

WSL304S AT command user guide

1. Connect to NB/PC by UART to USB board.





UART (Module side)					
紅色	橘色	黃色	綠色		
3.3V	RX	TX	GND		

燒錄 PIN			
白色	灰色		
SYS_SWDIO	SYS_SWCLK		

- 2. Check the COM port number under device manager.
 - ▶ ᇦ 通用序列匯流排控制器
 - ▲ 🦉 連接埠 (COM 和 LPT)
 - Silicon Labs CP210x USB to UART Bridge (COM11)
 - ▶ ⑧ 滑鼠及其他指櫄裝置
- 3. Install and run "Realterm.





4. Select Display => Ascii.

🐴 RealTerm: Se	erial Capture Program 2.0	0.0.70	Course Includes	
Display As Display As C Ascii C Ansi C Hex/space) C Hex/space) C Hex/space) C unt8 C Hex C unt8 C Hex C Moble C Float4 C Hex CSV You have to click	Lapture Pins Send E Half Duplex newLine mode Invert ZBits V Big Endian Data Frames Bytes 2 ↓ Single Gulp Terminal Font 16 ↓	Ecno Port 12L 12L-2 12LMis Binary Sync Chars ABCD	Sync is: Sync is: None OR C ASCII C Number C Leading Sync 0 matches	Status Connected RXD (2) TXD (3) CTS (8) DCD (1) DSR (6) Ring (9) BREAK Error

5. Select COM port and Baudrate and then click "Open".

RealTerm: Serial Capture Program 2.0.0.70		-	- • • × •
Display Port Capture Pins Send Echo Port 12	2 C 12C-2 12CMisc Misc	<u>In</u>	Clear Freeze ?
Baud 57600 Port 11	Open Spy		Connected
Parity Data Bits • None • 8 bits • Odd • 7 bits • Even • 6 bits • Mark • 6 bits • Space • 5 bits	Software Flow Control Receive Xon Char: 17 Transmit Xoff Char: 19 Winsock is: C Raw C Telnet		RXD (2) TXD (3) CTS (8) DCD (1) DSR (6) Ring (9) BREAK Error
You can use ActiveX automation to control me!	Char Count:0	CPS:0	Port: 11 57600 8N1 Ni



6. Check the box +CR, +LF, +CR and +LF.

Keyin "AT".

Click "SendASCII".

RealTerm: Serial Capture Program 2.0.0.70	×
Pisplay Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc Misc Misc	Ir Freeze ?
AT Send Numbers Send ASCII → CR Before → Send Numbers Send ASCII → CR ASCII → After → Send Numbers Send ASCII → CR After → CR → C	Status Connected RXD (2) TXD (3) CTS (8)
Dump File to Bot	
C:\temp\capture.txt Send Eile X Stop Delays 0 0 Bepeats 1 1 0 \$	DSR (6) Ring (9) BREAK Error
You can use ActiveX automation to control me! Char Count:0 CPS:0 Port: 1	1 57600 8N1 N

7. Shows "OK" if successful. (回傳"OK"表示模塊通信正常)

RealTerm: Serial Capture Program 2.0.0.70		x
ок		*
Displau Port Capture Pins Send Echo Port 120		= + ?
	erel [Send ASCI]] EOL \n Status	
Image: marked bit is a send Numb Image: marked b	Image: Send ASCII Image: Ferret with the send term in the se	ected 2) 3) 3) 1)



8. Example.

Keyin "ATZ" 檢視模塊資訊

RealTerm: Serial Capture Program 2.0.0.70	
If OTAA enabled DevEui= 37-31-38-33-79-37-87-18 AppEui= 01-01-01-01-01-01-01 AppKey= 2B 7E 15 16 28 AE D2 A6 AB F7 15 88 09 CF 4F 3C	
If ABP enabled DevEui= 37-31-38-33-79-37-87-18 DevAdd= 0015A36F NwkSKey= 2B 7E 15 16 28 AE D2 A6 AB F7 15 88 09 CF 4F 3C AppSKey= 2B 7E 15 16 28 AE D2 A6 AB F7 15 88 09 CF 4F 3C Version: F-ICM-02-1803261 spi test1: 12 spi test2: 84 ATtention command interface	E
Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc 1	Clear Freeze ?
ATZ Send Numbers Send ASCII Vn Send Numbers Send ASCII V + CR Send Numbers Send ASCII V + CR Send Numbers Send ASCII V + CR Literal Strip Spaces SMBUS 8	Status Connected RXD (2) TXD (3) CTS (8) DCD (1)
Dump File to Port Send File Stop Delays 0 C:\temp\capture.txt Send File Stop Delays 0 \$	DSR (6) Bing (9) BREAK Error
You can use ActiveX automation to control me! Char Count:411 CPS:0 P	ort: 11 57600 8N1 N+ //

