NORTHERN DIVER

MINE WARFARE & MILITARY DIVING SPECIALISTS

NIMROD V2 CONSOLE

Underwater Navigation & Sonar System

USER INSTRUCTION MANUAL

LIST OF CONTENTS

Description.

NIMROD is a modular diver hand-held sonar & navigation console. The system combines a forward-looking single beam sonar, GPS Receiver, Mission Planning, Digital Compass, Depth Reading, Clock/Stopwatch, Gyroscope, and the capability to be used with a DVL (Doppler-Velocity-Log).

Typical uses are search & relocation of. . .

- Unexploded ordnance by navy mine clearance divers, commercial EOD divers, etc.
- Seabed infrastructure within the offshore oil & gas environment (e.g., pipelines, well heads, structures).
- Missing persons, lost property, vehicles, aircraft, wrecks by police or search & rescue divers.
- Seabed/lake-bed antiquities by marine biologists, archaeologists, sport divers, etc.

The transfer of data is via Bluetooth connection between the NIMROD and a laptop or PC running windows 7 or higher. The NIMROD software allows creation of “Mission Files” to assist with search and navigation tasks and post dive analysis of, “Dive Log” files containing sonar imagery, dive data and areas of interest.

Before proceeding we recommend that you read the safety, deployment, and operation guidelines in this user manual, in order to get full benefit from the features of the NIMROD system.

Throughout this document the following symbols are used to indicate special precautions or procedures you should note:

WARNING!

This symbol indicates a warning you should follow to avoid risk of physical injury or damage to your equipment.

CAUTION!

This symbol denotes precautions and procedures you should follow to avoid damage to your equipment.

NOTE!

This symbol denotes special instructions or tips that should help you get the best performance from your NIMROD system.

1. Important Considerations.

Before using your NIMROD sonar & navigator, please read and follow these safety considerations carefully, if you have any other issues, please contact the supplier's technical support.

1.1 Operation.

Do not rely on this product or its sensors as primary means of life-support during or after a dive. NIMROD is designed as a survey tool, and not as an alternative dive computer or similar equipment.

Do not use this product if there's any sign of damage to the housing or peripheral equipment fitted, or if there appears to be damage which could cause water ingress.

Do not submerge the NIMROD, unless all the blanking plugs are fitted and the unused electrical connector sockets are blanked.

Do not attempt to dismantle or service this product yourself, contact the NIMROD technical support for any spares or repair required.

1.2 Maintenance & Cleaning.

After use thoroughly wash the system in fresh water, remove any weed or other detritus that may have been collected during operation. Do not clean with solvents, use a damp cloth to wipe down the exterior before you replace back into its storage case.

1.3 Storage.

When storing the NIMROD or shipping, please observe the following: -
Do not store the unit in direct sunlight, this may cause discolouring, perish cable insulation and other rubber mouldings/seals.

Always remove any salt or other residues from product after use, wipe dry before storing.

It is recommended that when not in use to store the product in the raider case provided, this will protect the product. *Store in the recommended temperate range stated.*

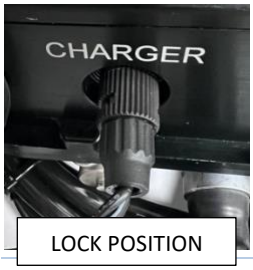
2. Connecting Battery Charger.

Before connecting the battery charger always ensure the area where you do this is dry and clean. The charging plug needs to be removed to gain access to the charging port. Use an 8mm Allen key (turn anti-clockwise) to remove the charging plug as shown in the pictures below. Check there is no dirt on the O-ring seal around the charging plug and console housing. If necessary, wipe clean using a lint free cloth and apply a small amount of silicon grease. If there is any damage to the O-ring replace.

The charging lead has a 3-pin connection, before you insert the connector visually line up the pins to the correct orientation then push the connector in fully, see pictures below.

Rotate 45 degrees

Once the connector is fully pushed in the connector also has a locking collar, rotate by 45 degrees in a clockwise motion, this will click into position and lock the connector in place ready for charging.

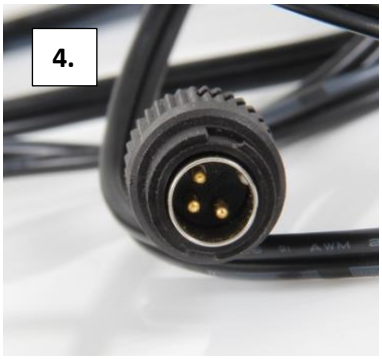


LOCK POSITION

Reverse of the same method to disconnect the charging lead from the unit.
Also ensure the O-ring is in place when reconnecting the charging plug back in, this is very important to guarantee no water ingress inside the unit.

2.1 Charging of Battery.

The NIMROD is supplied with a 6-cell Li-Ion battery charger for use with the internal batteries in the NIMROD.



*It has exchangeable AC plugs for use in **1.** UK, **2.** EU and **3.** US. **4.** Shows the connector*

Do not use any other charger, other than the supplied NIMROD charger.
The charger is designed for indoor use only and should not be exposed to water or dust.

Do not cover up the charger when is use.
The charger is turned on by connecting it to the mains socket, disconnecting it from the mains socket turns it off.
The mains socket should be easily accessible, should an operational error occur, the plug can be removed immediately.

Do not use if there's any damage to the charger or lead.
On the charger there is a 2 colour LED, when charging the LED is "Orange" when complete the LED is "Green".

WINDOWS SOFTWARE

The Nimrod Handheld Sonar is supplied with Windows 'application' software for the creation of missions and the playback of dive logs.

The software can be supplied on CD, USB memory stick or software download, as preferred.

The software has been tested on Windows XP, 7, 8.1 and 10.

The minimum display resolution for the software is 1200 x 768. With widescreen displays, 1366 x 768 or higher, with 4:3 aspect ratio screens 1280 x 768 or higher.

If you create a shortcut to the software 'executable' on the desktop, it will appear like this...

Getting started

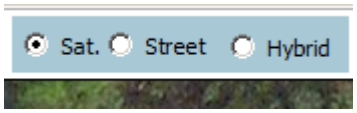
Launch the application from taskbar or shortcut....

.

In order to facilitate mission creation, the application includes mapping functions available via the internet. *The first pages of this document describe operation with the internet available to your computer.*

Map type selection (optional)

As well as a 'pop down' of all available (some not available!) map types, there is a simple selection of a satellite, street and hybrid display.



Whichever map type is selected, you can see its internet connection together with a number which corresponds to the entry in the 'pop down'

The defaults for these three types are 19,18 and 20 respectively.

If you want to change the selection of one or other of these, you need to edit

c:\northerndiver\nimrod.cfg (use notepad)

street = 18
satellite = 19
hybrid = 20

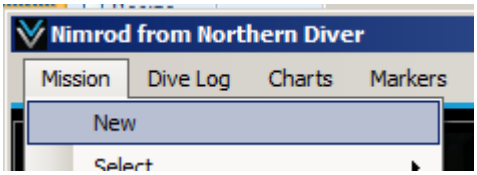
Find the map type you want for street....bing for example (entry 7) and edit the file

street = 7
satellite = 19
hybrid = 20

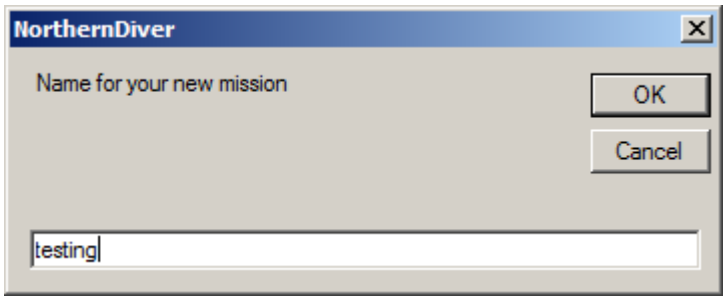
Save it and reload the NorthernDiver software

Defining a mission (internet available)

Select Mission/New from the menu bar at the top of the application.

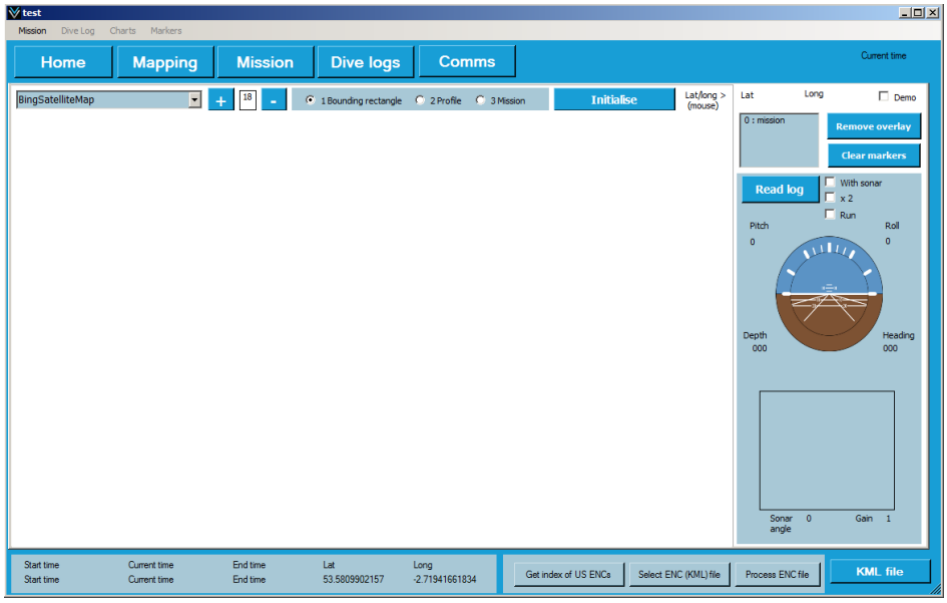


You will be prompted for a name for this mission.....



