



# Easy Display Console User Guide

ABCDEFGHIJKLMNOP

Lumex Inc.



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# S/W preparation

## **Step 1 : Install the Lumex Easy Display Console**

- Run the setup file “EzCSetup.msi“ that download from [www.lumex.com.tw](http://www.lumex.com.tw)

## **Step 2 : Install the USB to UART converter driver**

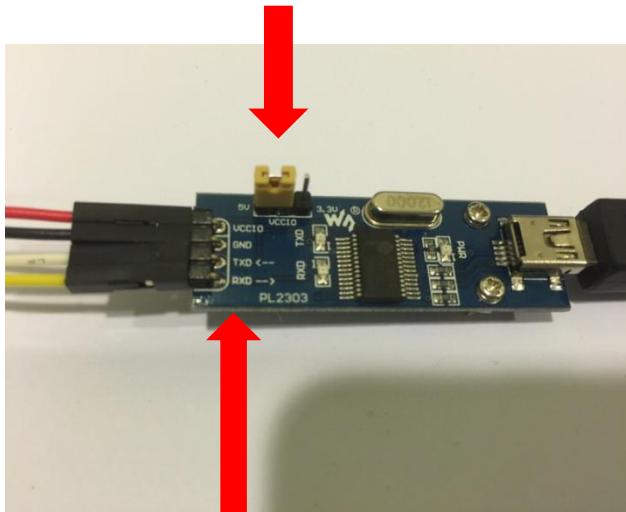
- Search for the “CP2102 driver” or clip the link  
<http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx>
- Download the driver and install it on PC or Notebook
- Reboot the PC or Notebook

## **Step 3 : After H/W setup ready double clicks on the “Lumex EzDisplay” icon to run the console**

**Remark : The CP2102 is optional. User can choose their own USB to UART board.**

# H/W preparation

**Step 1 : Connect the Jumper switch to 5V**



**Step2 : Connect the Micro USB cable to USB to UART converter board**

**Step 3 : Connect cables to USB to UART converter**

- Red color cable connect to VCCIO
- Black color cable connect to GND
- White color cable connect to TXD
- Yellow color cable connect to RXD



**Step 4 : Connect cable to OLED or Dot matrix LED Display module**

**Step 5 : Connect the USB cable to PC or Notebook**

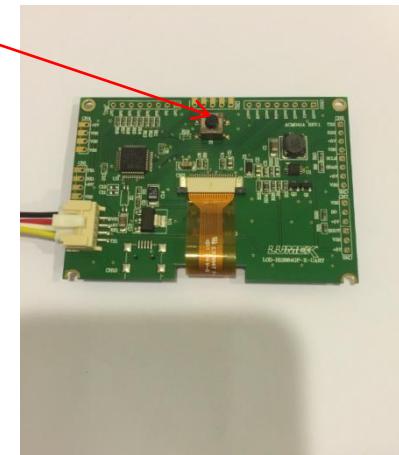
**Step 6: Before click on the “ezDisplay” icon please refer to next page**

## Special setting for OLED

The EZ Display Console runs AT command mode and Graphic mode.

However, the OLED module is default for HEX command mode, Please click the switch on the back to enter the AT command mode.

For Dot Matrix LED display module , it is default for AT command mode. There is nothing to be changed



# Device configuration

1. Click here to pop out the COM port list

3. Click on the Graphic Mode Tab to switch to Graphic window

The screenshot shows the Lumex UART Display Console software interface. The title bar reads "Lumex UART Display Console [V1.5.8.5]". The menu bar includes "Device Configuration", "AT Command Mode", "Graphic Mode" (which is highlighted with a red arrow), and "Font Maker". The "Device Configuration" tab is active, showing a list of port settings:

BaudRate	115200
DataBits	8
DiscardNull	False
DtrEnable	False
Handshake	None
Parity	None
ParityReplace	63
PortName	COM1
ReadBufferSize	4096
ReadTimeout	500
ReceivedBytesThresh	1
RtsEnable	False
StopBits	One
WriteBufferSize	2048
WriteTimeout	500

Below this, a note for "BaudRate" states: "這個序列埠要使用的傳輸速率。" (The baud rate to be used for this serial port.)

The "AT Command Mode" tab is active, showing a table of commands:

Ind...	Cmd C...	Param Format	Description
1	@W	@Wx	Pause x ms
2	@L	@Lp	Send the specified picture at [ p ] to the module, p is the fu...
3	80	AT80=(line,column,Character)	Write a 5X7 Character
4	81	AT81=(line,column,String)	Write a 8X8 String
5	82	AT82=(line,column,Character)	Write a 8X16 Character
6	83	AT83=(line,column,String)	Write a 8X16 String
7	84	AT84=(X position,Y position,pattern ID)	Display a 8X8 pattern
8	85	AT85=(X position,Y position,pattern ID)	Display a 8X16 pattern
9	86	AT86=(X position,Y position,pattern ID)	Display a 16X16 pattern
10	87	AT87=(X position,Y position,pattern ID)	Display a 32X32 pattern
11	90	AT90=(X0 position,Y0 position,X1 position,Y1 posi...	Draw a line
12	91	AT91=(X0 position,Y0 position,X1 position,Y1 posi...	Draw a Rectangle
13	92	AT92=(X0 position,Y0 position,X1 position,Y1 posi...	Draw a filled Rectangle
14	93	AT93=(X position,Y position,Width,0 or 1)	Draw a Square
15	94	AT94=(X position,Y position,Width,0 or 1)	Example: AT94(64,32,1,30) Draw a Circle
16	95	AT95=(X position,Y position,Width,0 or 1)	Draw a filled Circle
17	96	AT96=(X position,Y position,Height,0 or 1)	Draw a tip upward Triangle
18	97	AT97=(X position,Y position,Height,0 or 1)	Draw a filled tip upward Triangle
19	98	AT98=(X position,Y position,Height,0 or 1)	Draw a tip downward Triangle
20	99	AT99=(X position,Y position,Height,0 or 1)	Draw a filled tip downward Triangle
21	9a	AT9a=(X position,Y position,Width,0 or 1)	Draw a tip leftward Triangle
22	9b	AT9b=(X position,Y position,Width,0 or 1)	Draw a filled tip leftward Triangle
23	9c	AT9c=(X position,Y position,Width,0 or 1)	Draw a tip rightward Triangle
24	9d	AT9d=(X position,Y position,Width,0 or 1)	Draw a filled tip rightward Triangle
25	9e	AT9e=(X position,Y position)	Set a pixel for positive display(show pixel)
26	9f	AT9f=(X position,Y position)	Set a pixel for negative display(clear pixel)

A red box highlights the first two entries in the command list, with a red arrow pointing to the "2. Click on the USB-to-Serial Port" instruction. Another red box highlights the first two entries in the command list, with a red arrow pointing to the "3. Click on the Graphic Mode Tab to switch to Graphic window" instruction. A red box highlights the entire command list table, with a red arrow pointing to the "AT Command List: double clicks the AT Comm example , It will show up that command in the AT Command Mode window" instruction.

**AT Command List:**  
double clicks the AT Comm example , It will show up that command in the AT Command Mode window

## Device configuration

**Memory size correspond to Each mode**

## 6. Click on the Graphic Mode Tab to switch to AT Command window

#### 4. Click here to pop out the Mode selection List

5. Choose the Mode Correspondent with your device's Memory Map size  
> Please choose OLED If you are using OLED  
> Please choose Mode 0 if you are using single 96x8 module or 96x32 module

Done : ATf7=(0)

# AT Command Window Operation

Click this button will add one blank command line below for user to type in the AT command manually

The screenshot shows the Lumex UART Display Console interface. The main window title is "Lumex UART Display Console [ V1.5.8.5 ]". The tabs at the top are "Device Configuration", "AT Command Mode" (which is selected), "Graphic Mode", and "Font Maker".

**Device Configuration Window:** This window displays a table of command logs:

Index	Time	In/Out	Data
1	2016/9/28 上午 ...	Out	Done : AT17=(0)
2	2016/9/28 上午 ...	Out	Done : ATf7=(13)
3	2016/9/28 上午 ...	Out	Done : ATf7=(0)

A red oval highlights the log table, and a red arrow points to it with the text "Data log of the command operation".

**AT Command Mode Window:** This window shows a list of commands and a "Send" button.

Index	Commands	Send
1	AT83=(line,column,String)	T
2		T

Red arrows point to the "Append New Command" button (top right), the "AT83" command entry field, and the "Send" button (bottom right). A red arrow also points to the "T" button in the "Send" column of the command table with the text "Click to run this AT command once".

**Status Bar:** The bottom left of the interface shows the message "There are 2 Commands".

# AT Command Window Operation

Instead of click the 'T' button to run once on every click.  
It can run in batch mode by click "Batch send" button

Lumex UART Display Console [ V1.5.8.5 ]

Device Configuration AT Command Mode Graphic Mode Font Maker

Index	Time	In/Out	Data
1	2016/9/28 上午 ...	Out	Done : ATf7=(0)
2	2016/9/28 上午 ...	Out	Done : ATf7=(13)
3	2016/9/28 上午 ...	Out	Done : ATf7=(0)
4	2016/9/28 上午 ...	Out	Done : Start the Batch Send process !
5	2016/9/28 上午 ...	Out	Done : atd0=()
6	2016/9/28 上午 ...	Out	Done : at81=(0,0,123456789)
7	2016/9/28 上午 ...	Out	Done : atd0=()
8	2016/9/28 上午 ...	Out	Done : at91=(0,0,95,7,1)
9	2016/9/28 上午 ...	Out	@ : Extra delay 2000ms is Done
10	2016/9/28 上午 ...	Out	Done : atd0=()
11	2016/9/28 上午 ...	Out	Done : at81=(0,0,Lumex UART Display)
12	2016/9/28 上午 ...	Out	@ : Extra delay 3000ms is Done
13	2016/9/28 上午 ...	Out	Done : atd4=(50)