Keyin "AT+VER=?" 檢視模塊 FW 版本

RealTerm: Serial Capture Program 2.0.0.70	
F-ICM-02-1804171	*
OK	E t
Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc Im Classical Content Image: Arrow of the second sec	Status
✓ Send Numbers Send ASCII ✓ +LF ← After 0 ^C LF Repeats 1 ✓ Literal Strip Spaces SMBUS 8 ✓	RXD (2) TXD (3) CTS (8) DCD (1)
	DSR (6)
Ic: vtemp vcapture.txt	Hing (9) BREAK Error
Chars sent aren't displayed when half-duplex is set Char Count:24 CPS:0 Port:	11 57600 8N1 N



Keyin "AT+TCONF=?" 檢視模塊 TX power 配置

📲 RealTerm: Serial Capture Program 2.0.0.70	
Freq= 470 MHz Power= 14 dBm Bandwidth= 125 kHz SF= 12 CR= 4/8 LNA State =0 PA Boost State =1	
OK Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc 1	n Clear Freeze ?
AT +TCONF=? Send Numbers Send ASCII Send ASCII Sen	Status _ Connected _ RXD (2) _ TXD (3) _ CTS (8) _ DCD (1)
Dump File to Port C:\temp\capture.txt Bepeats 1 0 1	
You can use ActiveX automation to control me! Char Count:112 CPS:0	Port: 11 57600 8N1 N

Keyin "AT+TRX=?" 檢視模塊 RX1 frequency 配置, 初始設定為 0 "0": RX1=TX+30MHz

"1": RX1=TX

OK OK Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc In Clear Freeze AT + TRX = ? Send Numbers Send ASCII 	RealTerm: Serial Capture Program 2	.0.0.70			
Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc \n Clear Freeze AT +T RX =? Send Numbers Send ASCII V +CR Before Status Connec AT +T RX =? Send Numbers Send ASCII V +CR Before RXD (2) Send Numbers Send ASCII V +CR After ITXD (3) O ^C LF Rgpeats 1 Literal Strip Spaces +crc SMBUS 8 _ _ Dump File to Port	DR				
AT +TRX =? ✓ Send Numbers Send ASCII ✓ +CR ✓ Before RXD (2) ✓ Send Numbers Send ASCII ✓ +CR ✓ After Image: Connect of the connect of th	Distal Bath Cashard Dias Send	Iste Deck 100			Clear Freeze 2
Dump File to Port	AT+TRX=?	Send Number	s Send ASCII ♥ +CF s Send ASCII ♥ +CF s Send ASCII ♥ +CF Strip Spaces +cr	Nn Before After SMBUS 8	Status Connected RXD (2) TXD (3) CTS (8) DCD (1)
Bepeats 1 1 Dependence	Dump File to Port	▼ Send <u>F</u>	ile X Stop Delay <u>B</u> epeats 1	s 0 \$ 0 \$ \$ 0 \$	DSR (6) Ring (9) BREAK Error



RealTerm: Serial Capture Program	2.0.0.70					- 🗆 🗙
ĸ						
Display Bort Capture Pips Send	Echo Port 120	12E-2 12E-Mi	ien Mien	\n	Clear	Freezel ?
AT +TRX =1	Send Nu	mbers Send <u>ASC</u> mbers Send <u>ASC</u> I T Strip Space	EOL EOL V +CR V +LF II V +CR V +CR V +CR V +CR V +CR V +CR V +CR V +CR V +CR	Vn Before After		Status Connected RXD (2) TXD (3) CTS (8) DCD (1)
Dump File to Port c:\temp\capture.txt	<u>▼</u> Se	end <u>File</u> X Sto	op Delays epeats 1	• ≠ • ≠ • • •		DSR (6) Bring (9) BREAK Error

Keyin "AT+TRX=1"	修改模塊 RX1 freque	ency 配置為 1(RX1=TX)
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Keyin "AT+TRX=0" 修改模塊 RX1 frequency 配置為 0(RX1=TX+30MHz)

RealTerm: Serial Capture Program 2.0.0.70			
OK			- III
Display Port Capture Pins Send Echo Port 12C	12C-2 12CMisc Misc	<u>\n</u> Clea	r Freeze ?
AT +TRX = 0 Send Number Send Number Send Number Literal Literal	s <u>Send ASCII</u> ▼ +CR s <u>Send ASCII</u> ▼ +CR Strip Spaces ▼ +LF +Cr	Nn ■ Before ■ After SMBUS 8 ■	Status Connected RXD (2) TXD (3) CTS (8)
Dump File to Port			DCD (1) DSR (6)
c:\temp\capture.txtSendE	ile X Stop Delays C <u>R</u> epeats 1		Ring (9) BREAK Error
You can use ActiveX automation to control me!	Char Count 6	CPS:0 Port: 1	1 57600 8N1 N



