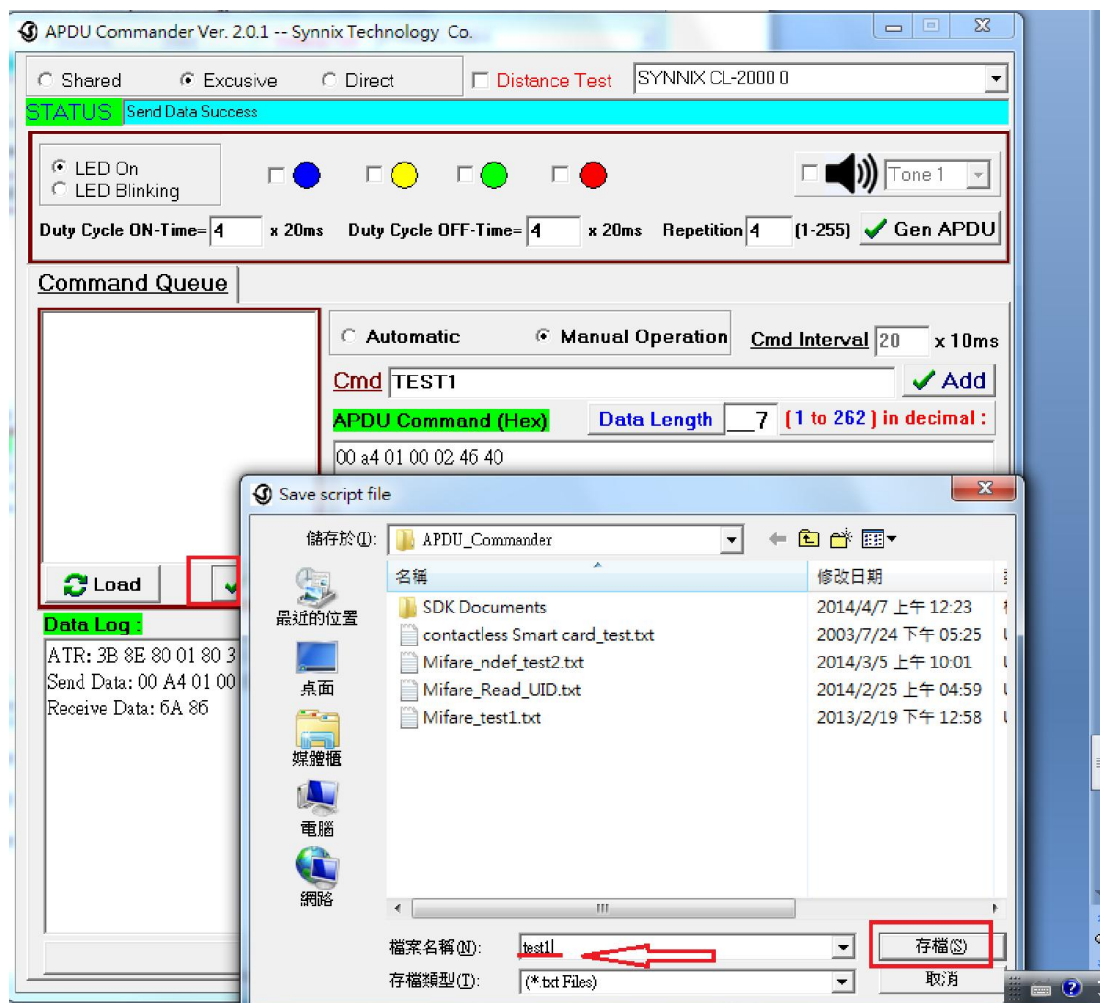


Figure 16