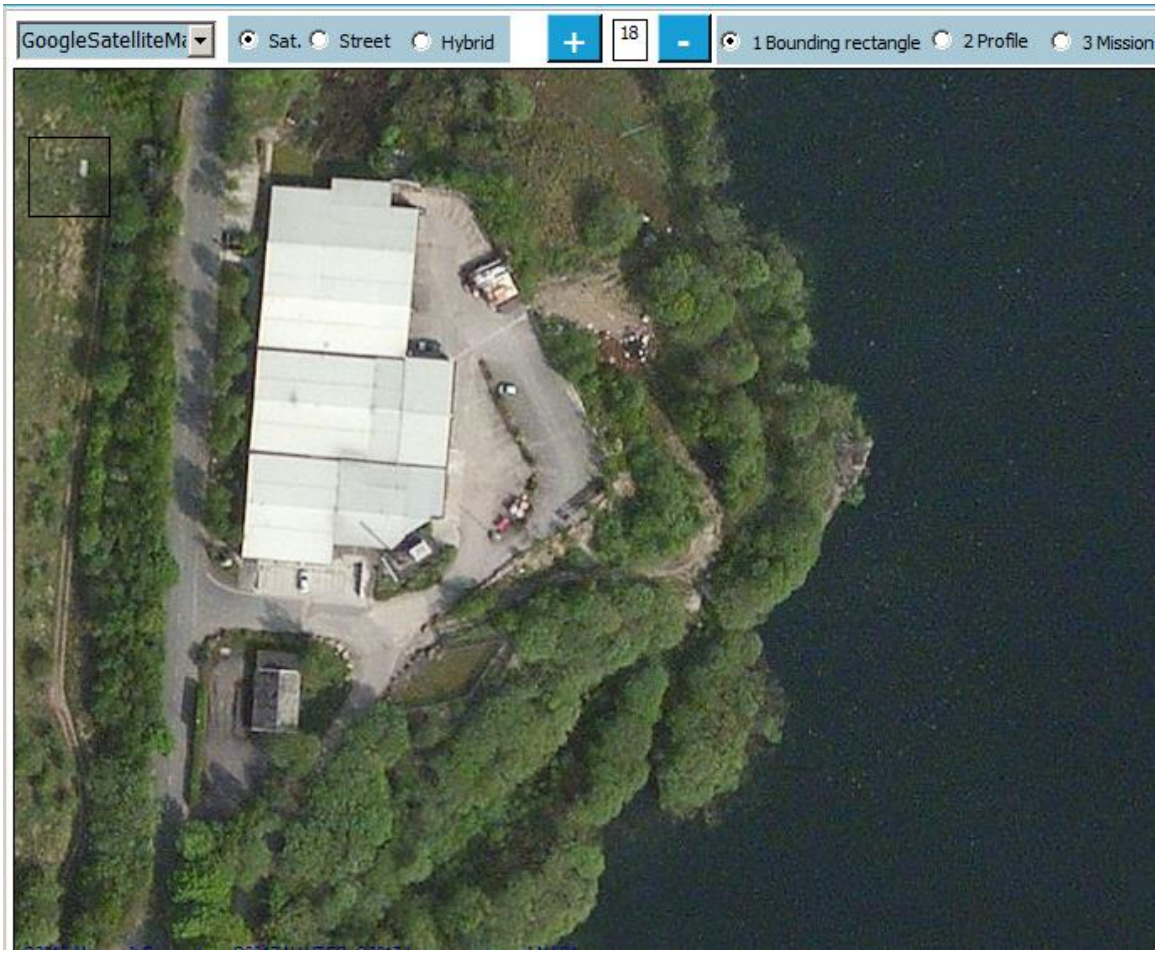
Press

To go to the mapping 'page'

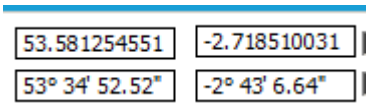


Using the internet maps to locate your mission location

You can zoom out and in with the '+' and '-' buttons and drag and drop the map image until you have found your location.



Wherever you click on the map, the corresponding longitude and latitude values are displayed at the top right in 2 formats....



To save time finding your location, enter a zip code (home page) of the nearest known point....

Making your 'mark'

In order to identify and point which is to be part of the mission, click with the RH mouse button - you will see a red cross displayed.

These marks are used to identify three different parts of the mission

1 Bounding rectangle - the extent of the mission
2 Contours of vector 'maps' that show the diver significant physical shaped - coast lines for example
3 The waypoints and targets of the mission itself

1 The bounding rectangle

Make sure that the Bounding rectangle radio button is checked...

and make the extent of the mission by two crosses showing the top left and bottom right (you can change these later, if necessary).

then press....

to see the bounding rectangle

2 Vector map profile

Make sure the 'profile' radio button is checked..

Make a number of right 'clicks' to identify the profile to be recorded (in this case, the West shore line)

and press 

to see the profile

More profiles can be added later but remember to press 'Clear markers' before start to create the profile.

3 Mission points

Make sure the 'mission' radio button is checked....

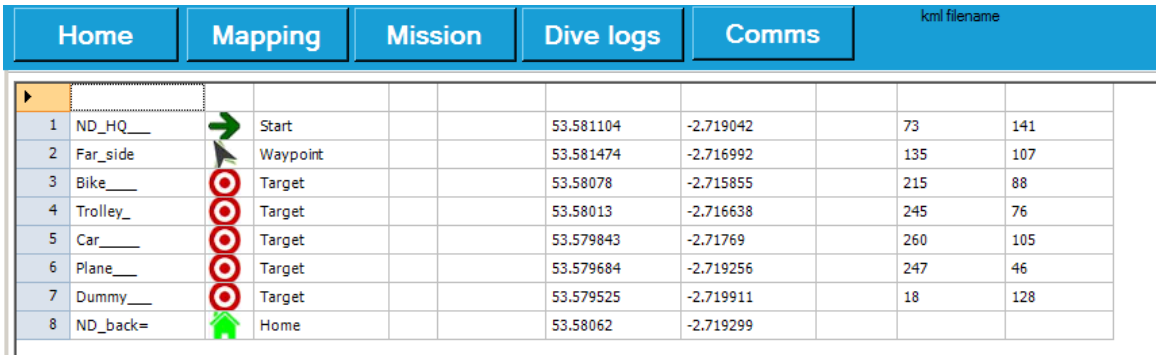
Now, you right clicks marks the various waypoints and targets for the mission.

Press .... 

when done....

Completing the mission data

You need to go to the 'mission' page for this...



1	ND_HQ___		Start			53.581104	-2.719042		73	141
2	Far_side		Waypoint			53.581474	-2.716992		135	107
3	Bike____		Target			53.58078	-2.715855		215	88
4	Trolley_		Target			53.58013	-2.716638		245	76
5	Car_____		Target			53.579843	-2.71769		260	105
6	Plane___		Target			53.579684	-2.719256		247	46
7	Dummy___		Target			53.579525	-2.719911		18	128
8	ND_back=		Home			53.58062	-2.719299			

....

Here you can identify the mission point 'types' (start, waypoint, target and home) and add comments to help the diver.

These controls (below) allow you to re-organise and edit the mission points.

Save when done

On the handheld sonar, the diver will see the rectangle, profile and mission points (here rotated).

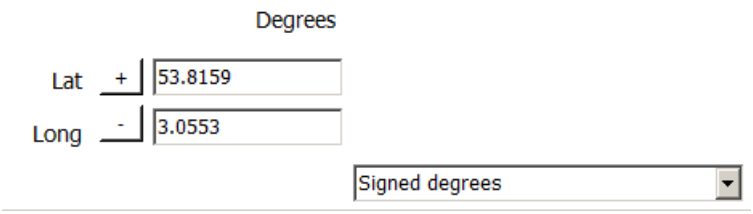
The red marker is start, green is home, small white markers are waypoints, and the red arrow is the current position from the GPS. A 'snail trail' is created in orange dots to show your recent positions.

You can see the contour of the bank. The display is rotated as the software rotates the display to always keep North displaying in the same direction irrespective of the direction the console is pointing.

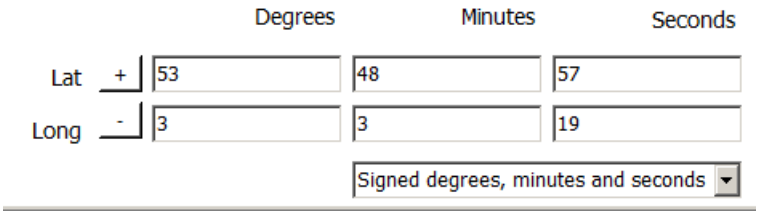
Adding mission point co-ordinates from the keyboard

Latitude and longitude values are stored and displayed in decimal degrees in the Windows application. This is the simplest form of expressing a coordinate but requires a significant number of decimal places to describe a location.

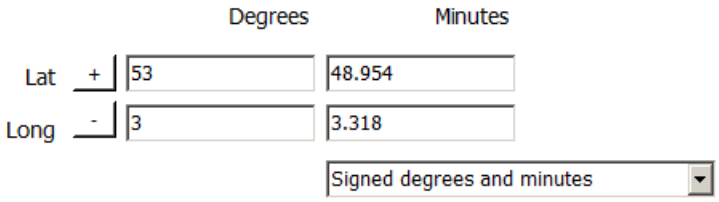
However, it is possible to enter co-ordinates (and display them) in other measurement systems - Degrees, Minutes and Seconds (32° 45’ 40.5”) and Degrees and Minutes (32° 45.675’).



