

SMS Telemetry Operation with Ranger USBL and AvTrack 2

This document is a quick guide to SMS messaging feature of the AvTrak to communicate between an AvTrack and a Ranger USBL, in the form of short messages of up to 128 ascii characters. The USBL can interleave commands therefore allowing SMS modem operation during tracking.

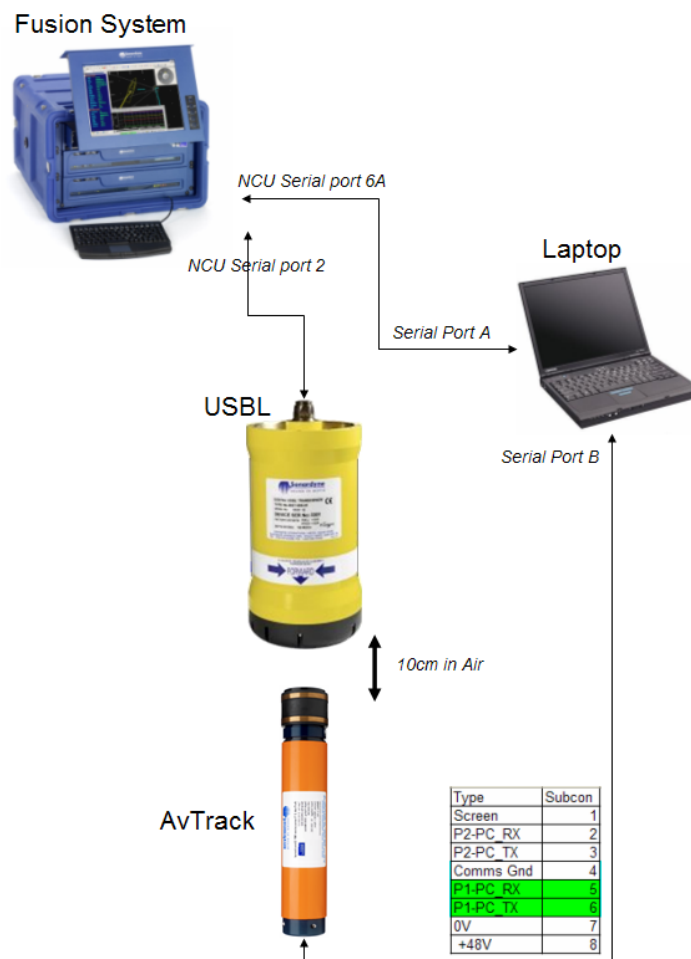
Software/Firmware prerequisites

- Ranger 2.02
- USBL Firmware 8.07.00.20
- AvTrack Firmware 1.05.05.10

Hardware requirements

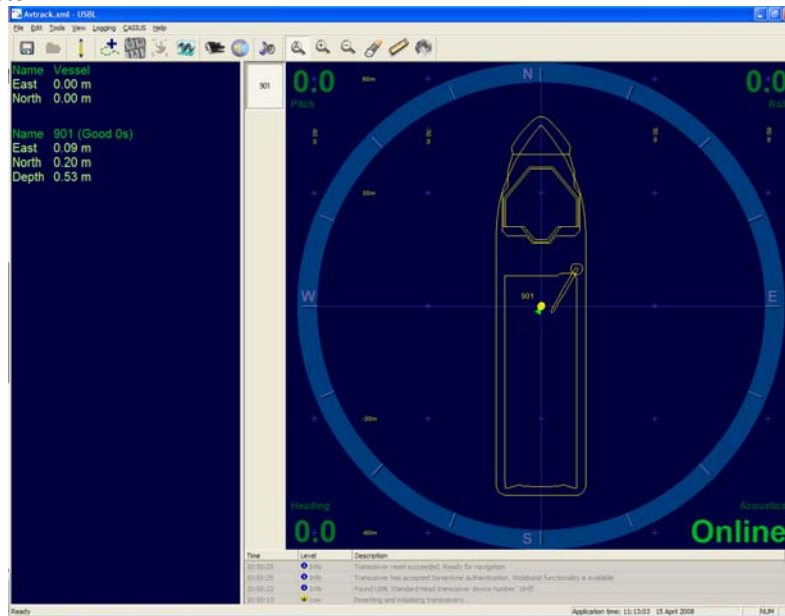
- Navigation Control Unit
- PC
- USBL Transceiver
- AvTrack transceiver

System Configuration



USBL Software configuration

Please refer to the USBL Help Manual for information specific to configuring and calibrating the system.

