Sonardyne
SOUND IN DEPTH

QUICK START GUIDE

RANGER 2 V4.04
SYSTEM CONFIGURATION

QSG-SC-8251-A3
02/2016
910-0005

To access more information on the Ranger 2 system, scan this code using an appropriate app on your smartphone.

SAFETY

Before any activity is carried out on the equipment, it is recommended that the included Sonardyne Safety Manual and all warnings and cautions in this and the equipment manual(s) are read and fully understood.
It is recommended the operator complies with the Health and Safety Regulations applicable to the vessel and the region before operating this equipment.
Operators and service personnel must be familiar with the normal operating and safety procedures for subsea equipment.
Documentation must be consulted whenever a ⚠ or ⚠ warning symbol is found on the equipment, in order to determine the nature of the potential hazard and any actions which must be taken.
If any additional equipment is used, any warnings and cautions in the equipment user manual must be read and fully understood and the equipment must only be used as specified by the manufacturer.
The safety of any system incorporating this equipment is the responsibility of the assembler of the system.

⚠ WARNINGS

Risk of navigation computer failure. When the navigation computer is operating in critical vessel operations, external devices must not be connected/disconnected and the front panel must be kept in the upright closed position. The USB ports and SATA drive can be sensitive to Electrostatic Discharge (ESD) under certain conditions which could result in the computer malfunctioning.
Risk of electric shock. Do not attempt to remove any panels from the i7 Navigation (NAV) Computer or the Navigation Sensor Hub (NSH) to gain access to internal components.

PRODUCT SUPPORT – Email: support@sonardyne.com Telephone: +44 (0) 1252 872288
24 Hour Emergency Helpline: +44 (0) 1252 877600

The Sonardyne 24 hour helpline is answered during normal UK office hours: 08:00–17:00. Outside these hours, your call is automatically transferred to an operator who will log the details of your emergency and alert the appropriate Sonardyne personnel. Our aim is to ensure that emergency requests are dealt with immediately during office hours and are responded to within 30 minutes at all other times. Alternatively, please contact your nearest Sonardyne Office.

To view third party and open source software licence notices for Ranger 2, see UM-8251 "Ranger 2 USBL User Manual".

RANGER 2 SYSTEM EQUIPMENT

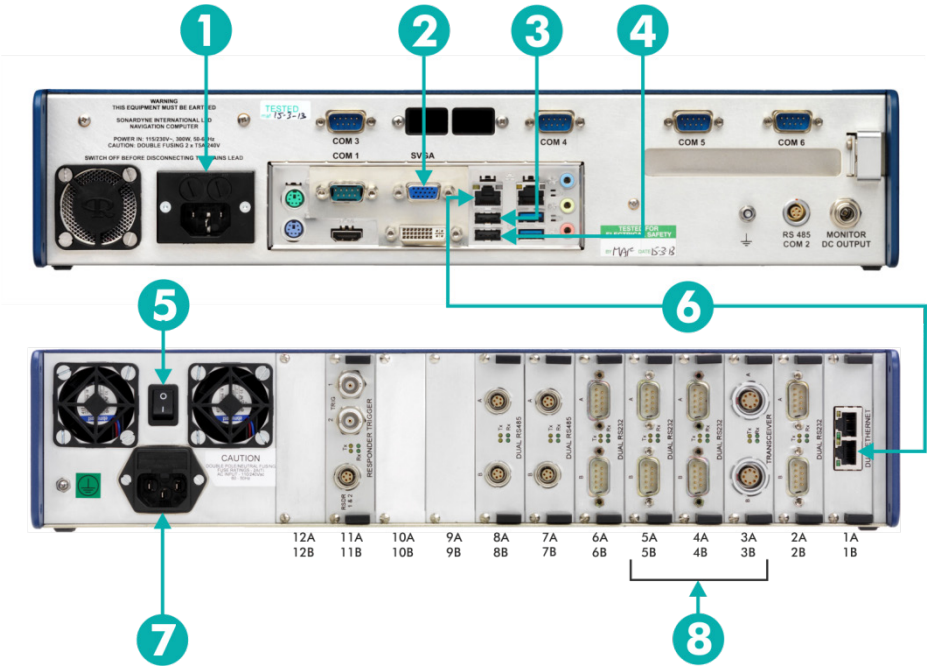
1. NAV Computer
2. NSH
3. HPT
4. HPT Cables
5. NAV Computer to NSH Cable
6. Monitor (not shown)
7. Keyboard and Mouse (not shown)