C:\Users\Administrator.77UDZQCSMCYTKIC\Desktop\UrComm

Load Append New Command Clear All Batch Send delay 5 Cancel Loop send

Index Commands Send

<input checked="" type="checkbox"/> 1	atd0=()	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 2	at81=(0,0,123456789)	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 3	atd0=()	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 4	at91=(0,0,95,7,1)	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 5	@W2000	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 6	atd0=()	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 7	at81=(0,0,Lumex UART Display)	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 8	@W3000	<input type="button" value="T"/>
<input checked="" type="checkbox"/> 9	atd4=(50)	<input type="button" value="T"/>

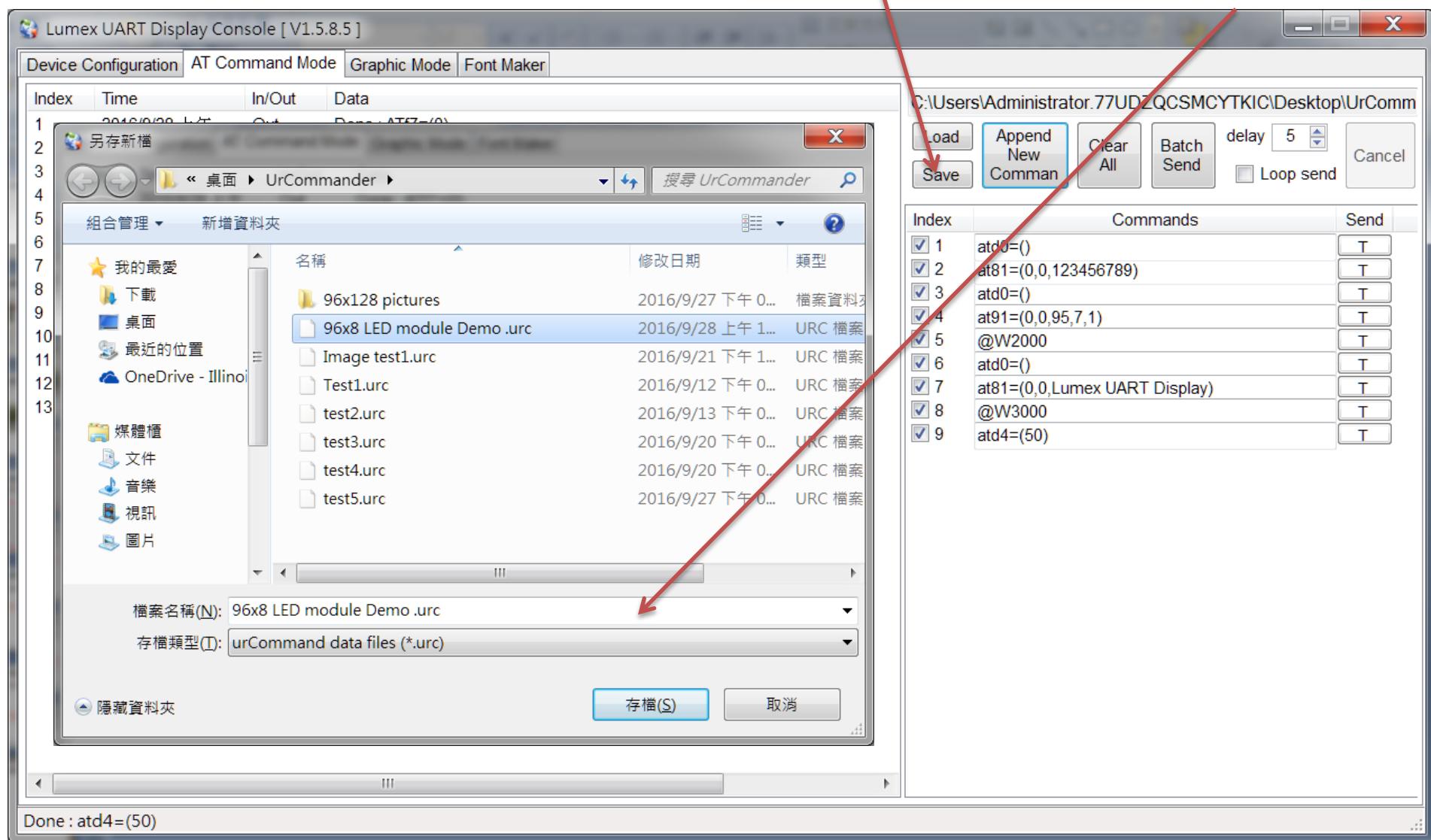
Check the index box to select which command will be part of Batch send

Edit the commands list here

Done : atd4=(50)