**Basic SMS in air testing**

Start a new Job

Configure an NCU, Transceiver and a Pan Emulation port as shown exactly below

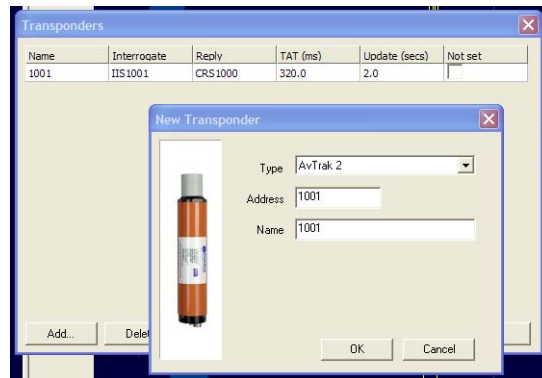
NCU Comm port 1

USBL NCU/Port 2

Pan Emulation NCU/port6A



And add a new AvTrack beacon address 1001 (Select your desired tracking update rate in seconds 2=default)



The system is now configured for USBL Tracking of the AvTrack.

Serially Configuring the AvTrack

Plug the P1 port of the AvTrack into a laptop serial port and open a terminal package at 9600 baud. (Suggest using Sonardyne's STTY terminal package). Pins 4,5 & 6 of the AvTrack Subcon are Ground RX & TX.

Send a reset factory defaults : RSFD followed by a carriage return line feed
Next send: FS <CR><LF> Or FS^M^J

The screen should show below in response to the commands:

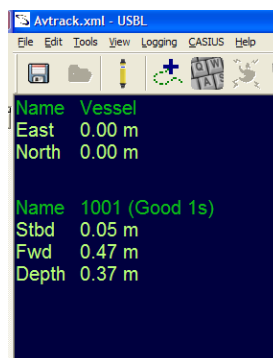
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RSFD
>BOOT OK
NPL
>NPL:HIGH
TPL
>TPL:LOW
CS
>CS:FL0040
FS
>FS:1001,UID00132D,FL0015,MF,DIR,FV1.05.05.01,T-2;40;1.000%,PR3000;0.100%
VS
>VS:FL0040
ADDR
>ADDR:1001

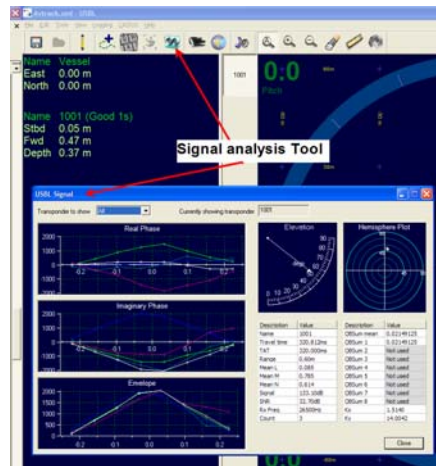
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You now have verified communications to the AvTrack and can commence USBL tracking to the AvTrack by clicking on the user created button 1001 in the Ranger software.

Successful tracking will be confirmed by the position being reported on the USBL software as "Good" in Green.



To help place the beacon in a suitable position, for tracking in air, use the signal analysis tool. A good signal response from the AvTrack received by the 5 elements will look like the graph below.



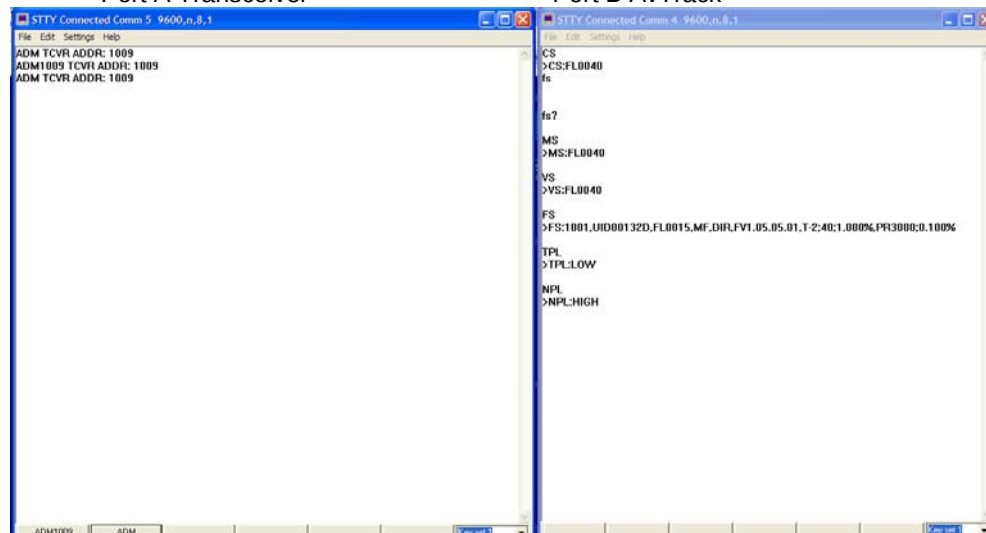
Configuring Modem SMS

Using the separate laptop open 2 separate terminal windows. One port linked to the USB/L Pan port on 6A and another for the AvTrack. These will be refer to these as A and B. Note you will need a null modem cable between the PC comm A and the NCU port 6A.

Example Terminal Windows

Port A Transceiver

Port B AvTrack



Set the transceiver to an address 1009. This will give the transceiver an address for the AvTrack to communicate with. This must be **resent** every time the transceiver is reset or

powered down. Note: Resets will often occur during tracking to ensure the USBL is functioning correctly.