1. On receipt of the equipment, visually inspect for any signs of damage, e.g. corrosion, dents, bent electrical pins etc.
2. Make sure all warning and caution labels ⚠ on the equipment are read and understood. See the *Ranger 2 USBL User Manual* (*UM-8251*) for more information.

CONNECTING THE NAV COMPUTER AND NSH

Follow the instructions below to connect the equipment.

1. Connect the power cable to the rear of the NAV Computer 1.
2. Connect the power cable to the rear of the NSH 7.



3. Connect the NSH to the NAV Computer using the ethernet cable 6.
4. Connect the transceiver to the NSH transceiver port (3, 4 or 5) 8.
5. Turn on the NAV Computer by pressing the green power button on the front panel.
6. Turn on the NSH by pressing the power switch at the rear 5.

INTRODUCTION

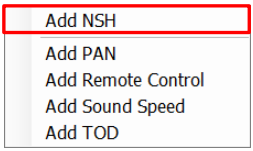
This Quick Start Guide explains how to set up the Ranger 2 system. For detailed information refer to the *Ranger 2 USBL User Manual* (*UM-8251*).

START RANGER 2

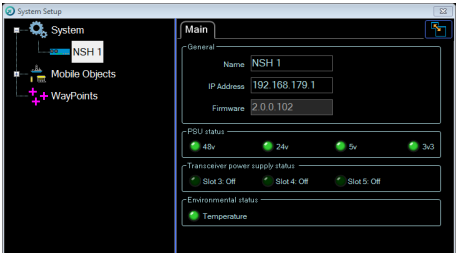
1. Start the Ranger 2 software by double-clicking the **Ranger 2** icon.
2. On the main menu, click **System > Setup** to open the **System Setup** window.

ADDING AN NSH

1. In **System Setup**, right-click **System** and select **Add NSH**.



2. After connection, the NSH IP address and firmware version will be displayed.



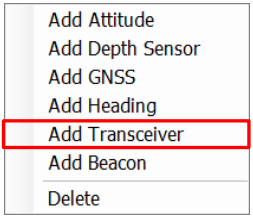
3. When connected, the green status LED will display on the bottom panel.

Note

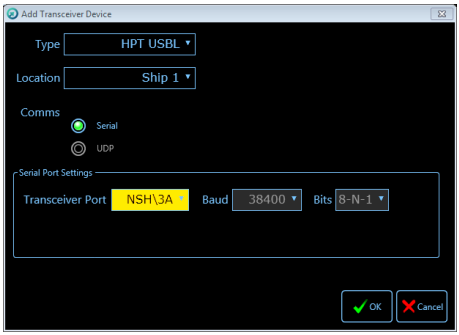
The following steps describe how to add devices by right-clicking the **Vessel** or **Mobile Objects**. Devices and beacons can also be added by clicking **Ports** or **Beacons** and then clicking **Add**.

ADDING A TRANSCEIVER

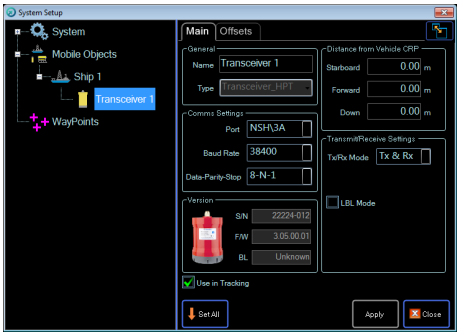
1. In **System Setup**, click **Mobile Objects**.
2. Right-click the vessel **(Ship 1)** and select **Add Transceiver**.



3. In the **Type box, select the transceiver** from the drop-down list, e.g. **HPT USBL**.
4. Select the NSH port from the **Transceiver Port** drop-down list (select ports 3-5) and then click **OK**.