or



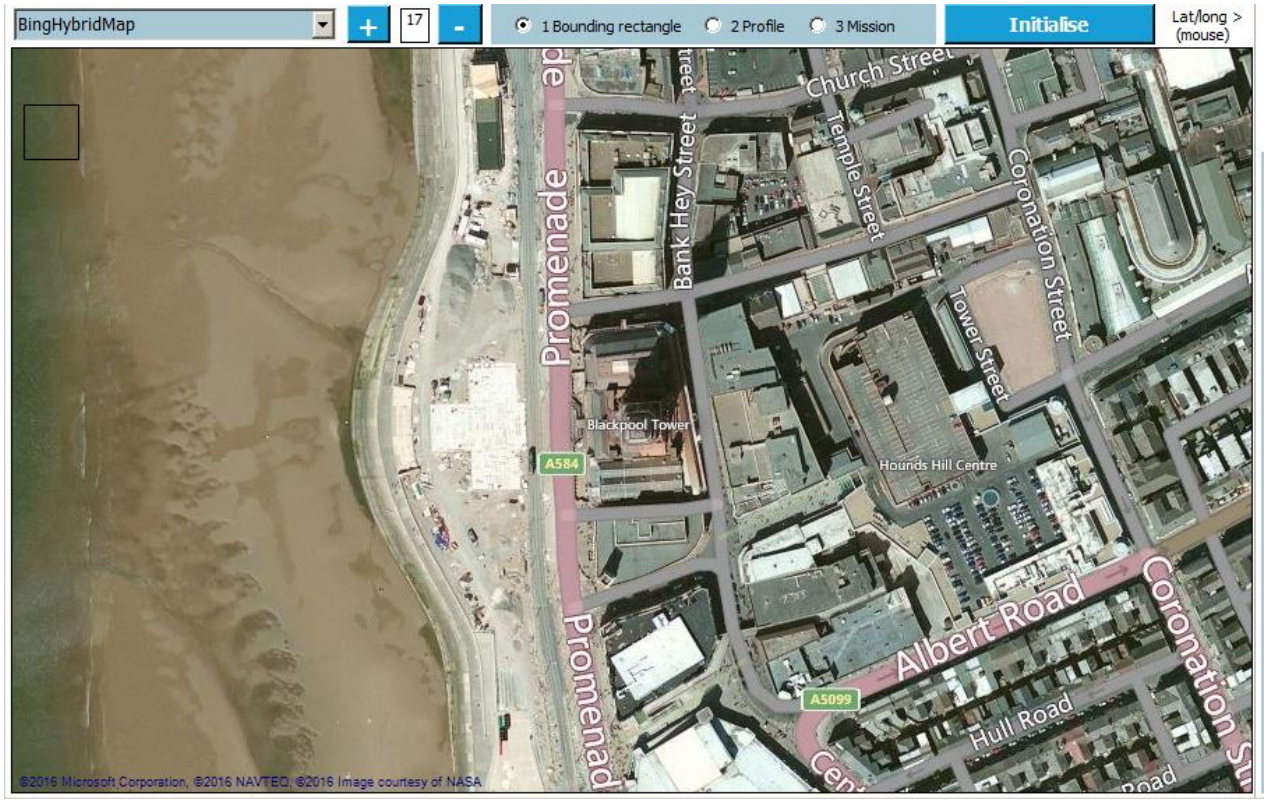
or

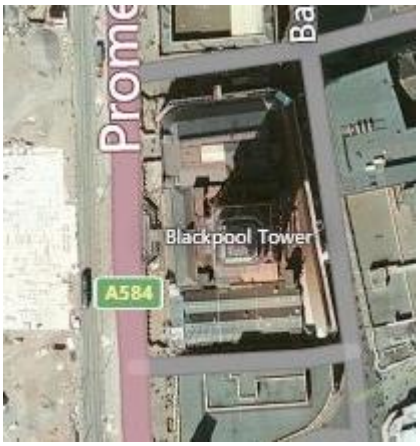


However, you enter them, press

to see the value

If you are connected to the internet, go to the 'Mapping' page to see what you have selected - here we have identified the 'Blackpool Tower'!


BingHybridMap
17
1 Bounding rectangle
2 Profile
3 Mission
Initialise
Lat/long > (mouse)
Promenade
Bank Hey Street
Church Street
Temple Street
Coronation Street
Tower Street
Blackpool Tower
A584
Hounds Hill Centre
Albert Road
A5099
Hull Road
©2016 Microsoft Corporation, ©2016 NAVTEQ, ©2016 Image courtesy of NASA


Blackpool Tower
A584

Press

to add the new mission point to the others...

id	Name	_	type	_	Colour	Latitude	Longitude
1	ND_HQ___		Start			53.581104	-2.719042
2	Far_side		Waypoint			53.581474	-2.716992
3	Bike____		Target			53.58078	-2.715855
4	Trolley_		Target			53.58013	-2.716638
5	Car_____		Target			53.579843	-2.71769
6	Plane___		Target			53.579684	-2.719256
7	Dummy___		Target			53.579525	-2.719911
8	ND_back=		Target			53.58062	-2.719299
9	Tower		Home			53.8159	-3.0553

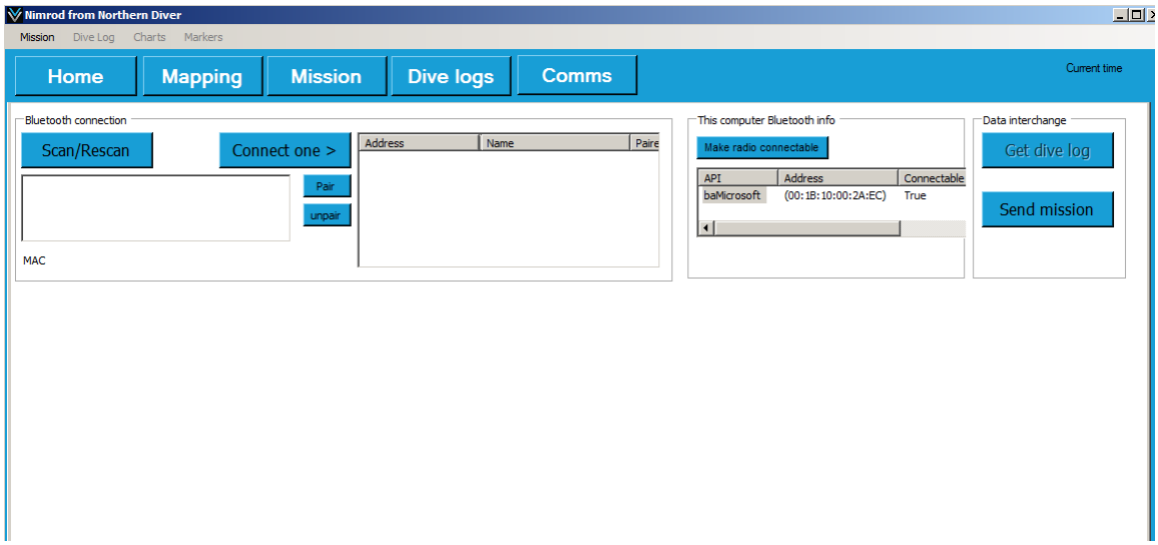
Sending a mission to Nimrod

Data is sent to and from Nimrod 'wirelessly' using a Bluetooth connection. If your PC does not have in-built Bluetooth, you can connect via a USB Bluetooth adaptor.

By default, Bluetooth communications of Nimrod are turned off. The eighth page of Nimrod is the 'COMMS' page. The top right button allows the Bluetooth communications to be turned ON or OFF.

Press.....

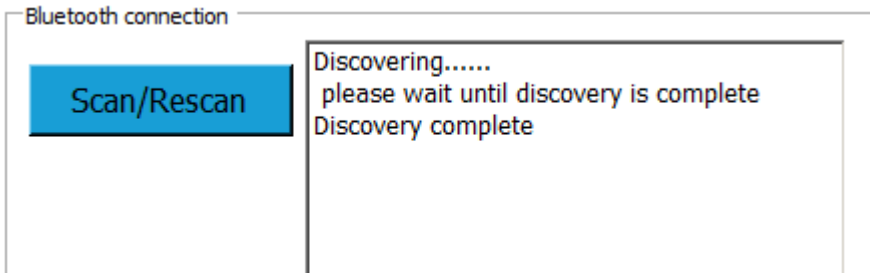
to view the Comms page...



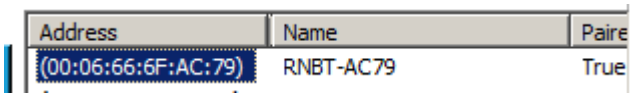
Connecting to Nimrod

Make sure that Nimrod is on and the press....

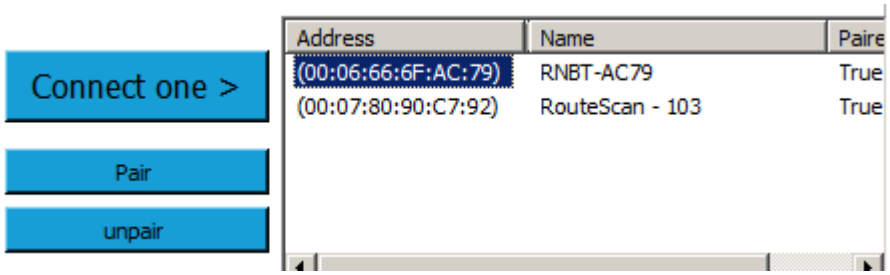
when the scan is complete, you will see



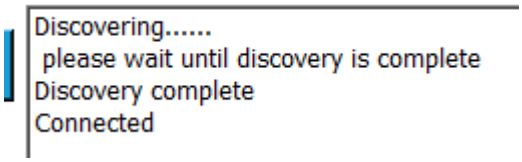
Check that your Nimrod is shown as 'paired'..



Select (highlighted in blue) and press connect...



if this are problems with the connection see 'Troubleshooting' (not yet done)

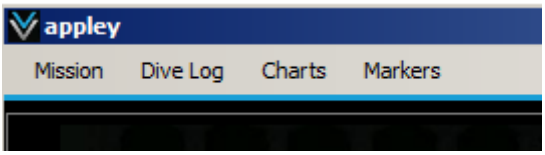


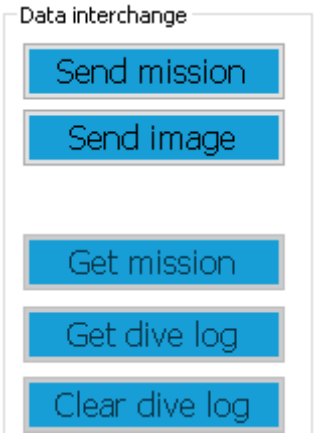
Downloading the mission

The 'send mission' function sends the 'current' mission that has been loaded into the Windows application. Make sure that the mission you require is loaded (Shown in top left corner of the application).

The 'send image' buttons sends the associated image for the mission. *It is important to wait until this image transfer is complete before pressing any buttons on Nimrod.*

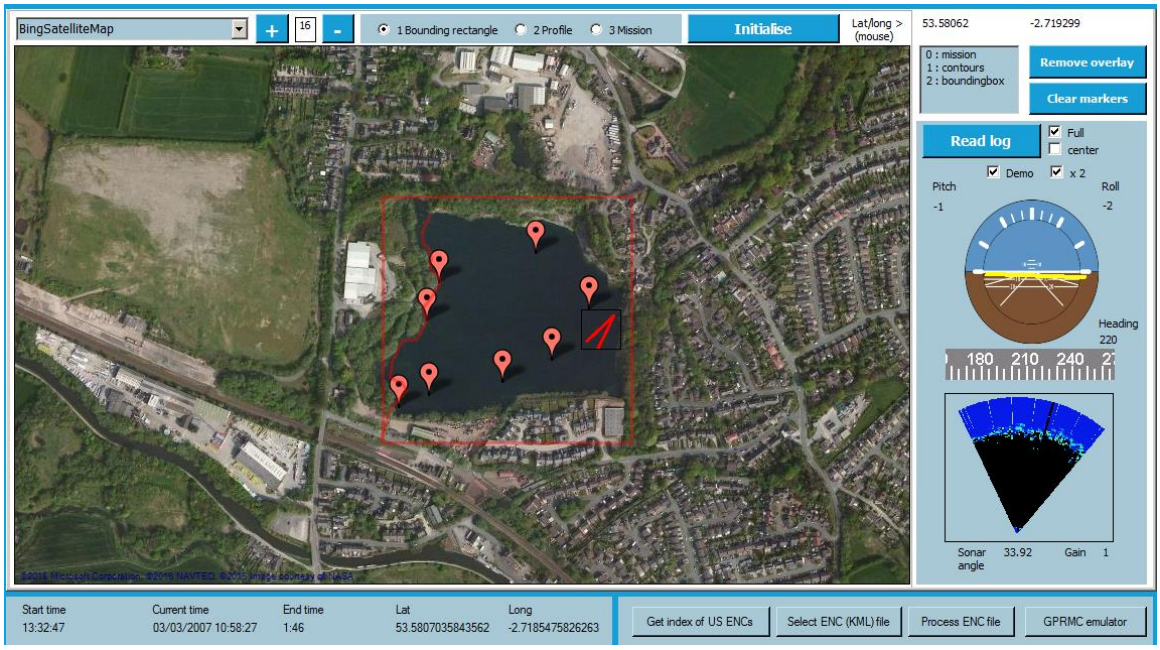
If you select one of the map pages on the handheld sonar, you will be able to see the new mission immediately to check that the transfer was complete. If not, press the Send Mission button again.





