ADDITIONAL INFORMATION ON SBD

APPLICATION NOTE

February 12, 2007

This application note provides additional information regarding Short Burst Data (SBD) that is not described in the ISU AT Command Reference–specifically information dealing with AT commands beginning with +SBDI. SBD is a mechanism used to deliver short data messages to the Internet over the Iridium satellite network (or NIPRNet using the DoD gateway). For the A3LA series, each mobile-originated (MO) SBD message can be up to 1960 bytes in length and mobile-terminated (MT) message up to 1890 bytes. For the 9601 series, MO and MT messages are 340 bytes and 270 bytes in length, respectively.

Sending Messages via SBD to an Iridium Modem

Messages can be sent to an Iridium modem via SBD from almost any e-mail program (Outlook, Outlook Express, etc.). If there is an e-mail message in queue at the Iridium gateway designated to a specific Iridium modem, the Iridium modem can receive the message the next time it performs an AT+SBDI session.

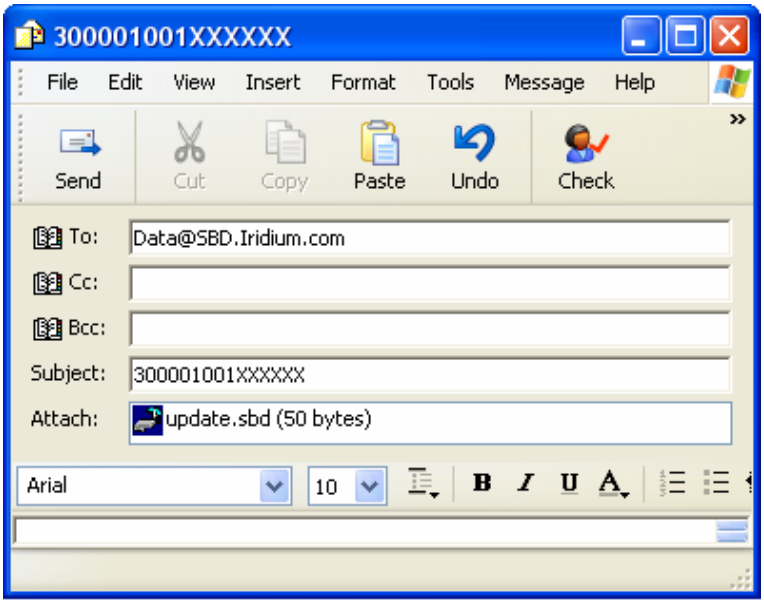
a. In order to send e-mail messages to an Iridium modem, the e-mail program must use the standard Multipurpose Internet Mail Extensions (MIME) Base64 encoding as defined in RFC 2045. The following instructions describe how to set this up for Microsoft Outlook Express:

   i. Select "Tools/Options"
   ii. Click the "Send" Tab
   iii. Under "Mail Sending Format", click "HTML Settings…"
   iv. Click MIME
   v. Select "Base 64" for Encode text using
   vi. Click OK
   vii. Under "Mail Sending Format", click "Plain Text Settings…"
   viii. Repeat steps iv –vi

b. Send all e-mail messages to Data@SBD.Iridium.com

c. Place the IMEI number of the modem in the subject line

d. The message should be carried in an attachment, which must have a ".sbd" extension



NOTE: Comparable information related to the DoD gateway is provided upon request.

Field Elements in E-mail Message Sent from an Iridium Modem (Commercial Gateway Only)

The table below displays the field descriptors of each SBD messages sent from an Iridium modem. This format will appear in the body of every SBD e-mail message.

Field Name	Description	
MOMSN	Mobile Originated Message Sequence Number (0 – 65535)	
MTMSN	Mobile Terminated Message Sequence Number (0 – 65535)	
Time of Session	The UTC Timestamp of the Iridium Subscriber Unit session between the Iridium Subscriber Unit and the controller subsystem.	
Session Status	Session Status	Description
	TRANSFER OK	The SBD session completed successfully.
	INCOMPLETE CALL	The SBD session did not complete successfully due to a protocol error.
	SBD DENIAL	The modem is not allowed to access the system.
	SBD TIMEOUT	The SBD session did not complete for an unknown reason such as a RF fade
Message Size	The size of the attached message in decoded format. This is not the length of the MIME encoded data.	
Unit Location	The latitude and longitude of the modem when it sent the message. The latitude and the longitude provide a center point and the CEPradius provides the radius of a circle around that center point. The reported position is accurate (within the reported circle) 80% of the time. This location is estimated using Iridium satellites.	
CEPradius	An estimate of the accuracy of the unit in kilometers.	

Example:

MOMSN: 1
MTMSN: 0
Time of Session (UTC): Tue Dec 7 13:09:43 2004
Session Status: TRANSFER OK
Message Size (bytes): 11

Unit Location: Lat = 38.766516 Long = -77.426262
CEPradius = 2

The actual message sent from an Iridium modem is in an attachment of the e-mail and the subject line contains the IMEI number of the unit that sent the SBD message.

Example Formula to Calculate Checksum for SBDWB

Since the calculation of the checksum for SBDWB may be confusing, a C code example is given below. Please see +SBDWB in the AT Command Reference for additional information.

```
unsigned int16 checksum = 0;  /*Unsigned 16 bit integer*/
int i;
unsigned char c;
char* data = "Test SBD message";
int length = 16; /* Number of characters in data */

for (i=0;i<length;i++) {
        c = data[i];
        putch(c);
        checksum += c;
}

//Print out the 2 byte checksum
putch(checksum/256);
putch(checksum%256);
```

IMPORTANT: EMSS-enabled 9601-DGS must first be provisioned (signed up for airtime) with EMSS SBD Service before testing or field use. Accessing the DoD EMSS Gateway is not authorized until the 9601-DGS is provisioned. Unauthorized attempts to access the DoD EMSS Gateway will result in immediate disabling of the offending device, which must then be returned to NAL Research for repair. See https://sbd.pac.disa.mil for more information regarding EMSS service provisioning.

TECHNICAL SUPPORT INFORMATION

For technical support, please contact us at:
Phone: 703-392-1136 x200 or
E-mail: contact@nalresearch.com

Technical documents are also available to download on NAL Research's website www.nalresearch.com under http://www.nalresearch.com/AnonymousFTPSite.html