5. The Serial Number (**S/N**) and Firmware Version (**F/W**) of the transceiver will display when the device is successfully connected to the system.



6. Enter the **Starboard**, **Forward** and **Down** offsets for the transceiver relative to the Central Reference Point (CRP) and then click **Apply**.

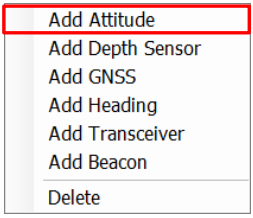
Note

To delete a device from the list, right-click the chosen device and select Delete.

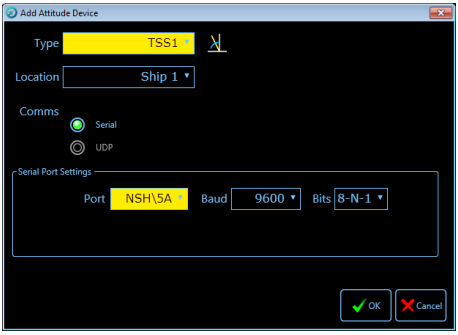
7. When connected, the green status LED will display on the bottom panel.

ADDING AN ATTITUDE SENSOR

1. Right-click the vessel (**Ship 1**) and select **Add Attitude**.



2. Select the **Type** and NSH **Port** from the drop-down lists.
3. Select the correct **Baud Rate** from the drop-down list e.g.**9600** and then click **OK**.



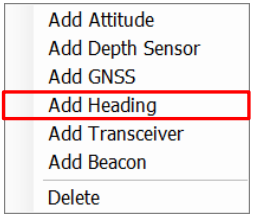
4. When the attitude sensor is connected, the green status LED will display on the bottom panel and the pitch and roll values will display on the top left and right of the window. If an AHRS is selected, the heading data will also be displayed at this stage.

Note

If the pitch and roll values and green status LED do not display, the attitude sensor may not be connected due to an incorrect Baud Rate setting.

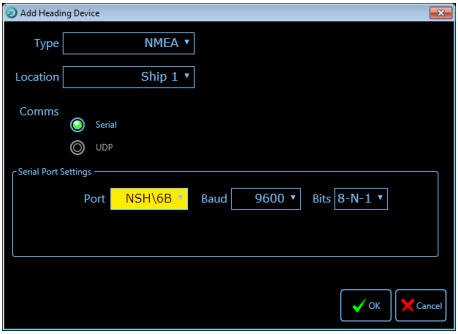
ADDING A HEADING DEVICE

1. Right-click the vessel (**Ship 1**) and select **Add Heading**.



2. Select the **Type** and NSH **Port** from the drop-down lists.

3. Select the correct **Baud Rate** from the drop-down list e.g.**9600** and then click **OK**.



4. When connected, the green status LED will display on the bottom panel.

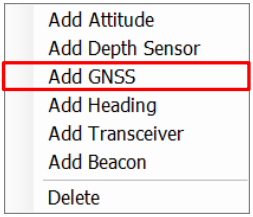
Note

If the heading value and green status LEDs do not display, the heading device may not be connected due to an incorrect Baud Rate setting.

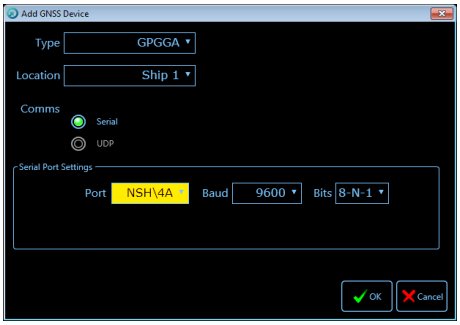
5. Once the **Heading Device** is added, the heading value will display on the bottom panel.