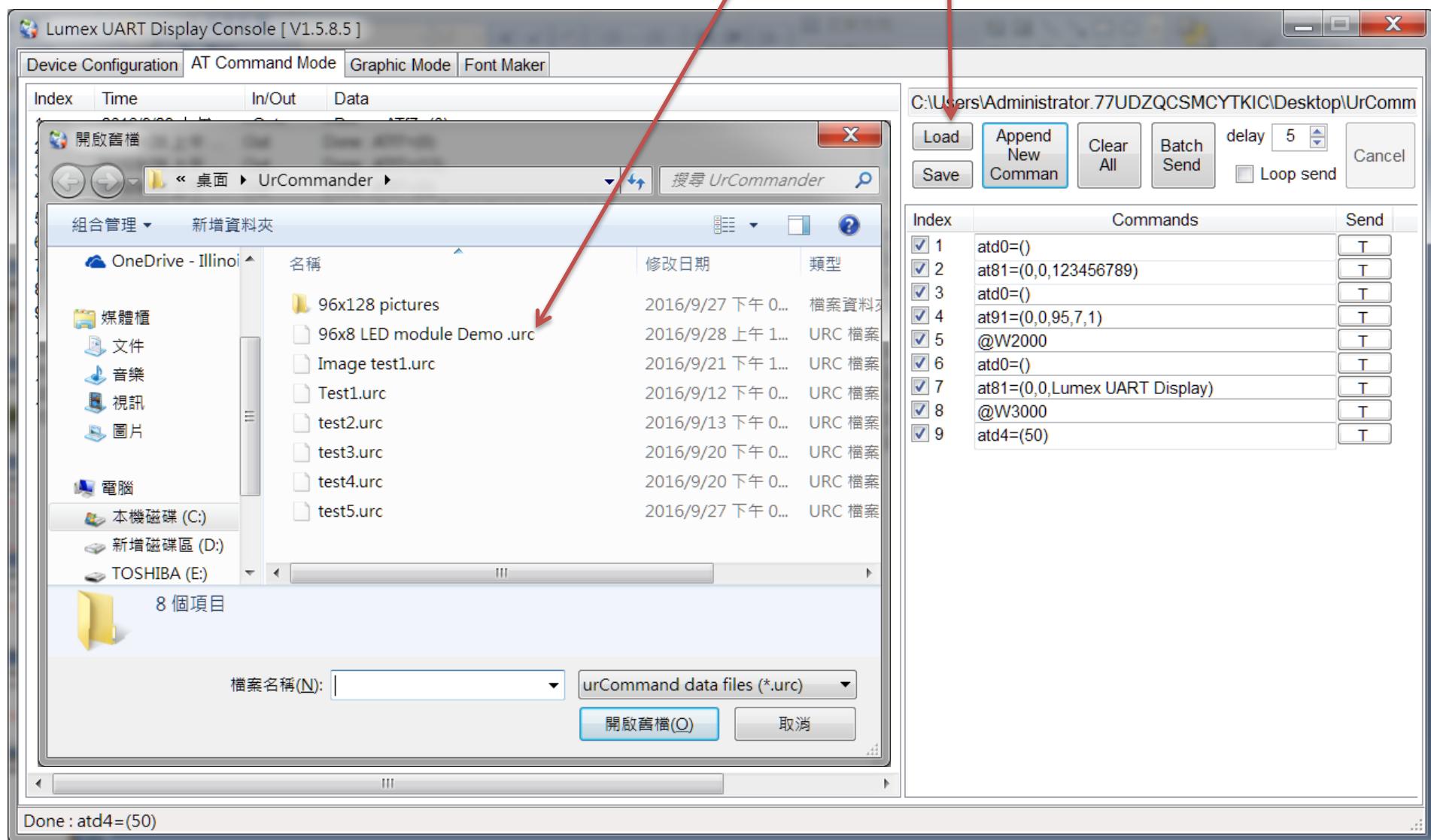
# AT Command Window Operation

Batch send can be save for re-use next time by clicking the “Save” button, a save window will pop out . The extension name of batch file is default as .urc



# AT Command Window Operation

You can load the pre-defined batch file (with .urc extension name) into AT command list by clicking the "Load" button



# AT Command Window Operation

User can make the batch sent run in indefinitely loop by check the “Loop send” box then click on the “Batch sent” button

2

1

C:\Users\Administrator.77UDZQCSMCYTKIC\Desktop\UrComm

Load	Append New Command	Clear All	Batch Send	delay 5	Cancel
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Index	Commands	Send
1	atd0=()	T
2	at81=(0,0,123456789)	T
3	atd0=()	T
4	at91=(0,0,95,7,1)	T
5	@W2000	T
6	atd0=()	T
7	at81=(0,0,Lumex UART Display)	T
8	@W3000	T
9	atd4=(50)	T

User can stop the indefinitely loop by clicking on the “Cancel” button

Lumex UART Display Console [ V1.5.8.5 ]

