AT Commands

This documentation will specify all the AT Commands available on the 9603 Iridium SBD Transceiver. Note that the constructor also specifies that those commands are meant to change and could have been updated in the actually bought transceiver, although unlikely.

After receiving a command and processing it, the modem will usually respond. For more information on some of these commands you need to refer to the official Iridium 9602 SBD Transceiver Developer’s Guide since the AT Commands did not change between the 9602 and the 9603. It is also recommended to read the Iridium Short Burst Data Service Developers Guide for more details.

A quick list of abbreviations you will find in this document, for the complete list you can once again check the Developers Guide :

* DTE : Data Terminal Equipment, in this case it refer to the application controlling the Iridium modem
* MO : Mobile Originated buffer
* MT : Mobile Terminated buffer
* SBD : Short Burst Data
* GSS (or ESS) : Earth terminal controller SBD Subsystem

A command line is made up of three elements: the prefix, the body and the termination character.

The command line prefix consists of the characters “**AT**” or “**at**”; or, to repeat the execution of the previous command line, the characters “**A/**” or “**a/**”.

The termination character is **<CR>** (Carriage return character). The basic structures of the command line are:

• **ATCMD1** where AT is the command line prefix, **CMD1** is the body of a basic command (nb: the name of the command never begins with the character “+”) and is the command line terminator character

• **ATCMD2=10** where 10 is a subparameter

• **AT+CMD1;+CMD2=, ,10** These are two examples of extended commands (nb: the name of the command always begins with the character “+” 2 ). They are delimited with semicolon. In the second command the subparameter is omitted.

• **+CMD1?** This is a Read command for checking current subparameter values

• **+CMD1=?** This is a test command for checking possible subparameter values

Here is a list of the 8 commands that are going to be the most useful in our use of the product, more detail can be found in the full list below or in the Developer’s Guide :

* **AT** ***Exec Command: AT+<Desired AT Command>***

Used on its own it only returns OK and will be used to check if AT Commands are passing through successfully.

* **ATE *Exec Command: +E<Boolean>***

Used to turn on or off the echoing of characters to the DTE; **0** meaning **off** and **1** meaning **on** (On by default)

* **ATSBDD *Exec Command: +SBDD<Delete type>***

Used to clear the mobile originated or terminated buffer; **0** meaning **originated**, **1** meaning **terminated** and **2** **both of them**

* **ATSBDC** ***Exec Command: +SBDC***

Used to clear the mobile originated message sequence number (**MOMSN**), will return 1 in case of error and 0 otherwise.

* **ATSBDS** Used to get the current state of the mobile originated and terminated buffer. Different responses for each returned flag :
* MO flag 0 mean no messages in the MO while 1 indicate message
* MOMSN sequence number that will be used in the next MO SBD session.
* MT flag 0 mean no messages in the MT while 1 indicate message
* MTMSN sequence number used in the last MT SBD session, -1 if the MT is empty.
* **ATSBDRB *Exec Command: +SBDRB***

Used to transfer a binary SBD message **from the MT to the DTE**, note that the MT can only contain one message at any one time. The SBD message is formatted as follows:

*{2-byte message length} + {binary SBD message} + {2-byte checksum}*

For example, with “hello” in ASCII: *00 05 68 65 6c 6c 6f 02 14*

* **ATSBDWB *Exec Command: +SBDWB=<SBD message length>***

Used to transfer a binary SBD message **from the DTE to the MO**, note that the MO can only contain one message at any one time. The SBD message must be formatted as follows:

*{binary SBD message} + {2-byte checksum}*

The command Response will be **0** if **successful**, **1** if **timeout** (not enough bytes in 60sec), **2** if the **checksum doesn’t matc**h and **3** if the **size is incorrect** (should be between 1 and 340 bytes).