ADDING A GNSS

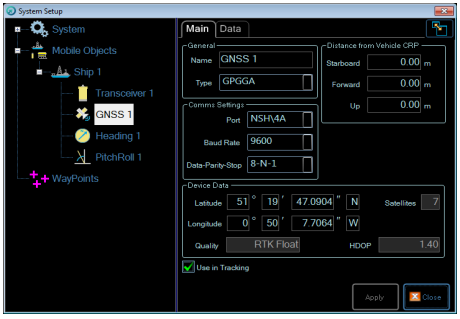
1. Right-click on the vessel (**Ship 1**) and select **Add GNSS**.



2. Select the **Type** and NSH **Port** from the drop-down lists.
3. Select the correct **Baud Rate** from the drop-down list e.g.**9600 and then click OK**.

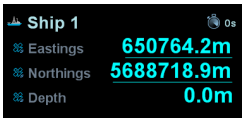


4. The **Longitude** and **Latitude** data will be automatically updated.



5. Enter the **Starboard**, **Forward** and **Up** offsets for the GNSS antenna relative to the CRP and then click **Apply**.
6. When connected, the green status LED will display on the bottom panel.

7. The ship's GNSS position will be displayed.



Notes

An "aided" (non-acoustic) position is displayed with an underline (as above).

If the GNSS value and green status LED do not display, the GNSS may not be connected due to an incorrect Baud Rate setting.

ADDING A BEACON

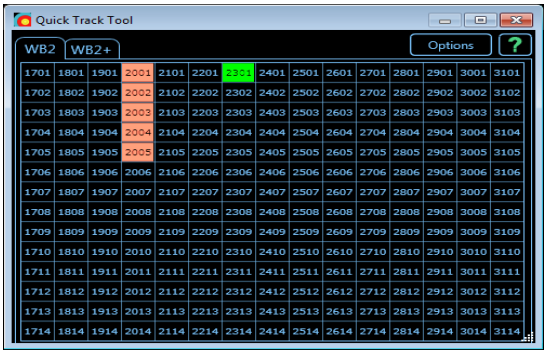
QUICK TRACK TOOL

For simple jobs requiring a small number of 6G or PGT beacons, it will be easier and faster to add beacons to the job using the **Quick Track** tool.

For jobs with many beacons/complex acoustic scheduling, it is recommended to add beacons to the job using the **Beacons Table** described in the following section.

1. Click **Tools > Quick Track** or click the **Q-Track** shortcut button.

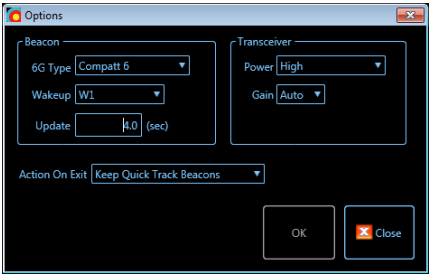
2. Click the required address(es) on the Quick Track tool (clicking the same address again stops that beacon tracking and removes it from the job).



3. A 6G beacon with that address is added to the job (see Options below for beacon type).

4. An active Quick Track beacon is shown in green (beacon addresses already allocated are shown in pink).
5. A beacon output telegram is enabled (if there is a telegram setup).

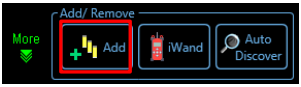
Use **Options** on the Quick Track tool to configure the default **Beacon** type, **Wakeup** tone and **Update** rate.



