BLE Command Reference Guide

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1. AT Commands

Note, all AT command except Escape, should terminate with a CRLF.

1.1. Escape

The `Escape` command is used to switch from bypass mode, to command mode. When the Escape Sequence is received while a connection is still active and there is no data for 2 seconds, abSerial will respond (after those 2 seconds of no data) with the CommandMode reply.

Syntax

^#^$^% (there is no CRLF after this sequence)

Responses

If the operation is successful, the response is:

AT-AB -CommandMode-

1.2. FactoryInit

The `FactoryInit` command is used to restore the configuration values to the factory settings value.

Syntax

```
AT+AB FactoryInit
```

Responses

If the operation is successful, the response is:

```
AT-AB ResetPending
AT-AB -CommandMode-
AT-AB BDAddress [bd address]
```

1.3. LeAdv

The `LeAdv` command is used to enable and disable LE advertising functionality.

Syntax

```
AT+AB LeAdv [Enable/Disable]
```

Responses

If the operation is successful, the response is:

```
AT-AB AdvOk
```

1.4. LeBypass

The `LeBypass` command is used to switch from data command mode, to bypass mode.

Syntax

```
AT+AB LeBypass
```

Responses

If the operation is successful, the response is:

```
AT-AB -BypassMode-
```

1.5. LeConnect

The `LeConnect` command is used to build a LE connection with a remote device. This command is valid in central mode (ProfileRole = c).

Syntax

```
AT+AB LeConnect [bd address] [pub/rand]
```

Where `[bd address]` is the remote device's BD Address.
`[pub/rand]` is the type of address, public or random.

Responses

If the operation is successful, the response is:

```
AT-AB -BLE-ConnectionUp [bd address]
```

(Note: Bypass mode is not automatically entered, use the LeBypass command)

1.6. LeDisconnect

The `LeDisconnect` command is used to disconnect from a remote LE device once connected.

Syntax

```
AT+AB LeDisconnect
```

Responses

If the operation is successful, the response is:

```
AT-AB -BLE-ConnectionDown
```

1.7. LeDiscovery

The `LeDiscovery` command is used to scans for remote devices.
This command is valid in central mode (ProfileRole = c).

Syntax

```
AT+AB LeDiscovery
```

Responses

If the operation is successful, the response is:

```
AT-AB LeScan pending

AT-AB 1 Device Found

AT-AB [bd address] [pub/rand] [name]
```

Where `[bd address]` is the remote device's address.
`[pub/rand]` is the type of address, public or random.
`[name]` is the remote device's name.

1.8. LeReadByHandle

The `LeReadByHandle` command reads data from the remote device's attribute handle.

Syntax

```
AT+AB LeReadByHandle [handle]
```

Where `[handle]` is the remote device attribute handle to read, in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.

Responses

If the operation is successful, the response is:

```
AT-AB LeReadRspDone [handle] [data]
```

Where `[handle]` is the remote device attribute handle read, in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
And `[data]` is the set of ascii hex data to read, no formatting or spaces, 2 characters per byte.

1.9. LeReadByUuid

The `LeReadByUuid` command reads data from the remote device's service matching the presented UUID.

Syntax

```
AT+AB LeReadByUuid [shdl] [ehdl] [uuid]
```

Where `[shdl]` is the remote device's service start handle to read, in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
`[ehdl]` is the remote device's service end handle to read, in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
`[uuid]` is the remote device's service `uuid` to read, in ascii hex, 2-16 bytes long, no formatting or spaces, 2 characters per byte.

Responses

If the operation is successful, the response is:

```
AT-AB LeReadRspDone [handle] [data]
```

Where `[handle]` is the remote device handle read, in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
And `[data]` is the set of ascii hex data to read, no formatting or spaces, 2 characters

per byte.

1.10. LeSimpleSvcSend

The `LeSimpleSvcSend` command sends data to the default characteristic in the configuration, Service UUID, using a length and hex data field.

Syntax

```
AT+AB LeSimpleSvcSend [len] [data]
```

Where `[len]` is the number of bytes in the `data` field below in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
And `[data]` is the set of ascii hex data to send, no formatting or spaces, 2 characters per byte.

1.11. LeWrite

The `LeWrite` command reads data from the remote device's service matching the presented UUID.

Syntax

```
AT+AB LeWrite [handle] [len] [data]
```

Where `[handle]` is the remote handle in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
`[len]` is the number of bytes in the `data` field below in ascii hex, 2 bytes long, no formatting or spaces, 2 characters per byte.
And `[data]` is the set of ascii hex data to send, no formatting or spaces, 2 characters per byte.