Reviewing a 'dive log' (playback)

There is a utility to import data recorded in the console to the PC and a user interface for selecting a 'playback', viewing the dive and controlling the playback.



This snapshot shows the sonar image being played back together with the location of the diver (red 'V'), the direction he is pointing the console (orientation of the 'V') compass heading, pitch and roll and elapsed time.

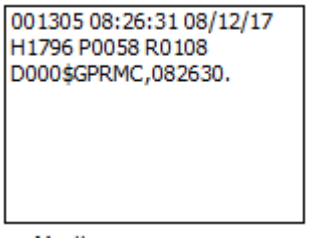
Uploading the dive log from Nimrod

Follow the instructions for connecting to Nimrod as described in 'Sending a Mission to Nimrod'.

The upload process uploaded all recording 'sessions' from Nimrod and clears the session history fro it.

Press 'Get Dive Log' from the 'Comms' page

You will see a lot of 'traffic' in the panel on the left. Wait until this stops.



When you are happy that the transfer in complete, press 'Clear Dive Log'

The data is stored on the PC and is 'date stamped', that is to say that the file name is made up of the date and time of the recording session from the Real Time Clock of Nimrod.

In this way, a number of recordings can be made during a dive or just one large one.

The filenames look like this

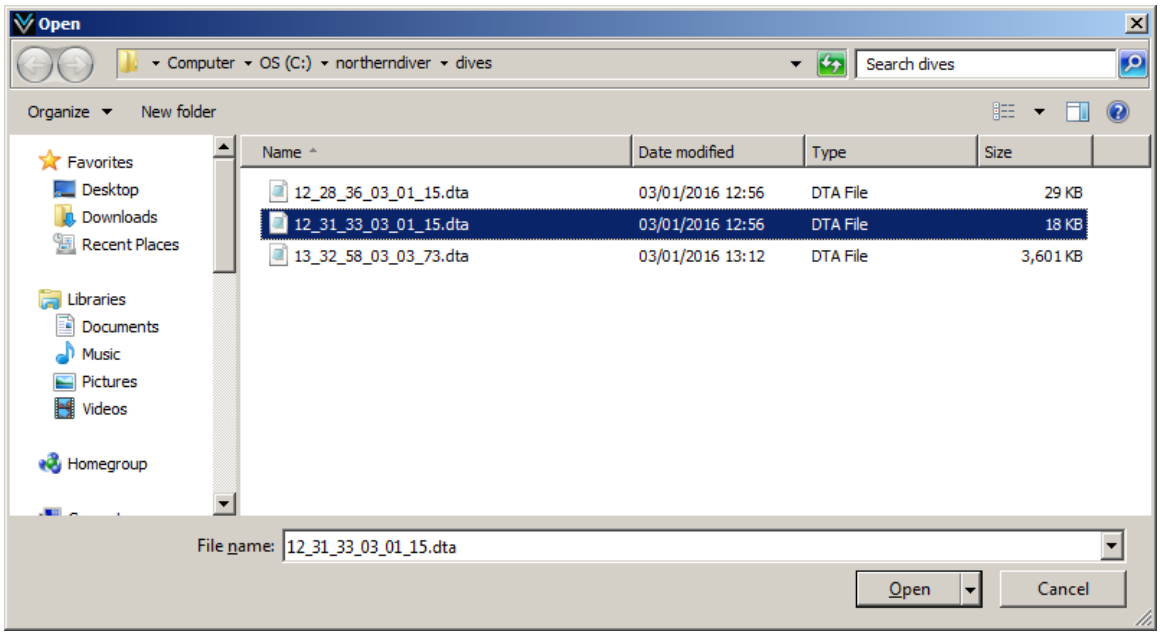
12_31_33_03_01_15.dta

(12:31:33 on the 3rd January 2015)

Viewing the dive log on the mapping page

Press.....

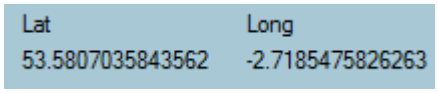
and select the session you want to view...



When the mission data is loaded, you can control its playback from the playback bar...

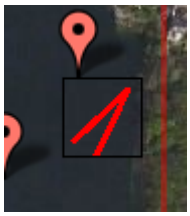
Location

Whenever the dive data contains a GPS reference, the Nimrod 'V' pointer will move to that location on the map and the GPS co-ordinates are displayed.

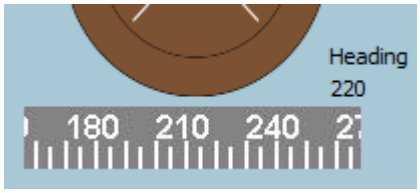


Orientation

The 'V' pointer represents the sonar scanning sweep, so it turns to show which way Nimrod is pointing.

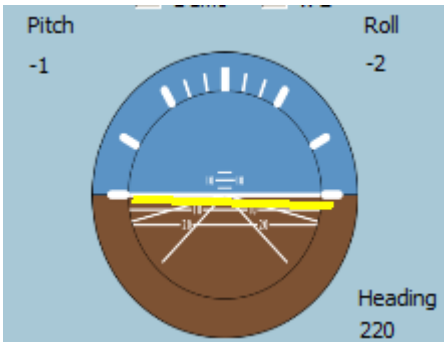


The Nimrod compass is also displayed numerically



Pitch and roll

The 'horizon' indicator shows Nimrod's pitch and roll



Depth

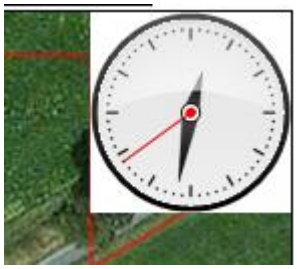
Depth is displayed in the graph at the bottom of the image.

Elapsed time

Start time, current time (of the playback) and end time

Start time	Current time	End time
13:32:47	03/03/2007 10:58:27	1:46

and on a conventional clock



Renaming a dive log

So long as you have loaded a dive log, the 'rename log' button is enabled, press to enter a revised more friendly name.

Dive log export

When you read a dive log, a special data interchange file is created using the same filename, but with a GPX extension. There are a number of GPX viewers freely available.

More Mapping functions

Mission 'overlay' management

Although a mission is constructed in the sequence:

1 Bounding rectangle
2 Profile
3 Mission

the corresponding overlays on the map are

2 'Boundingbox'
1 Contours (profile)
0 Mission

To delete one of these 'overlays', select it from the list (on the left below) and press 'Remove overlay'. In this way, you revise the various parts of the mission definition.

.....

The 'Clear markers' button deletes all the red crosses currently displayed, should you want to 'start again' in any part of the mission definition.

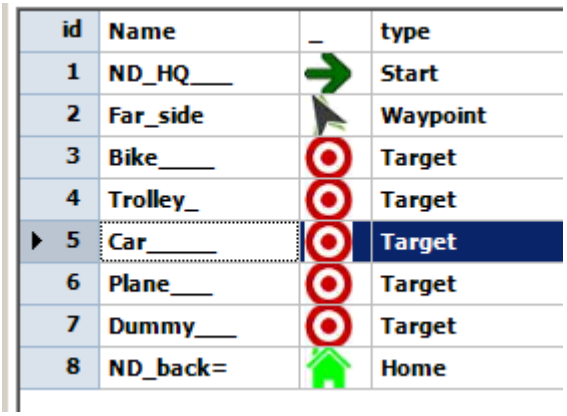
....

More mission page functions

.....

These buttons allow you to change the order of the mission and delete points.

They operate on the selected item from the mission grid.



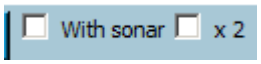
id	Name	_	type
1	ND_HQ___		Start
2	Far_side		Waypoint
3	Bike____		Target
4	Trolley_		Target
5	Car_____		Target
6	Plane___		Target
7	Dummy___		Target
8	ND_back=		Home

and there is a ...

.button too

More dive playback functions

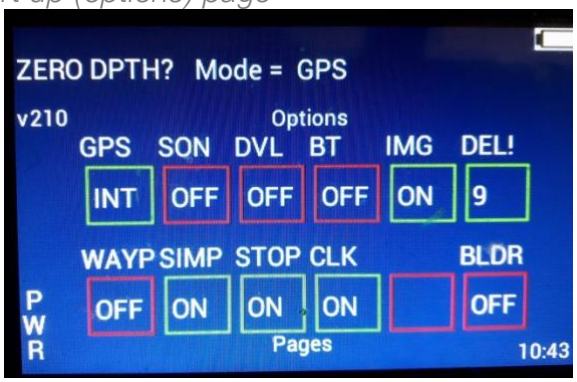
The 'with sonar' checkbox allows/prevents the inclusion of sonar data in the dive playback.