Device Configuration AT Command Mode Graphic Mode Font Maker

Index	Time	In/Out	Data
1	2016/9/28 上午 ...	Out	Done : ATf7=(0)
2	2016/9/28 上午 ...	Out	Done : ATf7=(13)
3	2016/9/28 上午 ...	Out	Done : ATf7=(0)
4	2016/9/28 上午 ...	Out	Done : Start the Batch Send process !
5	2016/9/28 上午 ...	Out	Done : atd0=()
6	2016/9/28 上午 ...	Out	Done : at81=(0,0,123456789)
7	2016/9/28 上午 ...	Out	Done : atd0=()
8	2016/9/28 上午 ...	Out	Done : at91=(0,0,95,7,1)
9	2016/9/28 上午 ...	Out	@ : Extra delay 2000ms is Done
10	2016/9/28 上午 ...	Out	Done : atd0=()
11	2016/9/28 上午 ...	Out	Done : at81=(0,0,Lumex UART Display)
12	2016/9/28 上午 ...	Out	@ : Extra delay 3000ms is Done
13	2016/9/28 上午 ...	Out	Done : atd4=(50)
14	2016/9/28 上午 ...	Out	Done : Start the Batch Send process !
15	2016/9/28 上午 ...	Out	Done : atd0=()
16	2016/9/28 上午 ...	Out	Done : at81=(0,0,123456789)
17	2016/9/28 上午 ...	Out	Done : atd0=()
18	2016/9/28 上午 ...	Out	Done : at91=(0,0,95,7,1)
19	2016/9/28 上午 ...	Out	@ : Extra delay 2000ms is Done
20	2016/9/28 上午 ...	Out	Done : atd0=()
21	2016/9/28 上午 ...	Out	Done : at81=(0,0,Lumex UART Display)
22	2016/9/28 上午 ...	Out	@ : Extra delay 3000ms is Done

III

@ : Extra delay 3000ms is Done

# Graphic Mode Operation Using OLED as example -1

Click the “Load” button to load picture to OLED, a window will pop out



# Graphic Mode Operation Using OLED as example -1

Lumex UART Display Console [ V1.5.8.5 ]

Device Configuration AT Command Mode Graphic Mode **Font Maker**

**TAIWAN**

**Graphic Operation**

OLED **Load** Save 128 X 64

Sketch  
Size 3 Color  **Fill**

**Reset All** **Show** **Send**

**Text to Image Operation**

128 X 64

**Font Name** Arial **Font Style** **Font**  
Bold Italic Regular Strike **14** Single Line Multi-Line

**Text to Image**

**Text Image Operation**  
Hex C Style **Show** **Send**

**Set text image to Graphic <<<<**

Done : ATF7=(13)

**Click the “Send” button to load picture to OLED**

A red arrow points from the text "Click the “Send” button to load picture to OLED" to the "Send" button in the "Graphic Operation" section.

# Graphic Mode Operation Using OLED as example 2

Lumex UART Display Console [ V1.5.8.5 ]

Device Configuration AT Command Mode Graphic Mode **Font Maker**

**Graphic Operation**  
OLED **Load** **Save** 128 X 64

Sketch  
Size 3 Color  **Fill**

**Reset All** **Show** **Send**

**Text to Image Operation**  
128 X 64

**Lumex  
UART  
Display**

**Font Name** Arial **Font Style** **Font**  
 **Bold** 14  
 **Italic**  
 **Regu**  
 **Strike**  
 **Single Line**  
 **Multi-Line**

**Text to Image**  
Lumex  
UART  
Display

**Set text image to Graphic <<<<** **Text Image Operation**  
 **Hex**  **C Style**

**Show** **Send**

**This Text to image function can edit the different languages and fonts and send it to device as image** → 1

**The image will show here to reflect the display memory that is going to send to OLED** → 2

**Edit the fonts or characters in here** → 3

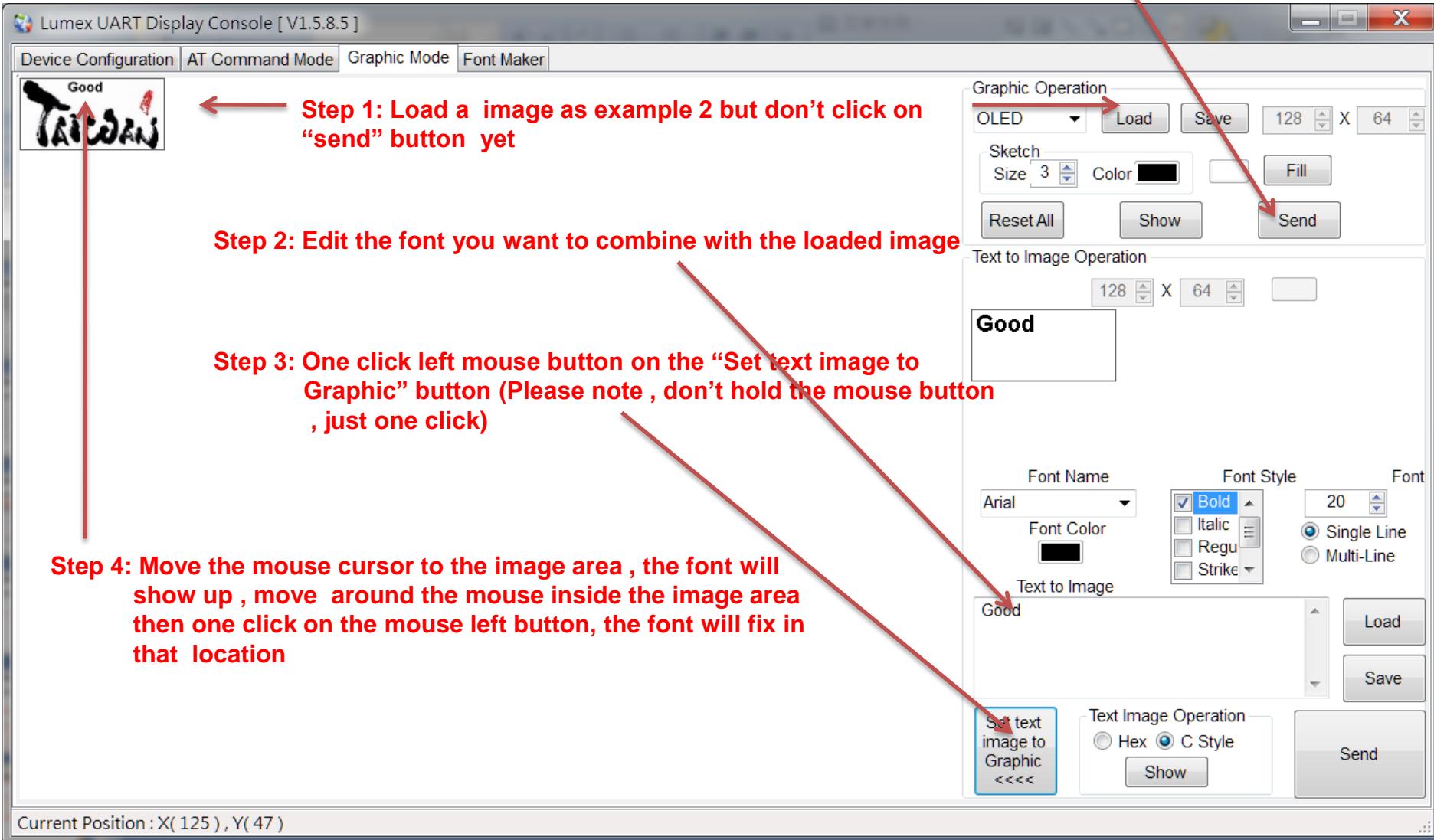
**Click the “Send” button to send the Image** → 4

