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A module/product solution provider

ZB7410 AND ZB7500 MODULE

BLE AT CMD USER GUIDE

Version : 0.1.1

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Changed History

version	Date	Description	Author
0.1.0	2016.08.30	Draft version	Austin Huang
0.1.1	2016.08.31	Change fw baud rate be 115200	Austin Huang

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1 INTRODUCTION

This doc is AT command for BLE to UART. The AT command list supported in 3 type BLE fw in ZB74xx/ZB75xx module.

1. Single Central Role (SRC)
2. Single Peripheral Role (SRP)
3. Central role connected with Multiple Peripheral device (CMP)

If You need firmware for evaluation. Please contact with Jorjin Sales team.

Limitation :

1. Host MCU must wait 200ms after command "AT+CON=0" and got response 2 from BLE module. Then send command "AT+SENT". This is limitation because there are BLE exchanged connection information after connection.
2. SRC and SRP FW Only allow 1 host connected to Peripheral role OR Central role connected to 1 client.
3. CMP FW allow connected with 8 Peripheral BLE devices.

More information :

1. All FW with baud rate 115200 as default.

1.1 RELEASED NOTE

1. Included AT command in section 1.2~1.4

1.2 SRC AT COMMAND LIST

Single Central Role (SRC) AT command list

Latest FW version : BLE_TO_UART_SRC_AT_CMD_v0.1.1.bin

AT Command	Description	Result	Device
DEVMAC<CR>	Display device MAC address		Central
FWVER<CR>	Display device firmware revision		
BAUD=N<CR>	N = 1, set baudrate to 115200 N = 2, set baudrate to 57600 N = 3, set baudrate to 19200 N = 4, set baudrate to 9600	0(OK)/1(ERROR)	
SCAN<CR>	Scan BLE device (index & MAC address)	Display result	
CON=x<CR>	Connect to x (select BLE device of scan result) “x” is parameter.	2(OK)/1(ERROR)	
DISCON<CR>	Disconnect from connection	0(OK)/1(ERROR)	
LIST<CR>	List found BLE device (index & MAC address)	Display result	
STA<CR>	BLE connection status	0(Standby) / 2(Connected)	
READ<CR>	Read peripheral data. Return Value is String format		
SENT=xxx<CR>	Sent n-bytes to peripheral (n<=20) EX : AT+SENT=XYZ AT+SENT=1234567890abcdefghij	0(OK)/1(ERROR)	
LISTEN=x<CR>	x=0 Disable listening for notifications. x=1 Enable listening for notifications. Display format : N##d N : Notification d : Data, length limitation is 20 bytes.	0(OK)/1(ERROR)	

1.3 SRP AT COMMAND LIST

Single Peripheral Role (SRP) AT command list

Latest FW version : BLE_TO_UART_SRP_AT_CMD_v0.1.1.bin

AT Command	Description	Result	Device
DEVMAC<CR>	Display device MAC address		Peripheral
FWVER<CR>	Display device firmware revision		
BAUD=N<CR>	N = 1, set baudrate to 115200 N = 2, set baudrate to 57600 N = 3, set baudrate to 19200 N = 4, set baudrate to 9600	0(OK)/1(ERROR)	
ADV<CR>	Start advertising	0(OK)/1(ERROR)	
STOP<CR>	Non-advertising	0(OK)/1(ERROR)	
DISCON<CR>	Disconnect from connection, status remains advertising	0(OK)/1(ERROR)	
STA<CR>	BLE connection status Default status : Advertising (standby : non-advertising)	0(Standby) / 1(Advertising) / 2(Connected)	
NAME=x<CR>	Set device name	0(OK)/1(ERROR)	
PAIRMODE=x<CR>	Pairing Mode.(Default : x=2) x=0 Pairing is not allowed. x=1 Wait for a pairing request or slave security request. x=2 Don't wait, initiate a pairing request or slave security request.	0(OK)/1(ERROR)	
PINCODE=x<CR>	The default passcode for protection. x : Range is 0 - 999,999. Default is 0.	0(OK)/1(ERROR)	
INTERVALCON=X<CR>	Set connection interval (1.25ms as a unit), interval ranges from 7.5ms to 4 s (6 <= X <= 3200).	0(OK)/1(ERROR)	
INTERVALADV=X<CR>	Set advertising interval (0.625ms as a unit), interval ranges from 20 ms to 10.24 s (96 <= X <= 16384). And it should be set in non-advertising state.	0(OK)/1(ERROR)	