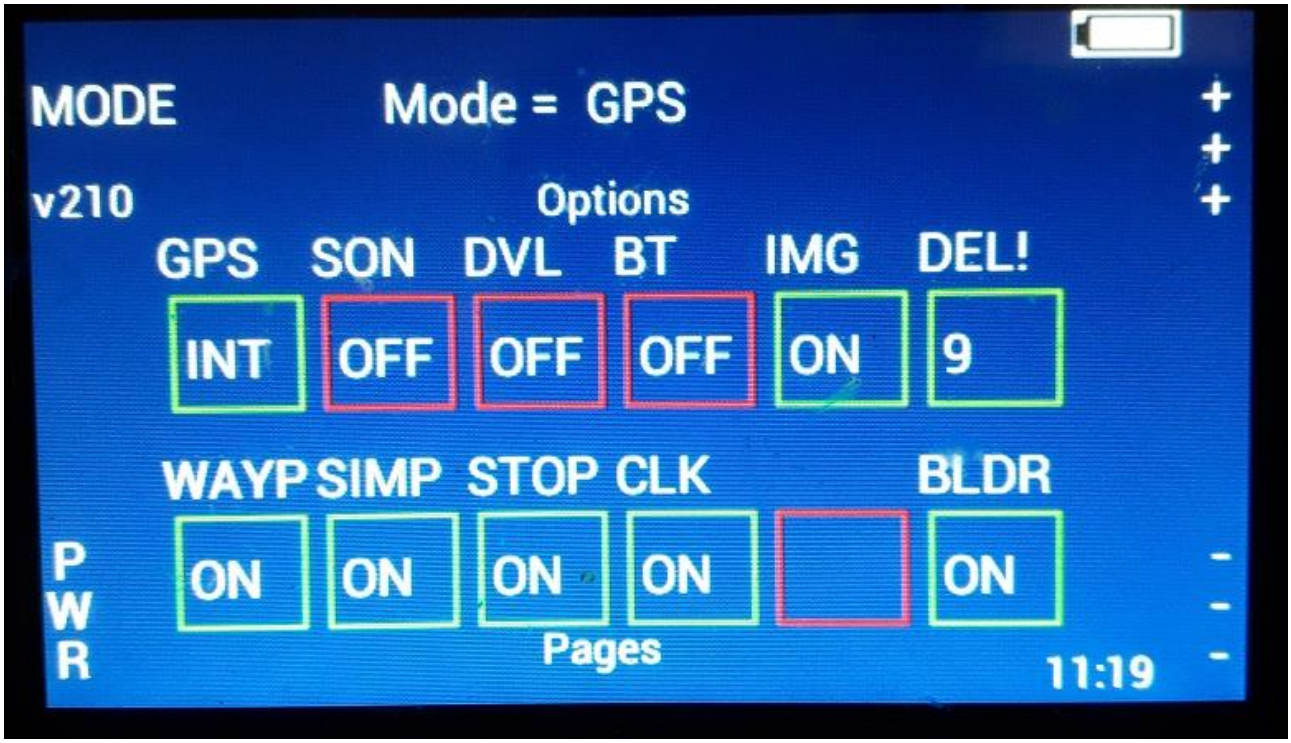
The 'times 2' checkbox should be checked if you want to speed up the playback

DEVICE USER INTERFACE

Start up (options) page



For the first few seconds, the caption 'Zero Dpth?" is displayed. Press '+++' to record the current atmospheric pressure (surface only) or wait until the caption changes to 'MODE'.



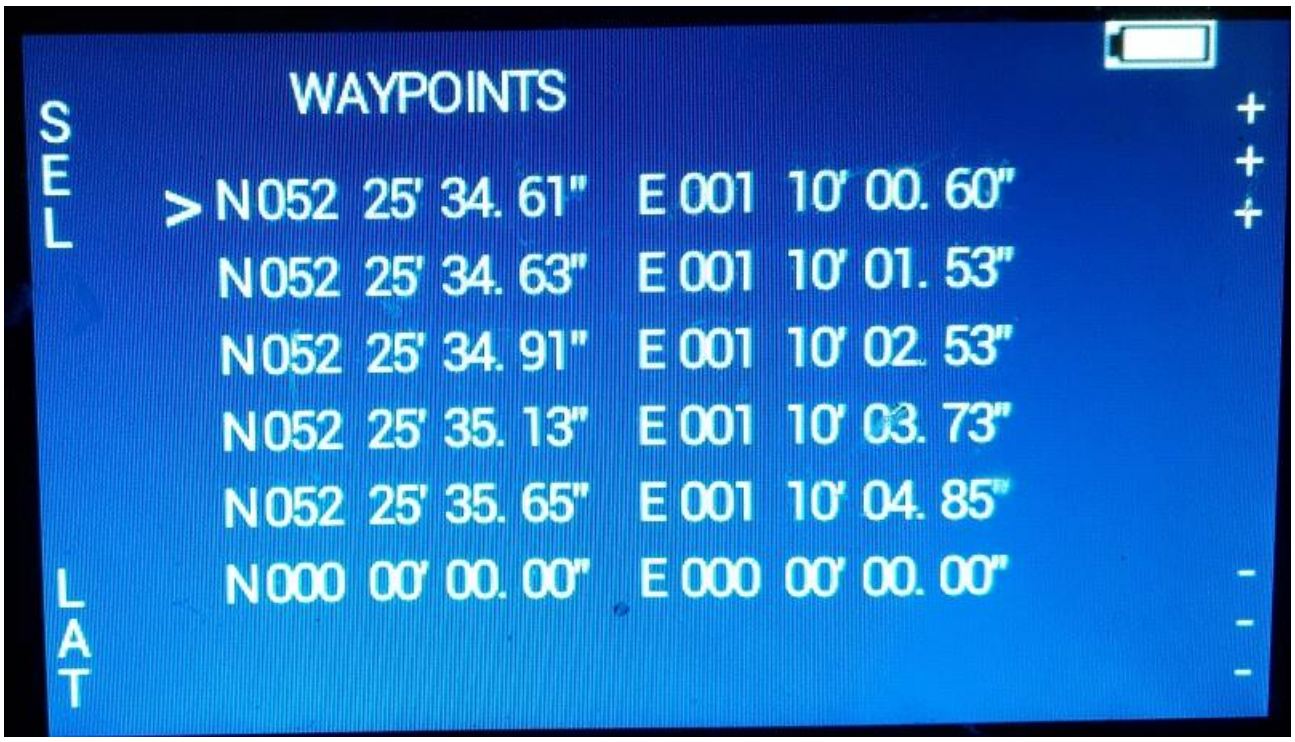
The top row of squares allows you select various options

GPS internal/external (Classic V2 only)
SON sonar on/off
DVL on/off
BT turn Bluetooth on prior to receiving a mission or returning a dive log
IMG turn the bitmap displays on or off. Normally on, but, if the GPS co-ordinates were entered manually on the manual entry (waypoints) page, then the image is not required.

The second row of squares allows you to reduce the number of pages displayed.

Manual entry (waypoints) page

GPS entry page for Nimrod



The top left button sets the mode

SEL(ect) - use the +++ and --- to move the ">" pointed to the entry you want
DEG(ree) - use the +++ and --- to set the degrees
MIN(ute) - use the +++ and --- to set the minutes
SEC(ond) - use the +++ and --- to set the seconds
TEN(th) - use the +++ and --- to set the tenths

When Nimrod is started it will display the last 6 mission points stored. This could be from a mission planned on the Windows software or the last 6 entered manually.

This is to save you starting from scratch each time.

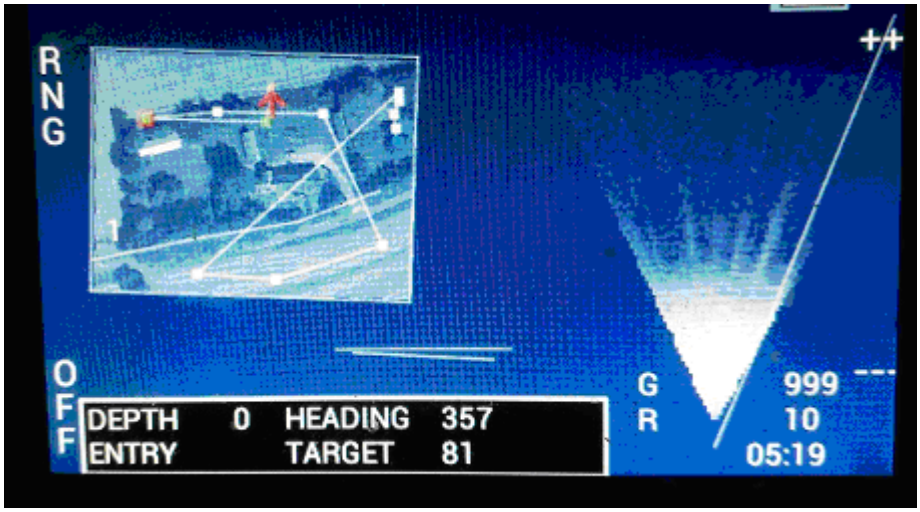
But if you only wans 5 mission points and there are 6 displayed, you need to CLR(clear) the LAST one. If you only want 4, you must clear the LAST two. When they are cleared, they read..

N 00 00 00.0 E 00 00 00.0 and are ignored by the software

CLR(clear) - clear the current entry

RST(reset) - unclear the current entry

Composite page



Displayed data

DEPTH (in metres)
HEADING (current heading in degrees)
ENTRY - this is the name of the current/last target/waypoint visited
TARGET (direction to the next target)

The last marker visited is marked with the red square. When reached, the diver presses the +++ (top right) button to get the mission point marker and heading.

The bottom left button turns recording ON or OFF

There is a pitch and roll indication.

Display options

MKR next/previous marker
DIM dim the screen
ADD add a user defined marker
INC increase the map/image display
U/D move the map/image display up/down
L/R move the map/image display left/right
MCR micro size increase of the image if is does not precisely fit the mao
AUT automatically centre the image/map
NXD distance from next marker that will cause the display to go to the next marker IF.....
NXT ....this function is selected

Sonar options

GAI gain
RNG range
MNO/COL mono or colour display
STD/EXP standard display or expanded over the dynamic range

Map page

Enlarged map .

Sonar Page

.....

Stopwatch page

.

Bottom right button starts or stops stopwatch

Top left button zeroes the stopwatch.

Bottom left button zeroes the depth gauge at the surface

Graphical and numerical display of heading

Pitch and roll indicator.

Depth indication

Simple page

The simple page just tells the diver which direction he should be going to the next marker.

In this case the next marker is 46 metres away at an angle of 261 degrees*. He is travelling from marker "Entry" to marker 1 (see bottom left).