# : [Send Graph] Operation is Done

# Graphic Mode Operation Using OLED as example -3

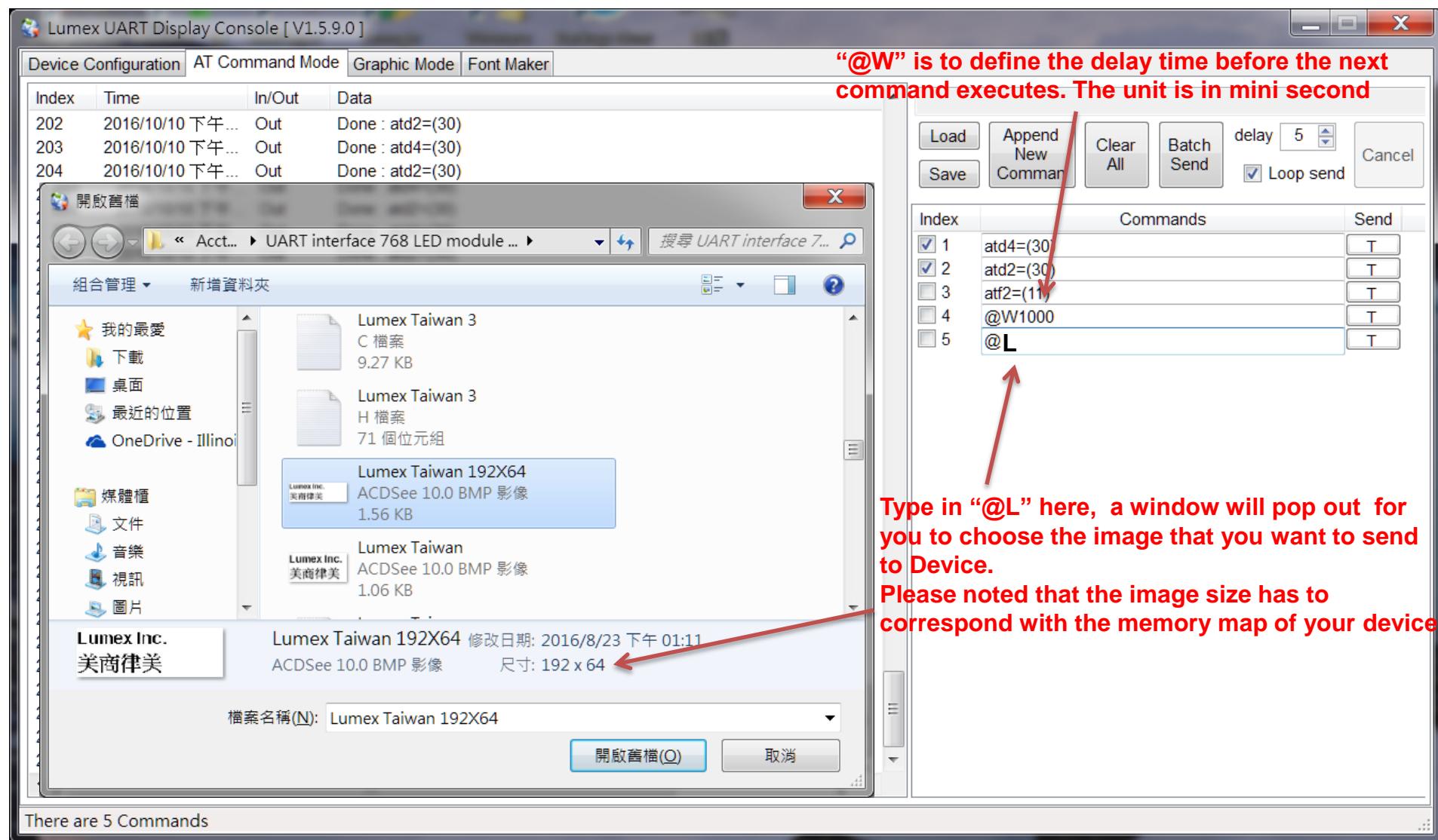
This Text to image function and Graphic operation can mix to form more complex image