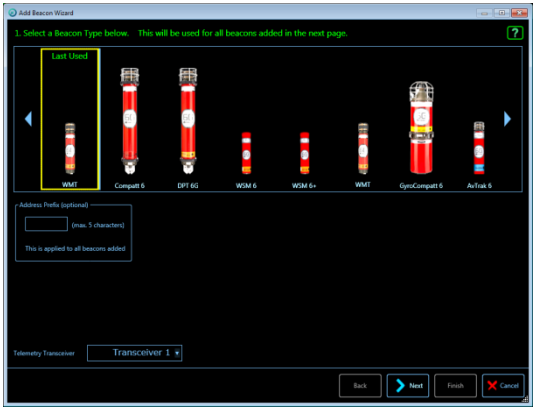
BEACONS TABLE

1. Right-click on **Mobile Objects** and select **Add Beacon** or click the **Beacons** shortcut button.

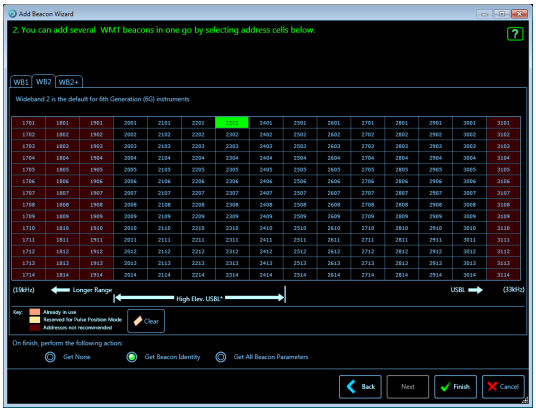
2. Click **Add** on the **Beacons Table**.



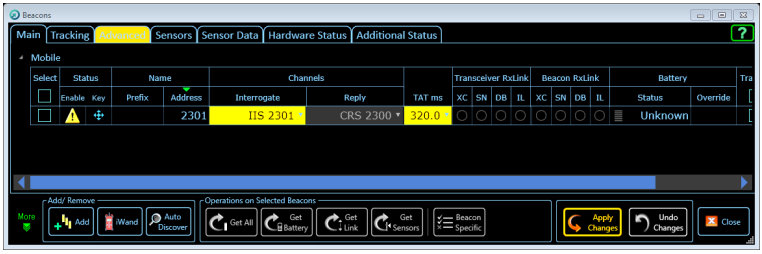
3. Select the beacon type on the beacon wizard window.
4. Enter the beacon **Address Prefix** (optional) and then click **Next**.



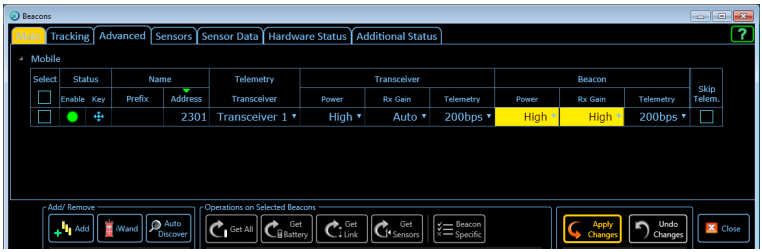
5. Select the beacon **Address(es)** from beacon address table and then click **Finish**.



6. Following successful telemetry communication with the beacons, the yellow warning triangles in the **beacons table** will change to green circles.
7. If the yellow warning triangles remain, the acoustic settings on the **Advanced** tab may need adjusting or the beacon addresses may need verifying.



8. Once all the yellow warning triangles have changed to green circles (as shown below), click **Apply Changes** to confirm the settings.



Note

The power settings are suggested by the Ranger 2 software for the Operating Range that has been set in the Environmental Settings.

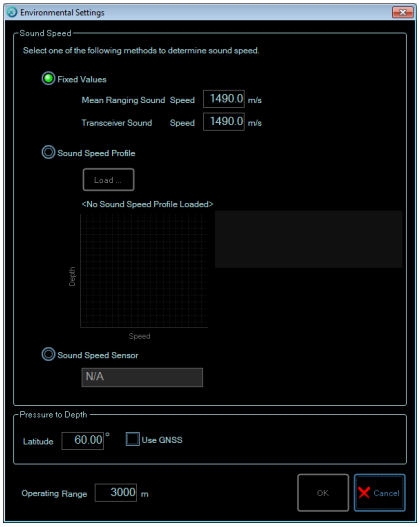
SETTING THE ENVIRONMENT

1. Prior to tracking a beacon, click the **Environment** shortcut button.

2. In the **Environmental Settings** window, make sure suitable **Sound Speed** data and **Operating Range** have been selected.