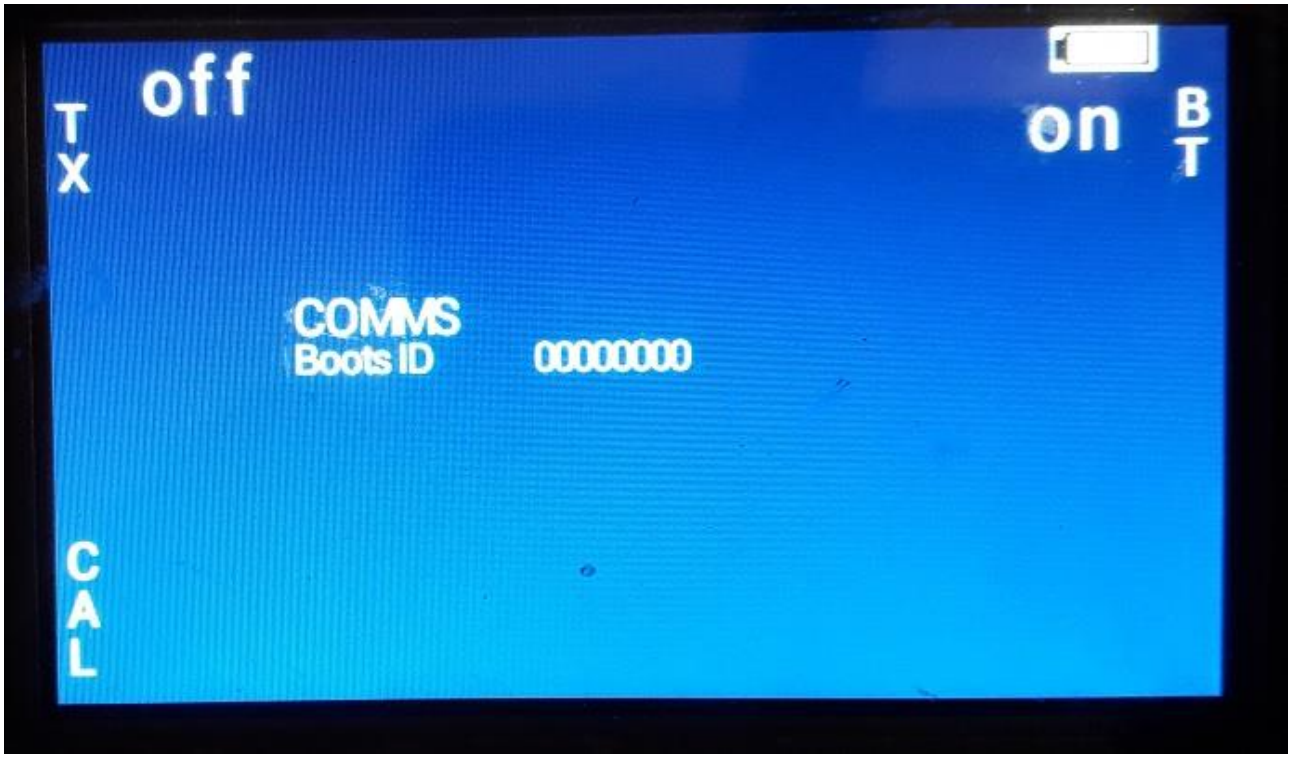
His current heading is 246 so he needs to go right 15 degrees ">>>>". By aligning the big arrow with the red line, the next waypoint will be reached.

Now, he has gone too far to the right and must go 15 degrees left "<<<<".

Change marker selection when the mode shown is "MKR" with the right hand buttons.

Communications page (8)

…….



Setting TX to ON provides a flow of raw data via bluetooth that provides compass and depth values for factory calibration.

Clock set page

....

Above the two rows of large characters is a row showing the date in DDMM YYYY format.

The top row of large characters is the current time on the device's real time clock
The second row of large characters is the last time from the GPS - not necessarily the current time

The top left button (MOD)e is used to toggle the setting mode between H(ours), M(inutes) and S(econds) - day of month, month and year are now added.

The + and - buttons set the values.

I am still using this page for debug info...

'C', altitude
'X', motion detect
, 'D', depth
'H', heading
'P', depthsmooth,
, 'A', pressure when first turned on
, 'B', battery volts
'V', version
'S', serial number
'W', internal pressure

Bootloader page

In the event of you being supplied with a firmware upgrade for Nimrod from Northern Diver, you have to set Nimrod into a special 'bootloader' mode.

On this page you will see

N O	N O

alongside the top left and top right buttons

Set both to YES and the device is set into bootloader mode.

The next time it is powered up, it will be looking for a revised version of the firmware via a USB connection to your PC.

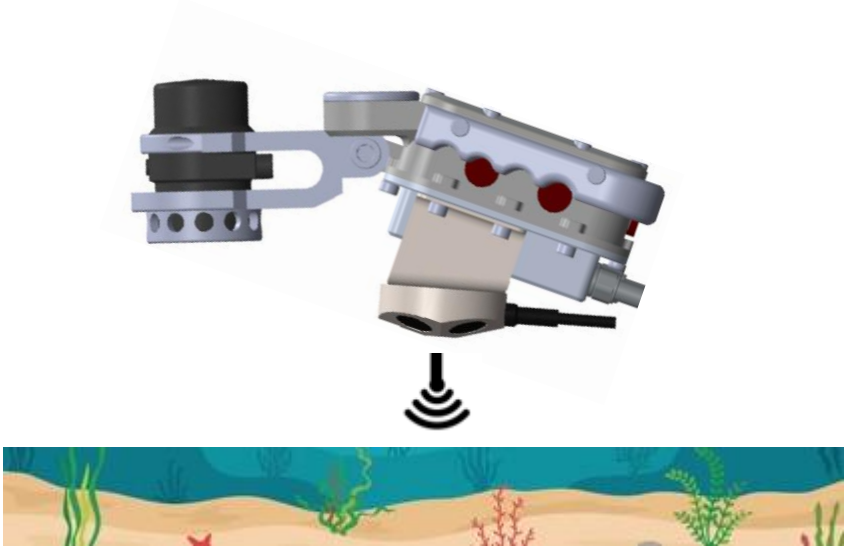
Y E S	Y E S

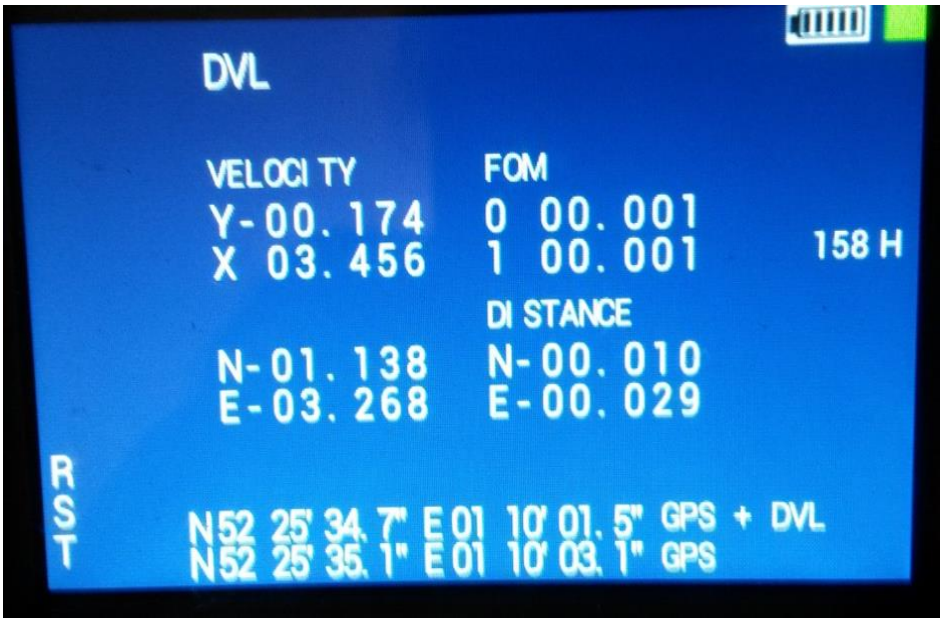
See appendix for more details

DVL page

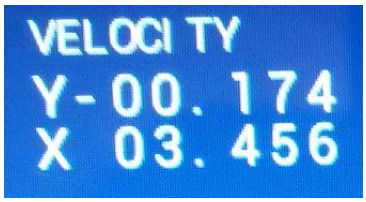
Note ! Never switch the DVL on out of water, this can cause internal damage to the DVL

The green square box at the RH side of the battery level symbol indicates you are receiving good readings from the DVL. This should stay predominantly **GREEN** throughout the duration of your dive. If it turns **RED** this indicates that you are not using the DVL in such a way that it can give good readings (Try to keep the DVL pointing down at the sea bed at 90 degrees). The DVL will work better when swimming at a constant flowing speed rather than stop / start procedure. If required, you can return to the surface and get a new GPS fix from the internal GPS module.

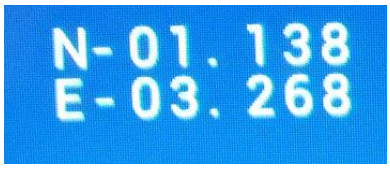




This is the raw data from the DVL - velocities Left/Right Forward/Back (X and Y)



This is converted into velocities North/South and East/West



After time, the velocities add up to give distance ....

and eventually a revised location

The Figure of Merit values give the 'quality' of the data - low values are good, high one are bad.

If the FOM values are high you will see a red square at the top - this indicates that you are not using the DVL in such a way that it can give good readings.

.

Dive thruster control (Available only when bought in conjunction with the Dive Thruster Module)

The simple page has addition functionality for controlling the Northern Diver Dive Thrusters or the Patriot 3 Jetboots.

The top left button controls the mode of the page, selection of options using the right-hand buttons.

MKR	Normal marker selection from the right hand buttons
P3/ND	Patriot 3 or ND (ND is default)
ON/OFF	Thrusters on or off
RPM	Use the right-hand buttons for faster/slower
DIR	Forward or reverse (not currently implemented)

Texting - sub sea comms (Available only when bought in conjunction with the Acoustic Modem Module)

Receiving

If the diver receives a message, it is displayed at the top of all navigation pages.

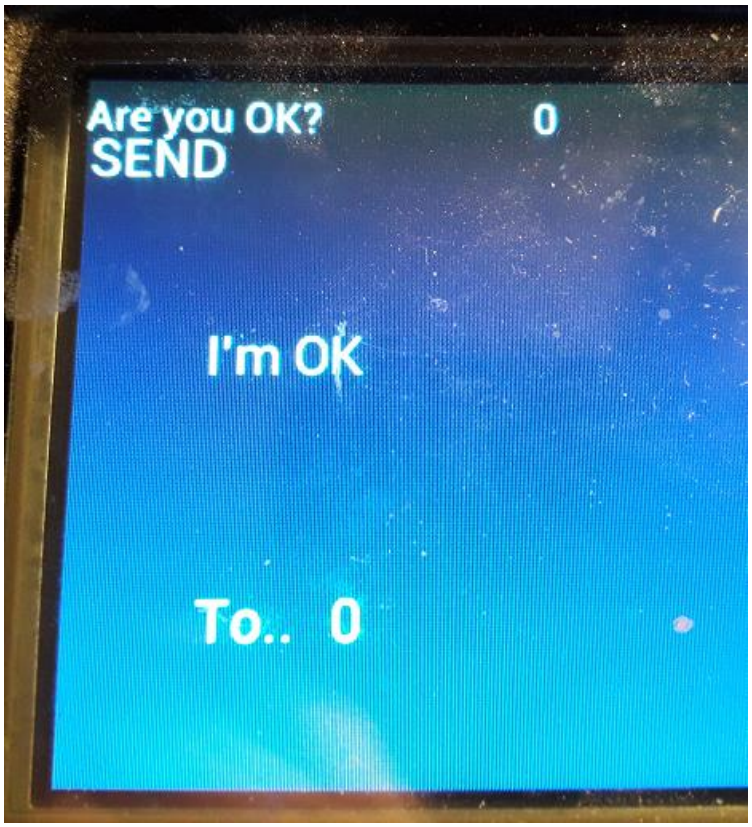
Sending

The **text page** of the Nimrod has three modes.....