Keyin "AT+JOIN" 回傳"JOINED"表示與 gateway 連結成功

end: Ø		
** segTx= 0 ***** X power 17 X on freg 470300000 Hz a adio.Send : 23	t DR 5	
K xDone X on freg 500300000 Hz a xDone OINED	t DR 5	
Display Port Capture Pins Se AT+JOIN	nd Echo Port 12C 12C-2 12CMisc Misc 10	Clear Freeze ? Status
Display Port Capture Pins Se AT+JOIN 0_^C LF Repeats 1 €	nd Echo Port 12C 12C-2 12CMisc Misc Send Numbers Send ASCII Send Numbers Send ASCII Send Numbers Send ASCII Literal Strip Spaces + crc SMBUS 8 ▼	Clear Freeze ? Status Disconnect RXD (2) TXD (3) CTS (8) DISC (1) DISC (1)

Keyin "AT+NJS=?" Return 0 Network is not joined yet

RealTerm: Serial Capture Program 2.0.	0.70			×
isplay Port Capture Pins Send Ech	io Port 12C 12C-2 12CMisc Misc	Clear	Freeze	?
	Send Numbers Send ASCII V +CR Before Send Numbers Send ASCII V +LF Send Numbers Send ASCII V +LF SMBUS 8 ⊻		Disco	innec (2) (3)
	i Ekerai i ohip opaces	med .		(8)



Keyin "AT+NJS=?" <mark>Return 1 Ne</mark>	etwork is now joi	ned			
NealTerm: Serial Capture Program 2.0.0.70			-		×
1 ok					
Display Port Capture Pins Send Echo Port 12 AT+NJS=? Send Send Send	2C 12C-2 12CMisc Misc Numbers Send ASCII ♥ +CR Numbers Send ASCII ♥ +CR Send ASCII ♥ +CR	<u>\n</u> Before After SMBUS 8 →	Clear	Freeze Status Discr RXD TXD CTS) ? onnect (2) (3) (8)
Dump File to Port	Send Eile Stop Delays			DCD DSR Ring BRE	(1) (6) (9) AK
You can use ActiveX automation to control mel	Char Count 9	CPS:0	Port 17 5	7600 8N	1 Ni

Kevin	"AT+NJS=?"	Return 1	Network	is now	ioine
INC VIII		INCLUITI I	INCLIVUIN		

Keyin "AT+SEND=50:Hello World"

🚰 RealTerm: Serial Capture Program 2.0.0.70	- • ×
Send: 10	*
*** seqTx= 1 ***** TX power 17 TX on freq 471300000 Hz at DR 0 Radio.Send : 23	
OK txDone RX on freq 501300000 Hz at DR 0 rxTimeOut DN or FAFTY FAFTY FAFTY AND A	E
rxTimeOut	
Display Port Capture Pins Send Echo Port 12C 12C-2 12CMisc Misc In Clear	Freeze ?
AT+SEND=50:Hello Word Send Numbers Send ASCII	Status Disconnect RXD (2)
O C LF Repeats 1	CTS (8) CCD (1)
C:\temp\capture.txt ✓ Send File ¥ Stop Delays 0 ♦	DSR (6) Ring (9) BREAK
Chars sent aren't displayed when half-duplex is set Char Count:197 CPS:0 Port: 11	57600 8N1 Nr //



Keyin "AT+SENDB=60:0123"

end: 2	2.0.0.70	
*** segTx= 1 ***** X power 17 X on freq 470700000 Hz at adio.Send : 15	DR Ø	-
K xDone X on freq 500700000 Hz at xTimeOut X on freq 505300000 Hz at xTimeOut	DR Ø DR Ø	=
Display Port Capture Pins Send AT+SENDB=60:0123	Echo Port 12C 12C-2 12CMisc Misc \n Cleat ▼ Send Numbers Send ASCII ♥ +CR \n Before	IT Freeze ?
Display Port Capture Pins Send AT +SENDB=60:0123 0 ^C LF Repeats 1 +	Echo Port 12C 12C-2 12CMisc Misc \n Cleat Send Numbers Send ASCII Im +CR Im Before Send Numbers Send ASCII Im +CR Im Before Send Numbers Send ASCII Im +CR Im After Literal Strip Spaces HF +Cr SMBUS 8 Im	r Freeze ? Status Disconnect RXD (2) TXD (3) CTS (8) DCD (1) DSR (6)
Display Port Capture Pins Send AT +SENDB=60:0123 0 ^C LF Repeats 1 Dump File to Port c:\temp\capture.txt	Echo Port 12C 12C-2 12CMisc Misc \n Clear Send Numbers Send ASCII Im +CR Im Before Send Numbers Send ASCII Im +CR Im Before Send Numbers Send ASCII Im +CR Im Before Literal Strip Spaces HE SMBUS 8 Im Im Send File X Stop Delays Im Im Bepeats 1 Im Im	rf Freeze ? Status Disconnect RXD (2) TXD (3) CTS (8) DCD (1) DSR (6) Ring (9) BREAK Error

Gateway 端

1. 必須先增加 Device.