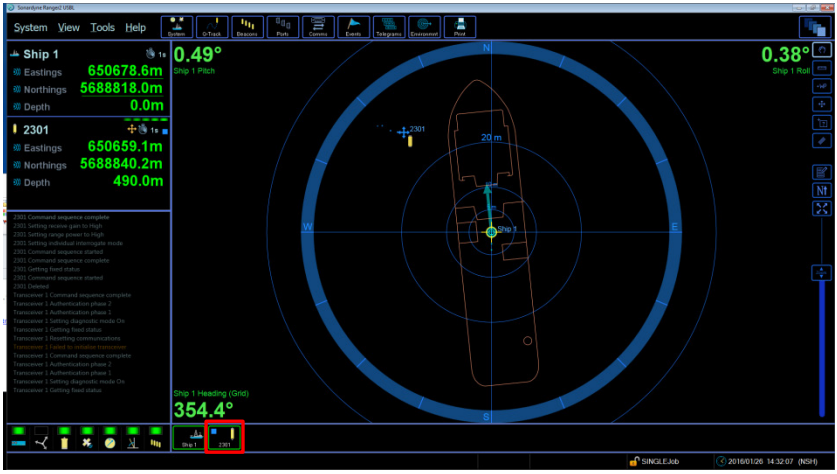
Note

A new sound speed profile can be imported by select the **Sound Speed Profile** bullet.

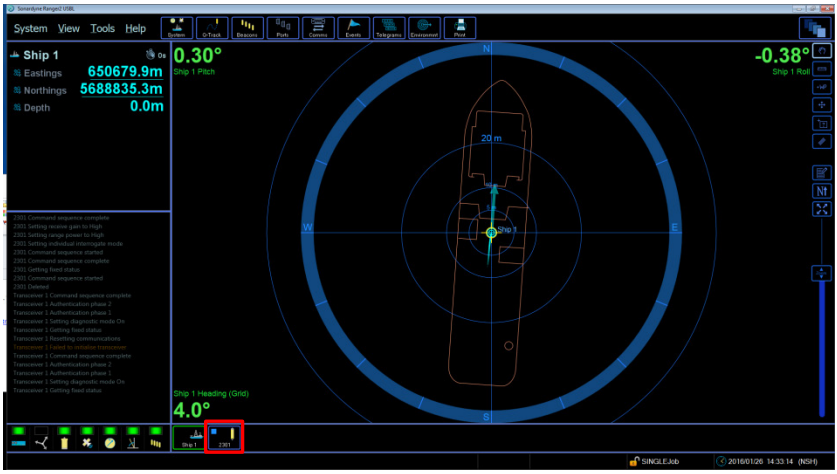


TRACKING A BEACON

1. To track a beacon, click the beacon button on the bottom panel.



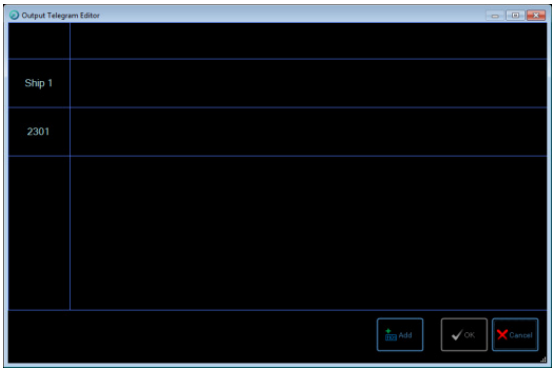
2. To stop tracking a beacon, click the beacon button.