MESSAGE - the user can scroll through the available messages using the RH buttons

TO - the user can scroll through the list of recipients, other consoles and the supervisor

SEND - this sends the message

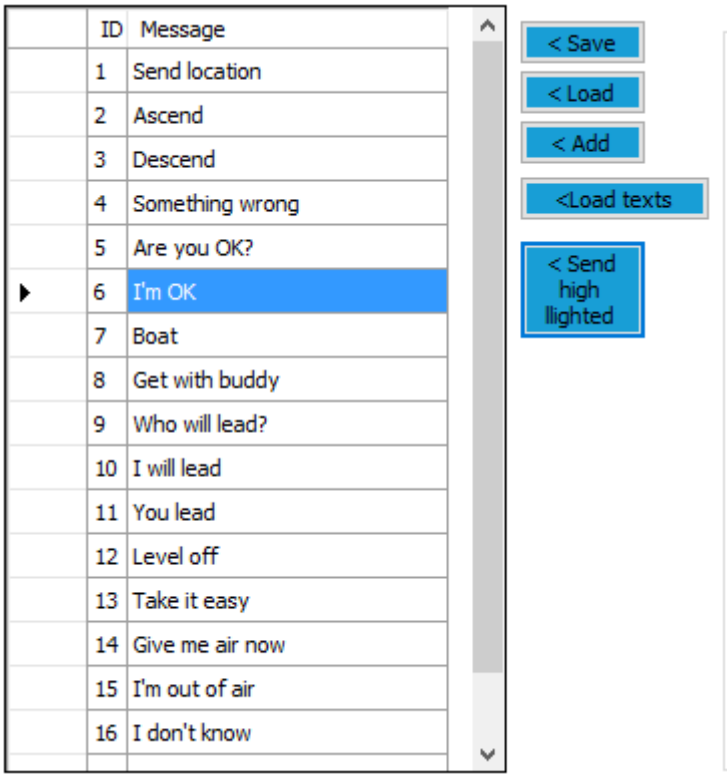


Message setup

Please note that all consoles in a team need to be configured with the same message set. This is because the messages themselves are not sent - just a reference number. In this way, the transmission lengths are shortened and the messages cannot be read by a third party.

Using the Northern Diver Mission Planning software ('Comms' page), connect to the target console using Bluetooth (see previous document) then setup the message set required and press

"< Load texts"

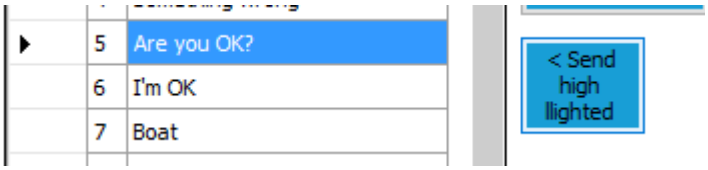


Message ID = 1 has a special function, it is used to ask a console to return its location.

Sending a message from the supervisor

Select the Nimrod console from a list of those in the group, then click on a message text to highlight it.

Press "< Send high lighted".



The message will display on the navigation pages of Nimrod - top left corner. The sender's serial number is also displayed (top centre for Classic, bottom panel for Elite). If the message is from the supervisor, the number will be 0.

Adding a user defined marker

click the top left button until ADD is displayed. (Make sure there is a GPS current point marked - white square)

press +++ and a new marker is added, marked USER!!!!

this is added to the mission

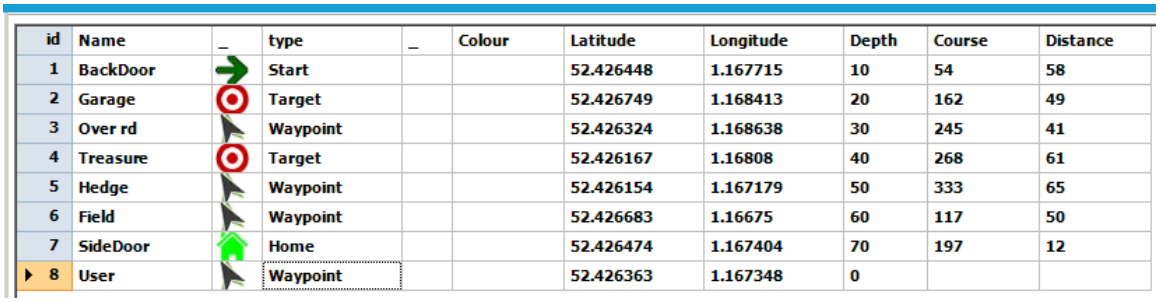
Recovering the user defined markers

Make sure Nimrod is turned on and that the Bluetooth (BT) is set to ON.

On the comms page of the windows software, make sure you are connected to Nimrod.

Press 'Get mission'

to upload the mission from Nimrod



id	Name	_	type	_	Colour	Latitude	Longitude	Depth	Course	Distance
1	BackDoor		Start			52.426448	1.167715	10	54	58
2	Garage		Target			52.426749	1.168413	20	162	49
3	Over rd		Waypoint			52.426324	1.168638	30	245	41
4	Treasure		Target			52.426167	1.16808	40	268	61
5	Hedge		Waypoint			52.426154	1.167179	50	333	65
6	Field		Waypoint			52.426683	1.16675	60	117	50
7	SideDoor		Home			52.426474	1.167404	70	197	12
8	User		Waypoint			52.426363	1.167348	0		

Naming options for the uploaded mission

If you select the original mission before the upload process, you have the option of overwriting it with the revised mission. And there is an option to save it with a filename the same as the selected mission but with a numeric extension.

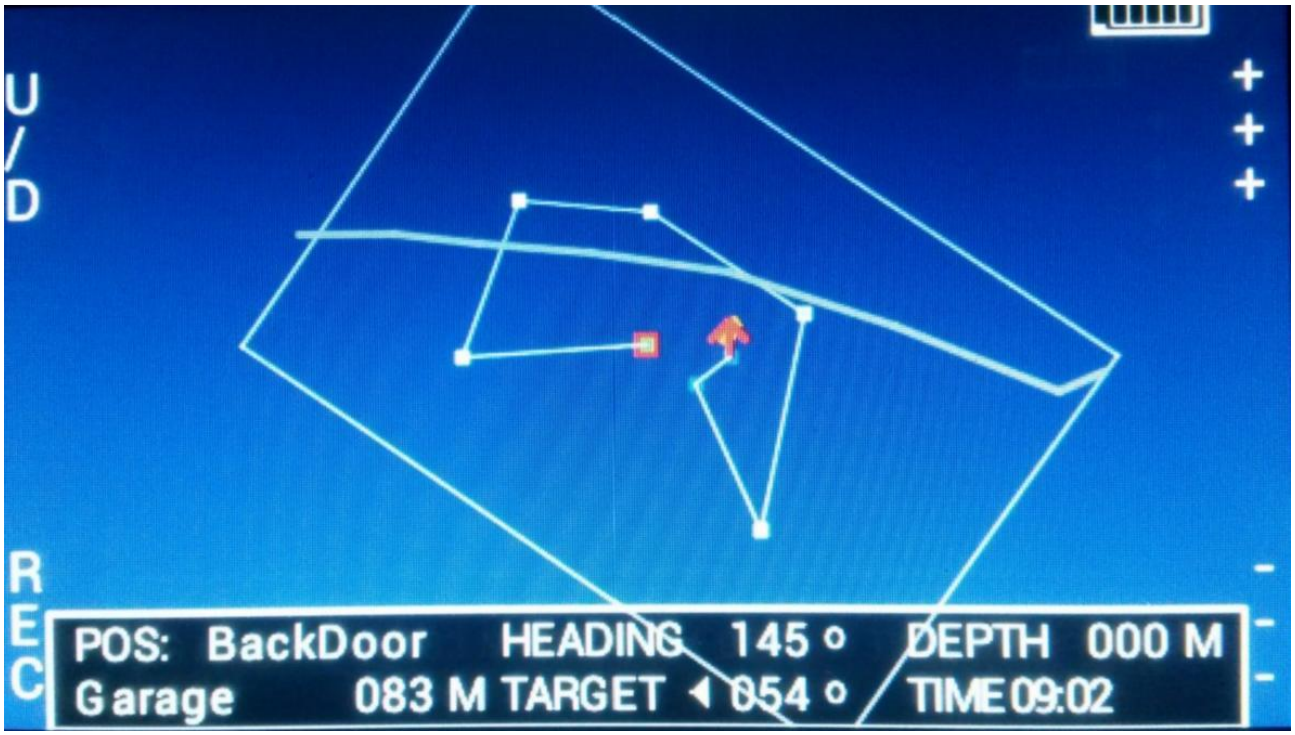
Otherwise, the software gives it a simple 'upload123' type filename.

Map zoom

Click the top left button until INC is displayed, the right hand buttons (+++ and ---) allow you to zoom the map.

Click again until U/D is displayed., The right-hand buttons (+++ and ---) allow you to move the map up and down.