* **ATSBDI *Exec Command: +SBDI***

Used to **initiate an SBD session** between the 9602 and the GSS. If there is a message in the MO, it will be transferred to the GSS. Similarly, if there are one or more messages queued at the GSS the oldest will be transferred to the 9602 and placed into the MT.

Different responses for each returned flag:

* MO status 0 mean no messages to send from the 9602, 1 is a successfully sent message and 2 indicate an error while attempting to send the message
* MOMSN A value incremented each time an SBD session is successful between the 9602 and the GSS. It’s a wrap around counter from 0 to 65535.
* MT status 0 mean no messages to receive from the GSS, 1 is a successfully received message and 2 indicate an error while attempting to perform a mailbox check or receive the message
* MTMSN A value assigned when sending a message to the 9602, its value is indeterminate when MT status is zero. It’s a wrap around counter from 0 to 65535.
* MT length Length in bytes of the MT SBD message received from the GSS.
* MT queued The count of MT SBD messages waiting at the GSS to be transferred to the 9602.

Finally, you can find in the following pages the list of the 48 commands compatible with the 9602 and 9603, for more details consult the Transceiver Developer’s Guide :

1. AT – Attention Code

This is the prefix for all commands except A/. When entered on its own, the 9602 will respond OK.

1. A/ - Repeat Last Command

Repeat the last command issued to the 9602 unless the power was interrupted or the unit is reset. A/ is not followed by <CR>.

1. En – Echo
2. In – Identification
3. Qn – Quiet Mode
4. Vn – Verbose Mode
5. Zn – Soft Reset
6. &Dn – DTR Option
7. &Fn – Restore Factory Settings
8. &Kn – Flow Control
9. &V – View Active and Stored Configuration
10. &Wn – Store Active Configuration
11. &Yn – Designate Default Reset Profile
12. %R – Display Registers
13. \*F – Flush to EEPROM
14. \*Rn – Radio Activity
15. +CCLK – Real Time Clock
16. +CGMI – Manufacturer Identification
17. +CGMM – Model Identification
18. +CGMR – Revision
19. +CGSN – Serial Number
20. +CIER – Indicator Event Reporting
21. +CRIS – Ring Indication Status
22. +CSQ – Signal Quality
23. +CULK – Unlock
24. +GMI – Manufacturer Identification

This execute +CGMI ; it is identical to command referenced in 18) here.

1. +GMM – Model Identification

This execute +CGMM ; it is identical to command referenced in 19) here.

1. +GMR – Revision

This execute +CGMR ; it is identical to command referenced in 20) here.

1. +GSN – Serial Number

This execute +CGSN ; it is identical to command referenced in 21) here

1. +IPR – Fixed DTE Rate
2. +SBDAREG – Short Burst Data: Automatic Registration
3. +SBDC – Short Burst Data: Clear SBD MOMSN
4. +SBDD – Short Burst Data: Clear SBD Message Buffers
5. +SBDDET – Short Burst Data: Detach
6. +SBDDSC – Short Burst Data: Delivery short code
7. +SBDI – Short Burst Data: Initiate an SBD Session
8. +SBDIX – Short Burst Data: Initiate an DBS session Extended
9. +SBDIXA – Short Burst Data: Initiate an SBD session Extended

This command (and the previous one) will be used to replace the +SBDI command when wanting to use the SBD Automatic Notification functionnality

1. +SBDMTA – Short Burst Data: Mobile-terminated alert
2. +SBDRB – Short Burst Data: Read Binary Data from the ISU
3. +SBDREG – Short Burst Data: Network Registration
4. +SBDRT – Short Burst Data: Read a Text message from the ISU
5. +SBDS – Short Burst Data: Status
6. +SBDSX – Short Burst Data: Status Extended
7. +SBDTC – Short Burst Data: Transfer MO buffer to MT buffer
8. +SBDWB – Short Burst Data: Write Binary Data to the ISU
9. +SBDWT – Short Burst Data: Write a Text Message to the ISU
10. –MSSTM – Request System Time