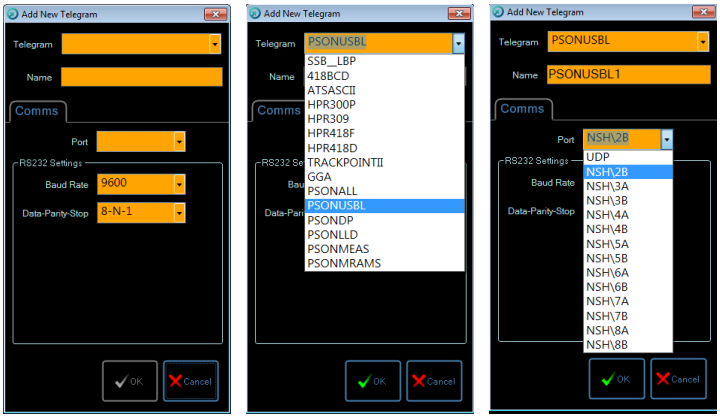
ADDING A TELEGRAM

1. To add an output telegram, click the **Telegrams** shortcut button.

2. Click **Add**.

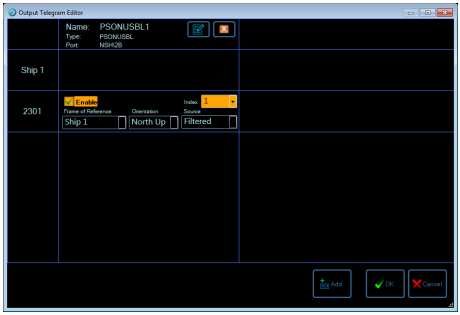


3. Select a telegram type from the **Telegram** drop-down list.
4. Select the appropriate **Port** and **Baud Rate** for the output telegram and then click **OK**.



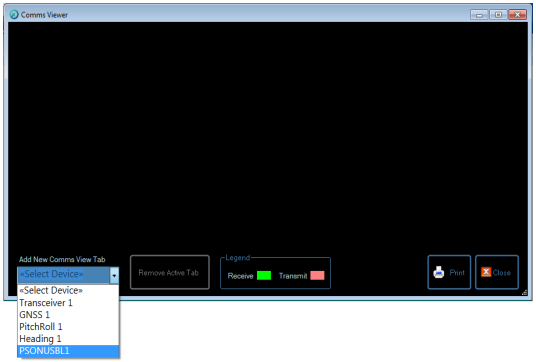
5. Select the **Enable** checkbox.

6. Select **Frame of Reference**, **Orientation** and **Index Number** for the output telegram and then click **OK**.

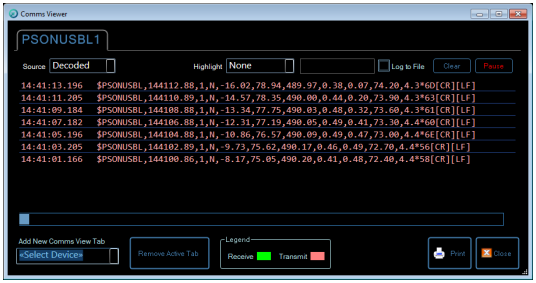


7. To verify telegram is functioning, start tracking device(s) and then click the **Comms** shortcut button.

8. Select the telegram from the **Add New Comms View Tab** drop-down list.



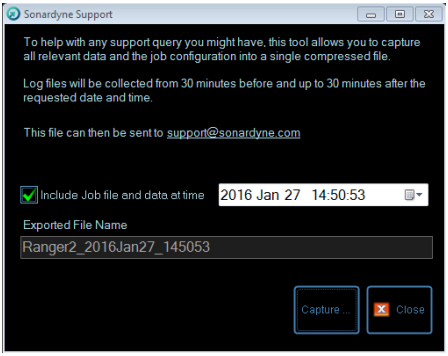
9. The telegram output should display in the **Comms Viewer**.



SONARDYNE SUPPORT

If any difficulties or problems are encountered when attempting to operate the Ranger 2 system, click **Help** > **Sonardyne Support**.

1. Select the date and time the event occurred and then click **Capture**.
2. Browse to the desired folder for the output file and then click **OK**.
3. A support log file will be created containing logged data from 30 minutes before to 30 minutes after the target time. The support log file can be sent to Sonardyne Support for analysis.



Term	Definition
6G®	Sonardyne's sixth generation technology hardware platform
AHRS	Attitude and Reference Heading System
Beacon (Acoustic)	An instrument that emits acoustic signals. Common beacon types are: Transponder, Responder and Pinger.
COMMS	Communications
GNSS	Global Navigation Satellite System
NAV	Navigation
NSH	Navigation Sensor Hub
Sonardyne	Sonardyne International Limited and its affiliates
Sonardyne Wideband®2	6G® transponders and transceivers use Sonardyne Wideband® 2 ultra-wide bandwidth signals giving a faster and robust transmission of data, more precise ranging and mitigation from multipath in shallow water and amongst steel structures in deep-water

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