SET_ADVDATA=x<CR>	Set advertising data	0(OK)/1(ERROR)
SET_MOD=x<CR>	Set model number	0(OK)/1(ERROR)
SET_MFG=x<CR>	Set manufacture name	0(OK)/1(ERROR)
READ<CR>	Read peripheral data. Return Value is String format	
WRITE=xxx<CR>	Write data into characteristic which master can read from and its length limitation is 20 bytes. EX : AT+WRITE=XYZ AT+WRITE=1234567890 AT+WRITE=1234567890abcdefghij	0(OK)/1(ERROR)
NOTIFY=xxx<CR>	Send notifications to characteristic, and its length limitation is 20 bytes. EX : AT+WRITE=XYZ AT+WRITE=1234567890 AT+WRITE=1234567890abcdefghij	0(OK)/1(ERROR)

1.4 CMP AT COMMAND LIST

Central role connected with Multiple Peripheral device (CMP) AT command list

Latest FW version : BLE_TO_UART_CMP_AT_CMD_v0.1.0.bin

AT Command	Description	Result	Device
DEVMAC<CR>	Display device MAC address		Central
FWVER<CR>	Display device firmware revision		
BAUD=N<CR>	N = 1, set baudrate to 115200 N = 2, set baudrate to 57600 N = 3, set baudrate to 19200 N = 4, set baudrate to 9600	0(OK)/1(ERROR)	
SCAN<CR>	Scan BLE device (index & MAC address)	Display result	
CON=x<CR>	Connect to x (select BLE device of scan result) “x” is parameter.	2(OK)/1(ERROR)	
DISCON<CR>	Disconnect from connection	0(OK)/1(ERROR)	
LIST<CR>	List found BLE device (index & MAC address)	Display result	
STA<CR>	List connected BLE device (index & MAC address)	Display result	
TARGET=x<CR>	Select connected BLE device	0(OK)/1(ERROR)	
READ<CR>	Read peripheral data. Return Value is String format		
SENT=xxx<CR>	Sent n-bytes to peripheral (n<=20) EX : AT+SENT=XYZ AT+SENT=1234567890abcdefghij	0(OK)/1(ERROR)	
LISTEN=x<CR>	x=0 Disable listening for notifications. x=1 Enable listening for notifications. Display format : t##d t : Index number of connected BLE device d : Data, length limitation is 20 bytes.	0(OK)/1(ERROR)	

1.5 OTHERS COMMAND

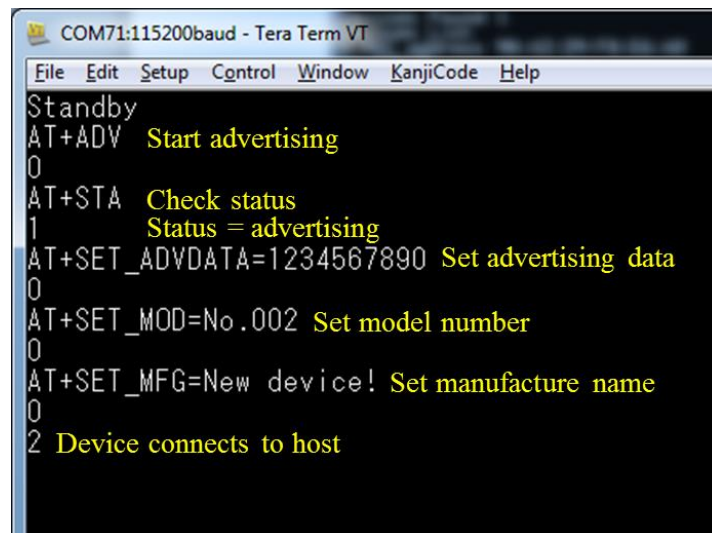
Under development.

