

DEVIL XBT

Iridium Transmission

TURO TECHNOLOGY PTY LTD



Devil Iridium Transmission

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Revision History

Devil Iridium Transmission

Date	Revision	Description
4 Sept 2008	4	Iridium header byte definition.
25 June 2008	3	Number of bytes in an Iridium SBD changed
18 Feb 2008	2	Original Document
15 Jan 2008	1	Original Document

CONTENTS

1	Iridium:	2
2	Hardware – NAL 9601-DN Interface	2
3	Data Packaging	2
3.1	SBD Packets	2
3.2	Data Unpacking	3
4	Devil Software Configuration	4
5	Transmitting	5

1 Iridium:

The Iridium transmission uses the Short Burst Data mode. The Transmitter supported is the NAL 9601-D. This unit only supports 340 bytes transmit (Mobile Originate – MO) and 270 bytes receive (Mobile Terminate – MT)

2 Hardware – NAL 9601-DN Interface

The NAL 9601-D transmitter is available with two different interface connectors: the NAL 9601-DI has a male 26-pin Samtec EHT series connector and the NAL 9601-DN has a standard male DB25 connector.

A 3 wire RS232 interface on the computer is used with the DB25 connector on the NAL 9601-DN wired as follows:

Computer DB9 PIN	NAL DB25 PIN	SIGNAL	DESCRIPTION	INTERFACE
	1	EXT_ON_OFF	Power ON/OFF Control Input	connect to DC Power (+5V)
	3, 22	EXT_GND	External Power Input (GND)	DC Power (GDN)
	4, 23	EXT_PWR	External Power Input (+4.5 to +5.5 VDC)	DC Power (+5V)
3	9	TX	RS232 Transmit Data	RS232 Data
2	13	RX	RS232 Receive Data	RS232 Data
4	14	SIGNAL_GND	0V signal reference and return	GND
	8	RTS	RS232 Request To Send	connect to DC Power (+5V)
	19	DTR	RS232 Data Terminal Ready	connect to DC Power (+5V)

The DTR and RTS signals have to be connected to high (+5V) the first time the transmitter is used. Thereafter this is not necessary and these signals may be left unconnected, although leaving them connected is also permitted.

3 Data Packaging

The message to be transmitted is TxData message can be up to 8000 bytes. TxData is divided into 335 byte parcels. Each parcel has a 5 byte header and then it is transmitted as a single SBD packet.

3.1 SBD Packets

The 5 byte header has the following definition:

BYTE
1st-2nd = Sequence Number (unsigned int)
3rd = Parcel Number (SBD number) (unsigned char)
4th = Total number of Parcels (SBD's) (unsigned char)
5th = not used

The remainder of the SBD packet contains up to 335 bytes of TxData.

The Sequence Number begins at a random number the first time the program is used after the program is installed and then incremented by 1 for every TxData.

The Parcel Number begins at 1 for every new TxData and is incremented by 1 for each SBD packet.

NOTE: The number of bytes in an SBD (MT or MO) may vary in future as Iridium and/or NAL change the technology.

3.2 Data Unpacking

An Iridium SBD packet arrives at a designated email address as an attachment to an email.

There are 2 ways to sort the order of the SBD packets.

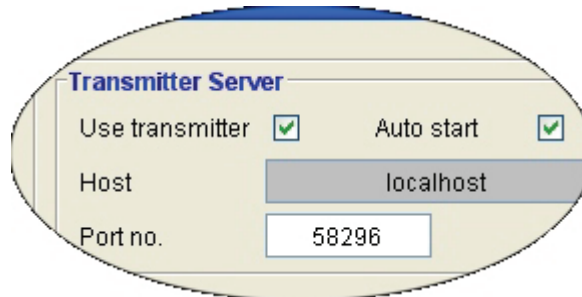
1. Each SBD packet arrives as an attachment to an email. The filename of the attachment includes a sequence number allocated by the 9600-D transmitter and incremented for each subsequent packet.
2. The other way is to use the 5 byte header of the data.

The full message is reassembled into the original TxData by concatenating the sequence of parcels.