Responses

If the operation is successful, the response is:
```
AT-AB LeWriteRspDone
```

1.12. Reset

The `Reset` command is used to reset the module interface.

Syntax

```
AT+AB Reset
```

Responses

If the operation is successful, the response is:
```
AT-AB ResetPending
```

1.13. SetBdAddress

The `SetBdAddress` command is used to change the Bluetooth Address.
The BD Address may only be changed one time from its default setting.

Syntax

```
AT+AB SetBdAddress [bd address]
```

Where `[bd address]` is the new BD Address which will be set.

Responses

If the operation is successful, the response is:

```
AT-AB ResetPending
AT-AB -CommandMode-
AT-AB BDAddress [bd address]
```

If the BD Address has been set, the response is:

```
BT address is already set
```

1.14. LeStartNtf

The `startntf` command is used to open the Notify corresponding to the handle in the parameter.

Syntax

```
at+ab LeStartNtf [handle]
```

Responses

AT-AB leWriteRspDone

■ 1.15 LeStopNtf

The `stopntf` command is used to close the Notify corresponding to the handle in the parameter.

Syntax

```
at+ab LeStopNtf [handle]
```

Responses

AT-AB leWriteRspDone

■ 1.16 Showledev

The `showledev` command is used to display bonding table information.

Syntax

```
at+ab showledev
```

Responses

1. `[bd address] [rand/pub]`

■ 1.17 EraseLebondtable

The EraseLeBondTable command is used to erase device entries.

Syntax

```
at+ab EraseLeBondTable [bd address/NULL]
```

Responses

AT-AB LeBondTableErased

The `EraseBondTable [bd address]` command is used to erase one device entry.

The `EraseBondTable [NULL]` command is used to erase all device entries.

Syntax

```
at+ab EraseLeBondTable 00043e260004
```

Responses

AT-AB LeBondTableErased

2. General Functions

2.1. Transmit and exchange data with IoS device.

In bypass mode, all characters are transmitted over the BLE data link. Received data is output on the main UART. Use Bypass and Escape commands to enter and exit bypass mode.

2.2. Low power mode.

Use the configuration parameter HostDeepSleepEn (see below), to turn on the low power mode.

2.3. Support IoS device's APP "Smart Find Me".

3. Configuration Commands

The section describes the system configuration variables of with their defaults and ranges. These values are stored in the non-volatile memory of the module.

3.1. Set/update

To set a configuration variable enter:

```
at+ab config xxxx = yyyy
```

Where "xxxx" is the variable name and "yyyy" is the value to set. A variable name may also be specified as "varzz". Where zz is the sequence number of the variable.

3.2. Inquiry

An inquiry may be made using:

```
at+ab config xxxx
```

Where "xxxx" is the variable name. The reply will be the current setting.

3.3. Configuration Parameters

Name	Default	Description
BuildVersion	XXXXXX	Date code of the firmware (read only).
BD_ADDR	000102030405	Bluetooth device address (read only).
DeviceName	Amp'ed Up!	Code used for secure connection. Up to 20 characters are allowed (case sensitive).
StreamControl	true	Enabled does not use RTS/CTS flow control, disabled uses flow control.
PIN	123456	Code used for pairing.
UartBaudrate	115200	Main UART baudrate: 1200 to 921,600 baud.
UartParity	none	Enable/disable parity on the main UART.
UartDataBits	8	Main UART data bits per character.
UartStopBits	1	Main UART number of stop bits.
HostDeepSleepEn	false	Enables deep sleep mode.
EnableEncryption	true	Enables Bluetooth link encryption.
HostEvents	true	All host events are sent when set.
ProfileRole	P	Profile Role. P=peripheral, C=central role.
AdvIntMin	256	Min advertising interval, 0.625 ms units: 20 ms to 10240 ms.
AdvIntMax	512	Max advertising interval, 0.625 ms units: 20 ms to 10240 ms
ScanInt	32	Scan Interval, 0.625 ms units: 2.5 ms to 10240 ms.
ScanWindow	18	Scan Window, 0.625 ms units: 2.5 ms to 10240 ms.
ConnectIntMin	16	Min connection interval, 1.25 ms units: 7.5 ms to 4000 ms.
ConnectIntMax	16	Max connection interval, 1.25 ms units: 7.5 ms to 4000 ms.
SlaveLatency	0	The number of consecutive connection events that the slave device is not required to listen for the master. Range: 0 ~ 499.
SupervisorTimeout	2000	Used by the Controller to monitor link loss. Range: 10 ~ 3200.
Appearance	0x0000	Contains a 16-bit number that can be mapped to an icon or string that describes the physical representation of the device during the device discovery procedure.
TxPower	0	Default RF transmission power. Range: -19 ~ 7 dbm