Kiwi Mono Network										🐣 Hello	Admi	m
	.	(MN LoRaWAN	Devicew Management									æ
Home	Show	8 • entries	list						ş	Search:		6
LoRaWAN <		DevAddr IF	DevEUI	App	Owner 11	Class	Activate	Channel Plan	CFList	Downlink		
🛱 Device List		01f36268	3731383351378518		admin	A	ABP	CN470-510	N/A	RX1	Û	0
 Device CSV Upload Uplink / Downlink 	۰	01f1e19b	3731383372377e18		admin		АВР	CN470-510	N/A	RX1	۵	¢
 LoRaWAN CFList 		01ec5df1	3731383364376218		admin		ABP	CN470-510	N/A.	RX1	۵	Ф
Applications <		01cb5df0	3731383364376718		admin		ABP	CN470-510	N/A	RX1	Û	0
User Profile		01583008	3731383371377e18	notis	admin.	A	ABP	CN470-510	N/A	RX1	Û	0
Storage		01aa28b4	3731383355377518	none	admin	٨	OTAA	CN470-510	N/A	RX1	Û	\$



2. 填入 Device EUI 等資訊後點擊"Create"

ono Console	and the second se			
uno console	Create LoRaWAN De	vice	Advanced Mode 🗙	
Home	Device EUI	3731383379378718	•	
LoRaWAN <	Device Address	0015A36F		
Device List	Location	Latitude	ude 🔍	
Uplink / Downlink	Application	none	*	
LoRaWAN CFList	Activation	OTAA	*	
Applications <	Relax Counter Check	TRUE	*	
User Profile	LoRaWAN Class	Class A	×	
Storage	Owner	admin (Admin)	*	
REST API	Channel Plan	CN470-510	•	
	Application EUI	0101010101010101		
	Application Key	2B7E151628AED2A6ABF7158809CF4F3C	a,	

3. 可以確認是否有傳輸成功

0 0 102169 11 100	090				100	105							
	000												*
Home	LoRaWAN Da	ata	🕽 List 🕹 Downlin	k							C	00	•
LoRaWAN (Show 10 • entrie	s											
Qo Device List	Time ↓F	DevAddr	DevEUI 11	GatewayEUI	Owner 👔	RSSI 👔	SNR 1	SF II	BW IT	Freq 👔	UpCtr 📳	Size 11	
Device CSV Upload	2018/03/26 17:17:48	cc82eb	373138336d379e18	O00b78fffec0002c	admin	-57	9.2	7	125	470.9	581	38	
LoRaWAN CFList	2018/03/26 17:17:35	15a36f	3731383379378718	O000b78fffec0002c	admin	-37	10.2	12	125	471.3	1	10	
Applications <	2018/03/26 17:17:21	15a36f	3731383379378718	O000b78fffec0002c	admin	-39	10.2	12	125	471.1	0	10	
, oppning of	2018/03/26 17:14:32	1413008	3731383371377118	O000b78fffec0002c	admin	-69	9	7	125	470.3	437	42	2d36
User Profile	2018/03/26 17:14:09	510f84	3731383365376b18	O00b78fffec0002c	admin	-43	9.8	7	125	470.7	479	39	44
Storage	2018/03/26 17:13:02	1f36268	3731383351378518	O000b78fffec0002c	admin	-48	8.8	7	125	470.3	1022	36	
DESTADI	2018/03/26 17:12:16	4d347f	373138336e379b18	O000b78fffec0002c	admin	-54	9.5	7	125	470.3	478	40	30
RESTART	2018/03/26 17:11:24	173347e	373138336e379d18	O000b78fffec0002c	admin	-47	9.8	7	125	470.9	1022	41	2d3
	2018/03/26 17:11:02	16b829	373138337c376318	O00b78fffec0002c	admin	-37	10	7	125	470.5	1022	40	32
	2018/03/26 17:10:53	1cb5df0	3731383364376718	O00b78fffec0002c	admin	-51	9.8	7	125	470.3	1022	41	312
	Showing 1 to 10 of 61 er	ntries						Prev	ious 1	2 3	4 5	6 7	Next