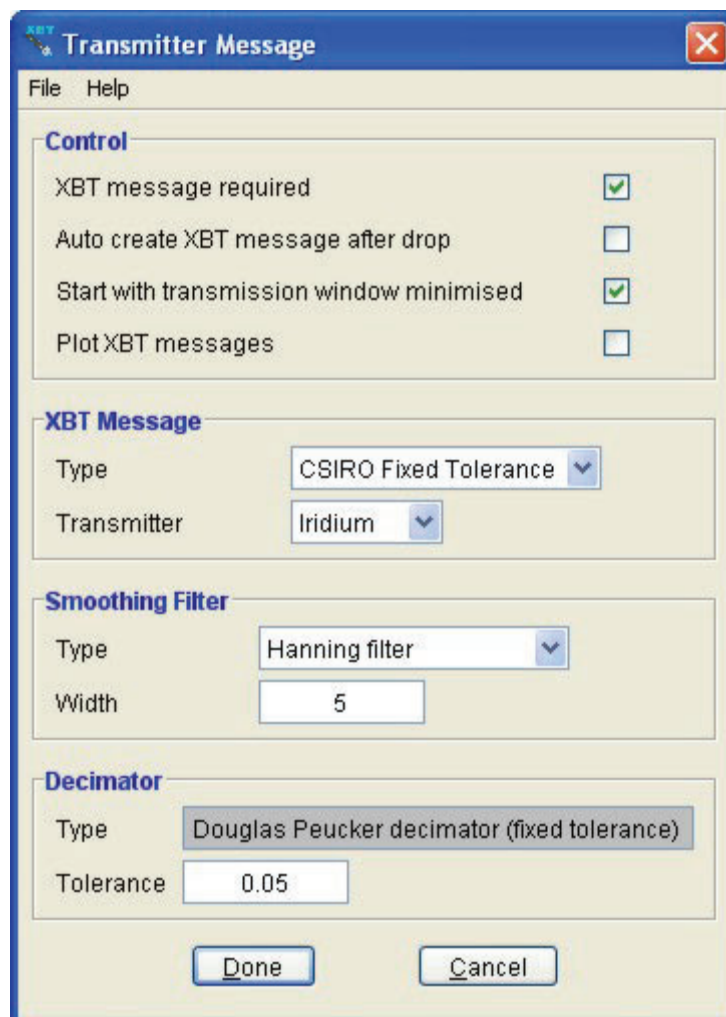
The format of the contents of TxData is specified in the document “Devil Data Formats”.

4 Devil Software Configuration

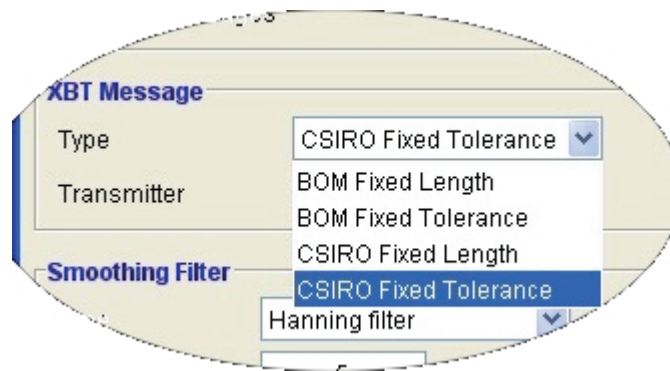
Go to the Configuration->Servers... menu item and ensure that in the Transmitter Server area, the “Auto start” box is ticked and the Port no. is 58296. Then click on Done:



Then go to the Configuration->Transmitter Message menu item:



Select the XBT Message required. Checking “XBT message required” enables transmission. The various other options under Control allow different files and displays to occur:



There are two formats of messages, BOM and CSIRO (see the document “Devil Data Formats” for a description of them).

The message is constructed from the profile to a reduced number of points. The number of points is either preset (Fixed Length) or a variable length depending on the preset accuracy (Fixed Tolerance). The length or tolerance is settable in the Decimator area of the window.

Note that for BOM Fixed Length, the length is not adjustable.

5 Transmitting

When Iridium has been configured and the Devil Software Configuration has been setup. The messages will be transmitted either automatically or when the “Transmit...” button is clicked (depending on the setting in the above screenshot).