Step 5: Click on the “Send” button to display the image



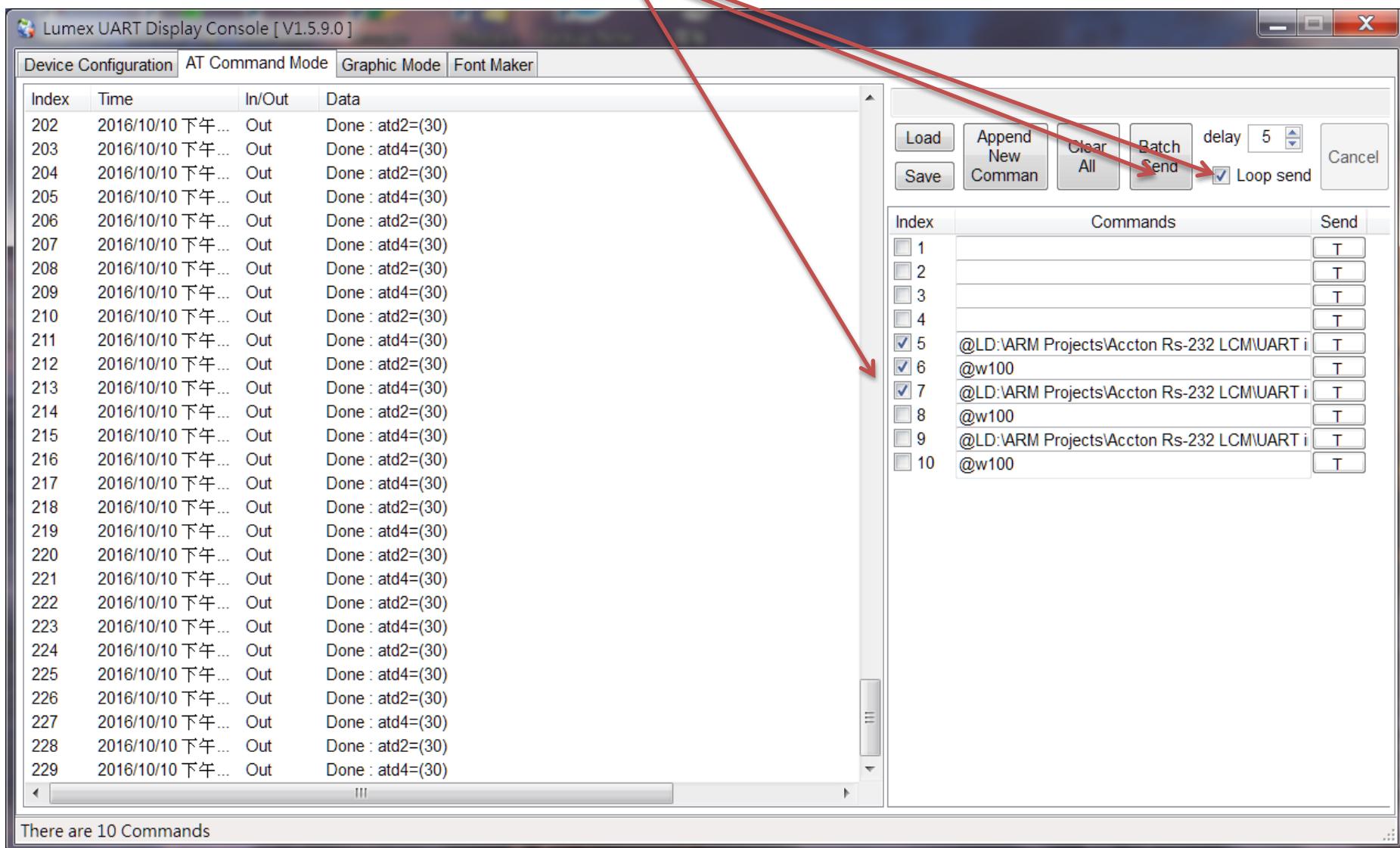
# How to load and send an image under AT command mode

User can load the images in the AT command window by using the “@L” command .  
Please noted that the “@L” and @W are not AT command. They can only been used in this console.