The command sent to the USBL on to 6A is ADM1009 <CR><LF> or ADM1009 ^M^J depending on your terminal package syntax for carriage return line feed. To verify that the USBL address is correct the ADM command on it's own can be sent ADM. Example shown in the left terminal window above.

SMS method 1

Requesting data from the AvTrack

1) Load the AvTrack buffer with up to 128 characters of data.

The 1009 is the address of the transceiver to be sent the data. The B1 commands storage in the buffer rather than being transmitted instantly (See method 2) The pipe character "|" defines the start of the message. The message must end with a carriage return line feed.

SMS:1009,B1|Type anything here up to 128 characters of ascii text<CR><LF>

The acknowledgement reply by the AvTrack: >SMS:OK

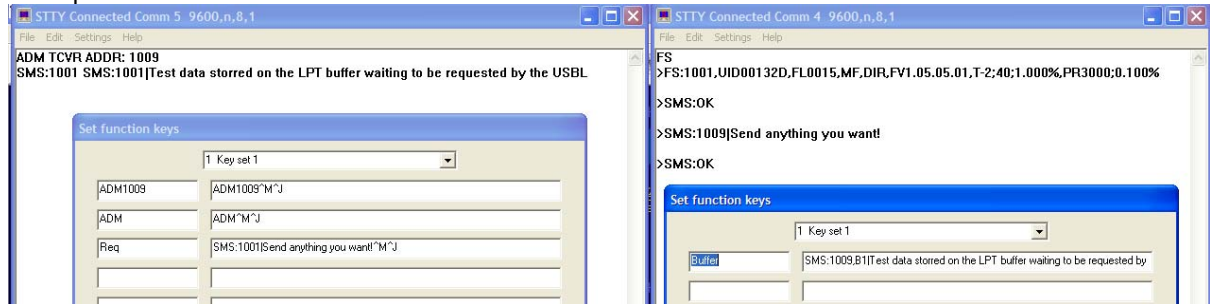
2) Command the USBL using Laptop port A to request the data.

1001 is the address of the beacon being requested data. After the pipe "|" character can be left blank or can be used to send data to the beacon.

SMS:1001|Type anything here<CR><LF>

The USBL will now acoustically command the AvTrack to send the data stored in the buffer. Note: this will clear the buffer each time

Example comms for method 1



Function keys help save time typing out the strings during testing.

SMS Method 2

Passively listening for unsolicited SMS Messages from the AvTrack

1) Prompt the USBL to start listening for a period of time in milliseconds between 250ms to 3000ms.

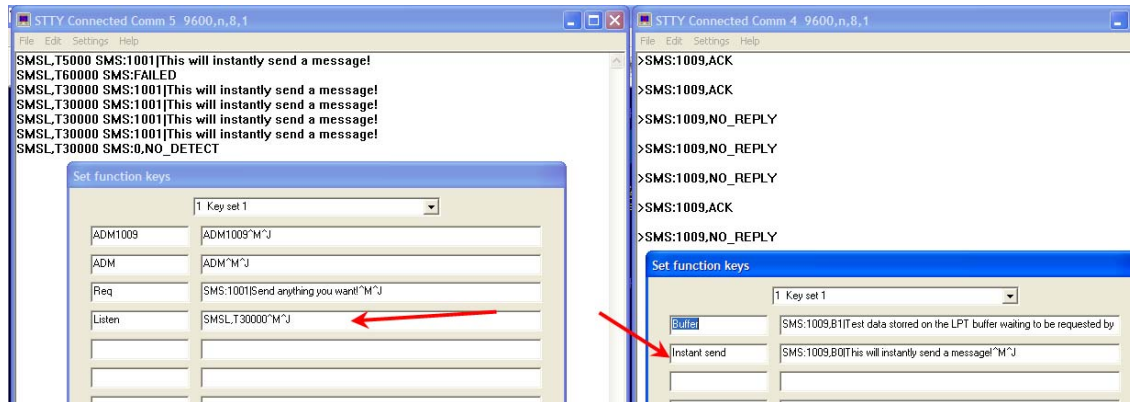
The following command denotes a 30 seconds listen time for the USBL

SMSL,T30000^M^J

2) Command the AvTrack to instantly transmit a message before the 30 seconds has elapsed.

The AvTrack is commanded to send the message after the pipe to Transceiver address 1009. The command B0 requests the AvTrack to send the data instantly rather than fill the buffer. (Demonstrated in method 1)

SMS:1009,B0|This will instantly send a message!^M^J



If the command "Please select transceiver" is returned by the USBL it means the address is lost and will need to be resent ADM1009 to the USBL.

AvTrack Commands

See AvTrack manual for more details.

Factory reset defaults **RSFD**
 Soft reset command **RS**
 Linear Gain **LG**
 Detection threshold **DT**
 Navigation Power level **NPL**
 Start Telemetry Power level **SPL**
 Telemetry Power level **TPL**
 Stores the settings. **STR**