AT Command		Description	Result	Device
AT+	SWITCH<CR>	Switch roles. (Central or peripheral). Default is peripheral	0(OOK)/1(ERROR)	Both

1.6 AT COMMAND SAMPLE

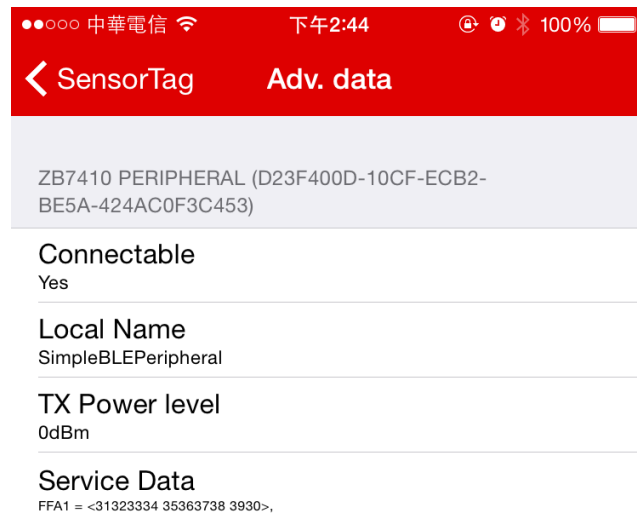
1.6.1 AT+ SET_ADVDATA/SET_MOD/SET_MFG

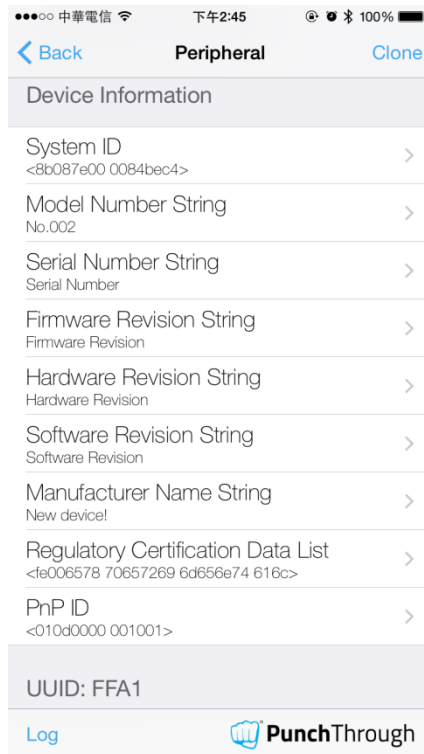
Peripheral Devices AT command for configuration Set advertising data,Set model number,Set manufacture name



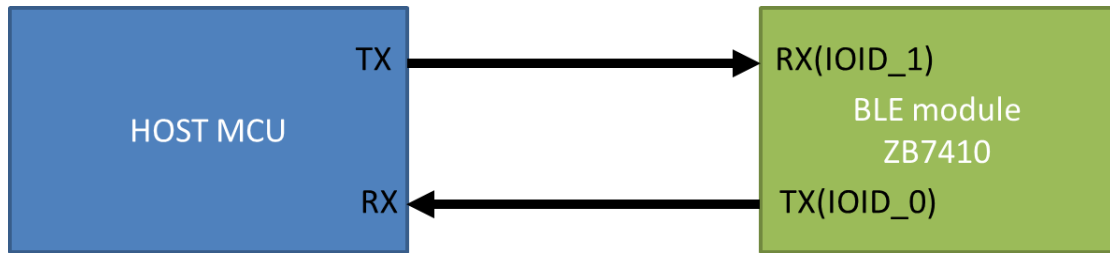
```

COM71:115200baud - Tera Term VT
File Edit Setup Control Window KanjiCode Help
Standby
AT+ADV Start advertising
0
AT+STA Check status
1
Status = advertising
AT+SET_ADVDATA=1234567890 Set advertising data
0
AT+SET_MOD=No.002 Set model number
0
AT+SET_MFG=New device! Set manufacture name
0
2 Device connects to host
  
```





2 HW DIAGRAM



UART pin in ZB7410 module

```

#define Board_UART_RX          IOID_1          /* RF1.7 */
#define Board_UART_TX          IOID_0          /* RF1.9 */
  
```

Pin define in data sheet ZB7410-00B-DTS-D01-20160202.pdf

4	DIO_0	Digital I/O	GPIO, Sensor Controller
5	DIO_1	Digital I/O	GPIO, Sensor Controller