# How to perform an animation under AT command mode

User can load images as many as they want and run under batch send mode to create the animation by using the “@L” command, “@W” can be used to adjust the image refresh time



# How can I use the image created in this AP to my MCU (Using OLED as example -4)

Click on the “Show” button a window will pop out. User can copy and paste the text form image matrix to their IDE to apply on MCU

Lumex UART Display Console [ V1.5.8.5 ]

Device Configuration AT Command Mode Graphic Mode Font Maker

Content [ C Style ]

```
Matrix[1024] = {
```

Graphic Operation

OLED

Sketch

Size 3

Color

Reset All

Show

Send

Text to Image Operation

128 X 64

Good

Same function as “Show” button in Graphic operation

Font Name: Arial

Font Style:  Bold  Italic  Regu  Strike

Font Size: 20

Font Color: Black

Text to Image

Good

Text Image Operation

Set text image to Graphic <<<<

Hex  C Style

Show

Load

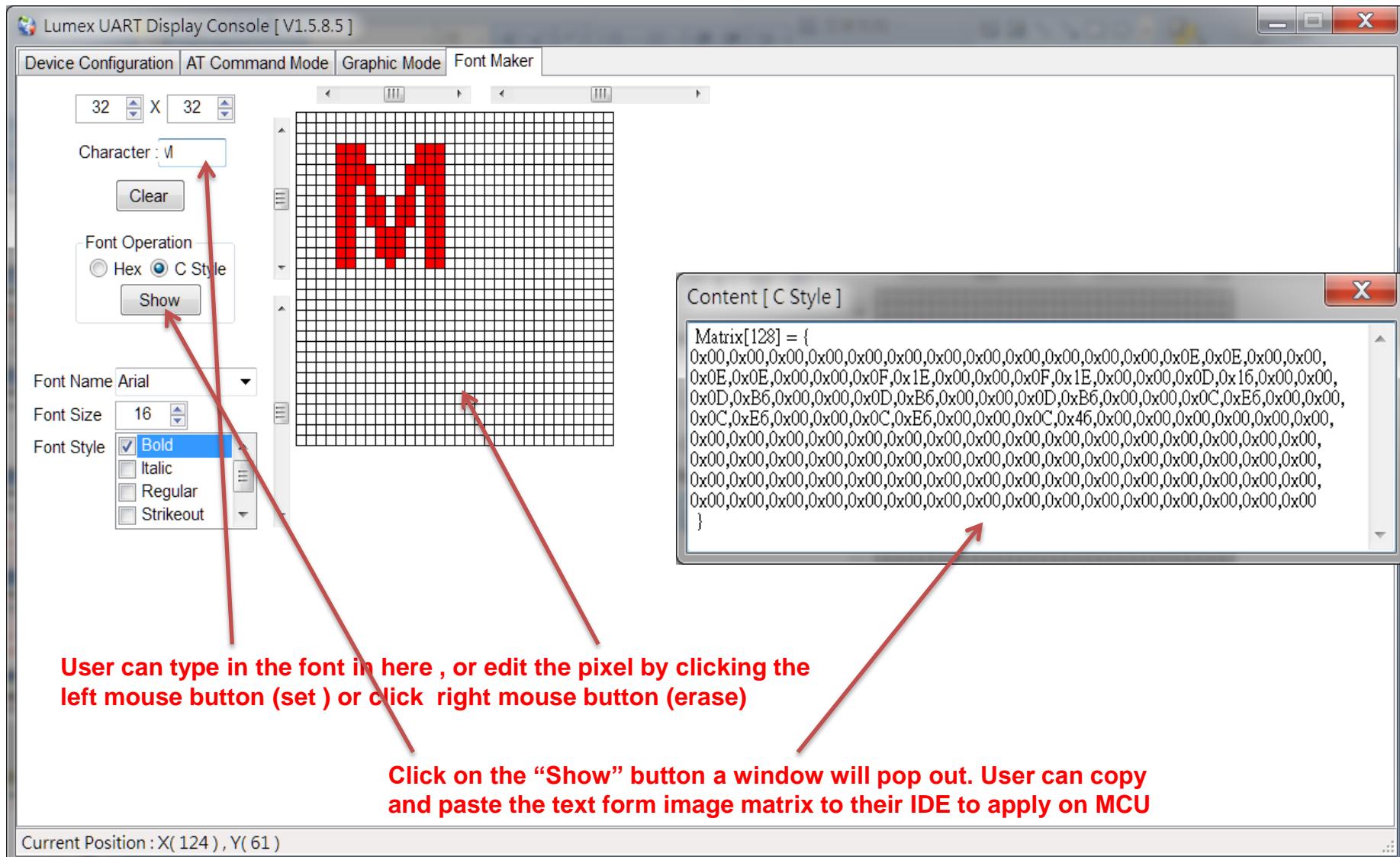
Save

Send

Current Position : X( 124 ), Y( 61 )

## How the Font maker works?

## Same function as “Show” button in Graphic operation



User can type in the font in here , or edit the pixel by clicking the left mouse button (set ) or click right mouse button (erase)

Click on the “Show” button a window will pop out. User can copy and paste the text form image matrix to their IDE to apply on MCU