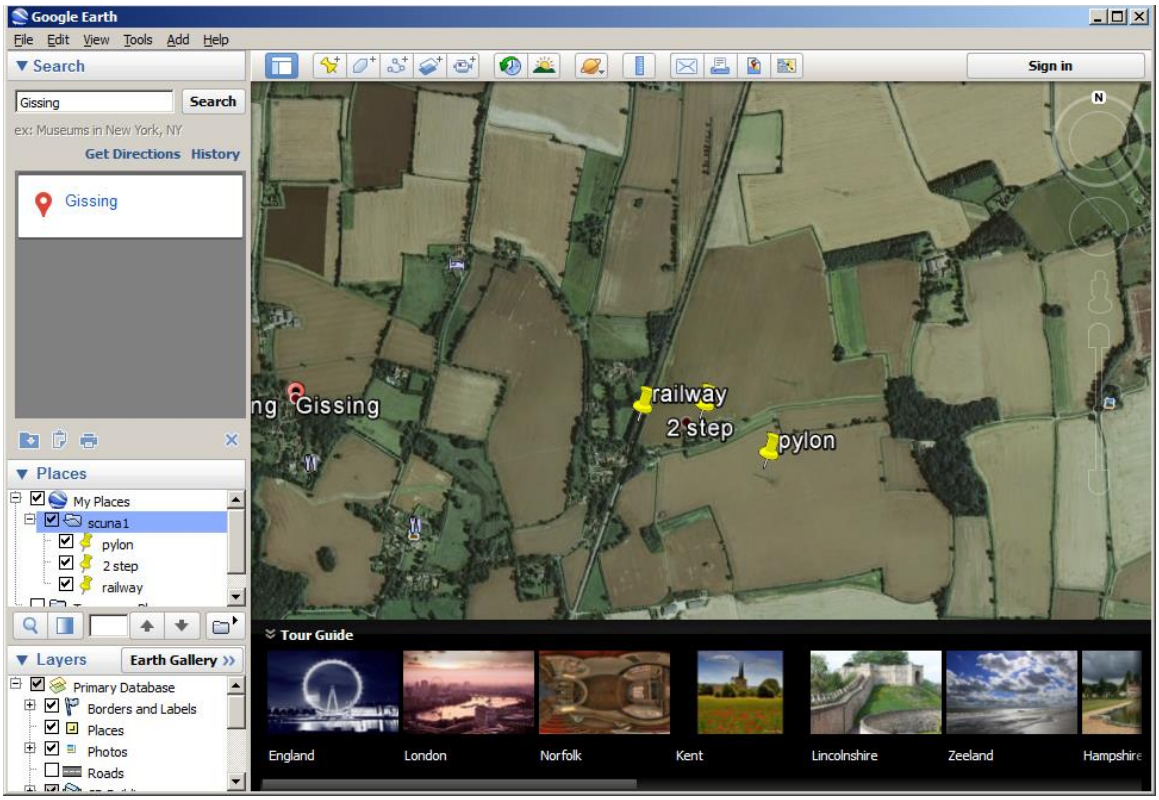
Click again until L/R is displayed., The right-hand buttons (+++ and ---) allow you to move the map left and right.



Appendix 1 Definition import

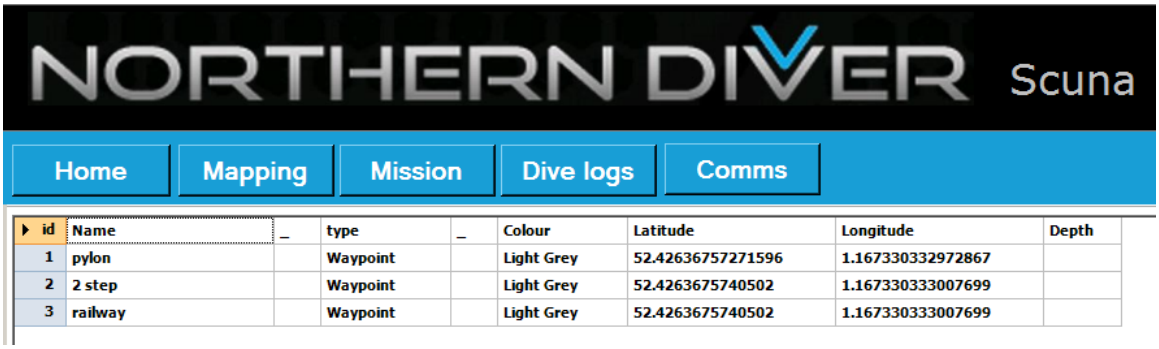
Import function for entering these items electronically.

Using Google earth to produce a KML file



KML file

.....



id	Name	_	type	_	Colour	Latitude	Longitude	Depth
1	pylon		Waypoint		Light Grey	52.42636757271596	1.167330332972867	
2	2 step		Waypoint		Light Grey	52.4263675740502	1.167330333007699	
3	railway		Waypoint		Light Grey	52.4263675740502	1.167330333007699	

APPENDIX 2 - BOOTLOADER

i Make sure you have the new firmware from Northern Diver - this is a single file called 'firmware.bin'.

ii Put Nimrod into bootloader mode - see "Bootloader Page" of this document

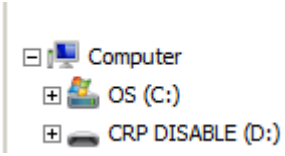
iii Power down the Nimrod.

iv Connect the Nimrod to a PC using the cable supplied. At this point DO NOT connect the cable to the host PC. (This is a standard USB 'micro' to USB-A cable.)

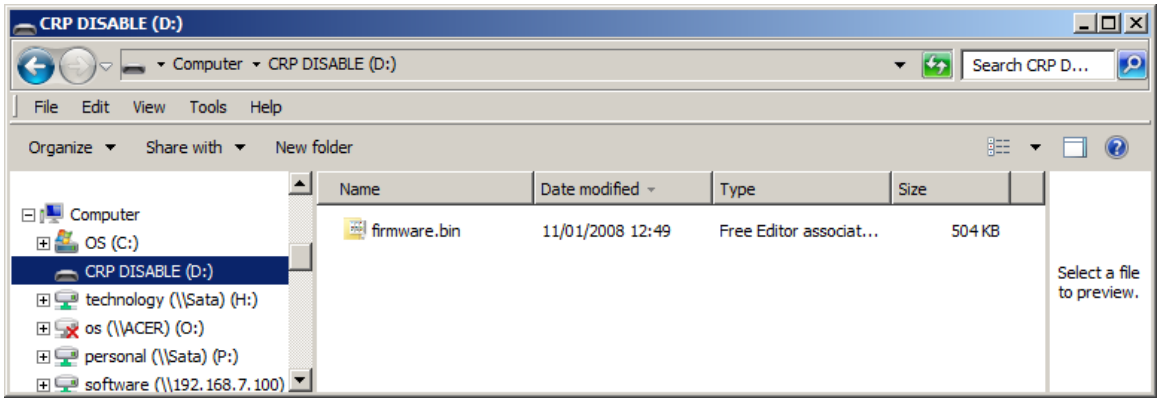
To gain access to the USB port on Nimrod, remove the small round blanking plate close to the right hand handle and insert the cable. Remember to replace the blanking plug securely before using Nimrod again.

v Turn on Nimrod in the normal way. The word BOOTLOADER will be displayed.

vi Connect the USB cable to the PC. The PC should recognise USB connection and eventually you will find an extra 'drive' in the filing system.



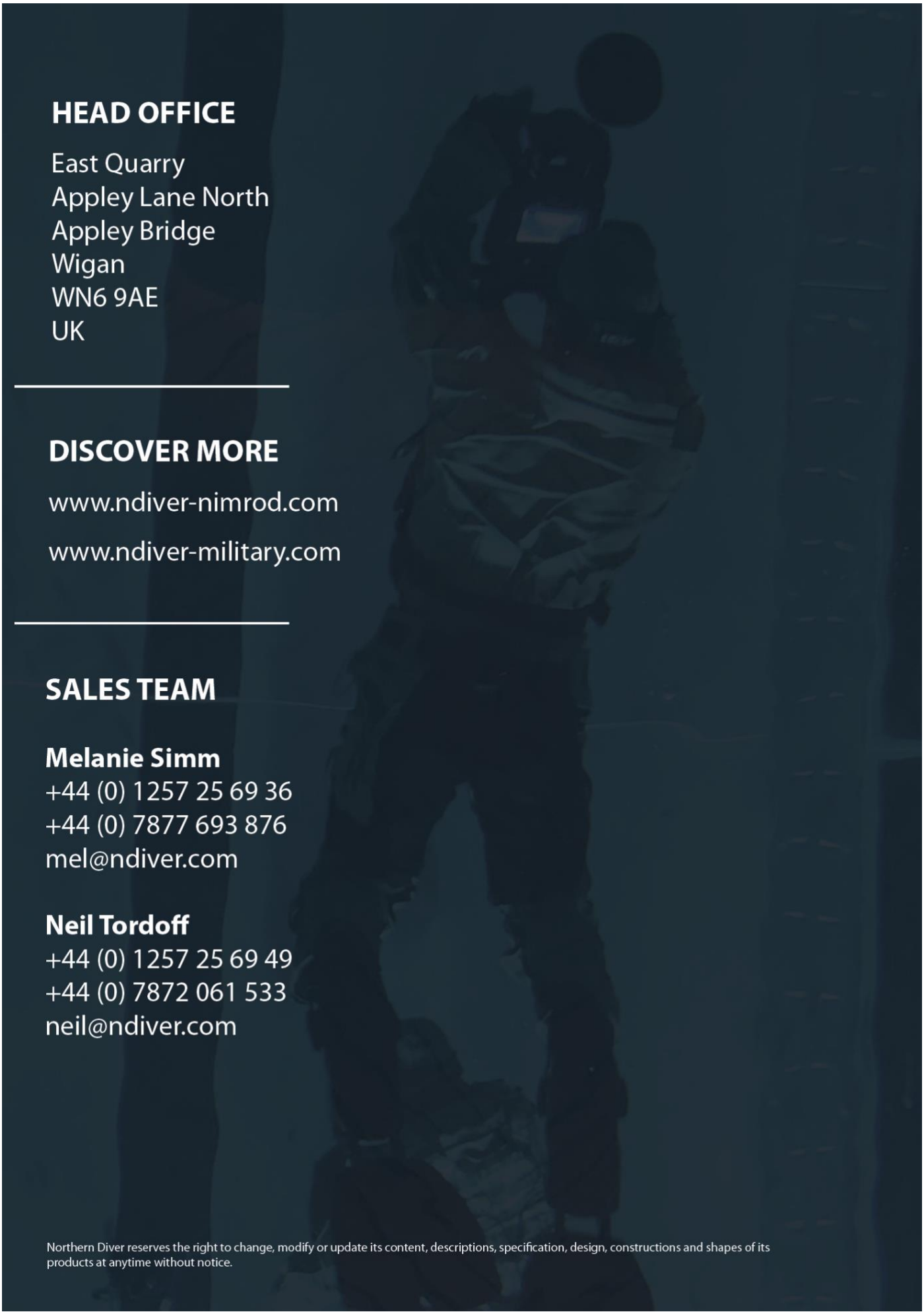
vii Open this new drive (it may not be letter d:)



viii Delete the file 'firmware.bin' from THIS drive

ix Copy the new 'firmware.bin' file that ND have sent you and 'paste' it into this drive.

x. Wait, this make take up to two minutes.



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