1. Nereus ROV Device

Revision History			
Revision	Date	Author	Comments
01A	Nov 21, 2024	G Wright	Initial release

1.1 Overview

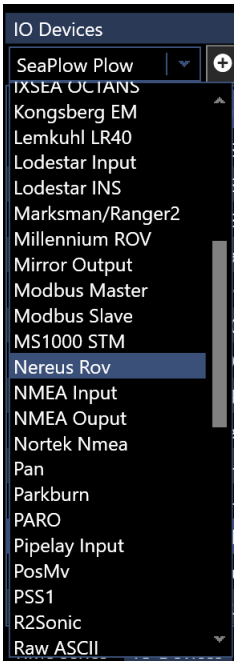
The Nereus ROV device supports input from and output to the Nereus ROV. Input and output messages are comma delimited, with the additional condition that the fields in the output message are fixed length and require leading zeros.

1.2 Message Validation

The input message is tested for valid ASCII alpha and numeric characters.

1.3 Add Device

1. From the Explorer view or Setup ribbon, select Devices to display the IO Devices
2. From the dropdown list, select Nereus ROV and click the **+** button



3. Configure the Device IO parameters and apply them accordingly (refer to the Devices section of the User Guide)

1.4 Configure Device

1. Access the Configure Nereus ROV view by either right mouse clicking on the Nereus ROV device in the list and selecting Device Settings or selecting it in the list and clicking the Configure device icon ( ) in the Device view tool bar

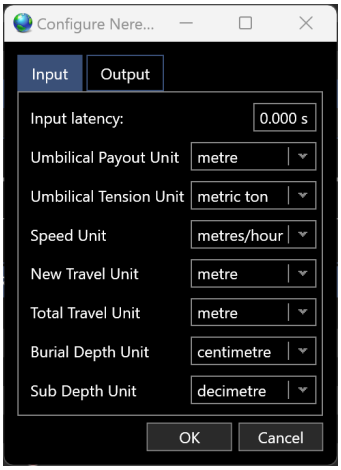


Figure 1 Nereus ROV Input Configuration

2. The configuration of the input and output are addressed on separate tabs
3. Input
    a. Input latency:
        i. If the latency of the input message is known, enter it here, otherwise leave this at 0
    b. The units used for inputs to NavView are configured on the ROV system by the ROV operator, NavView supports configuring this device to match the data accordingly
        i. From the respective dropdown list, select the units
    c. Figure 1 is an example of the settings
4. Output
    a. NavView supports the selection of the data source for each output item to provide the greatest flexibility and the units to use for the output
        i. For each output type, the respective dropdown list presents all available data sources of that type
        ii. For each output type selected, the respective dropdown list presents the appropriate unit options
        iii. From the respective dropdown lists, select the data source and units to use
        iv. Even though the output is comma delimited, each field is fixed length and includes leading zeros
        v. If the option None is selected for a data source, the respective field in the output message is al zeros
    b. Figure 2 is an example of appropriate data source selections and units

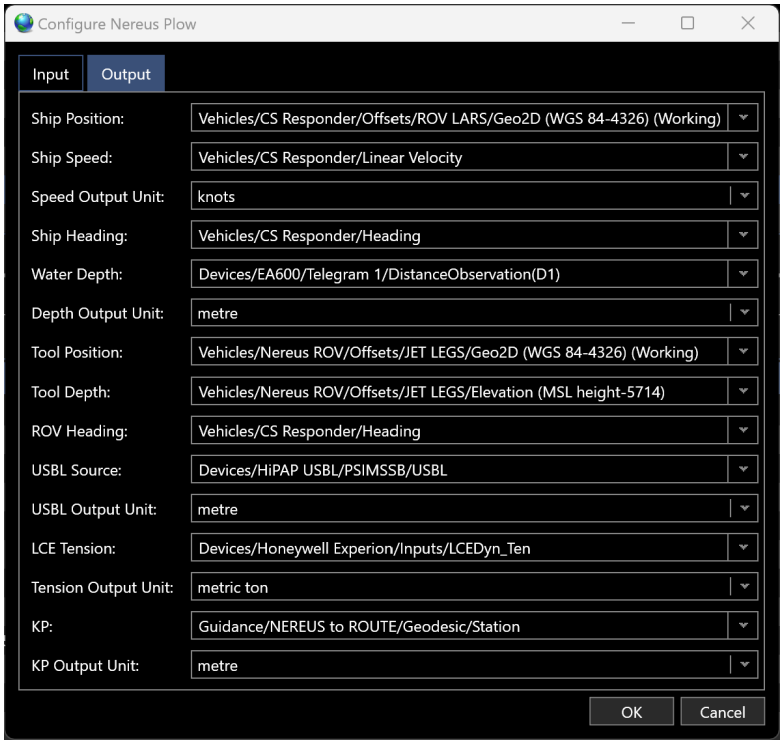


Figure 2 Nereus ROV Output Configuration

c. The output message is terminated with <CR><LF>

5. Once configuration is complete click OK

1.5 Monitoring

1. Open a Device Status view (see the Devices section in the User Guide)
2. ASCII Decode Tab

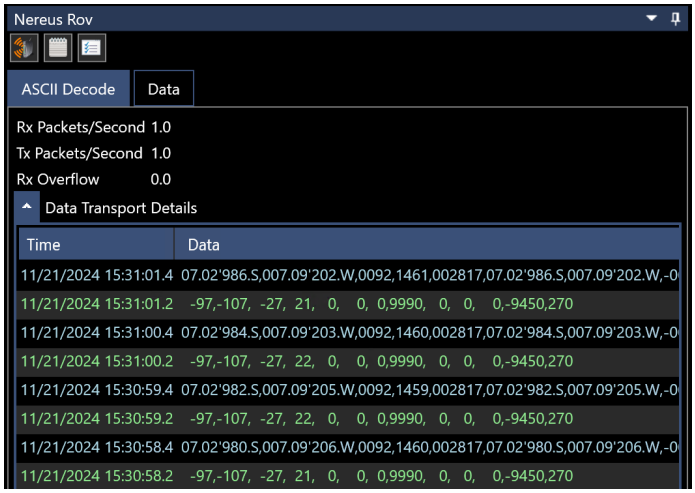


Figure 3 Nereus ROV Device Status View - ASCII Decode Tab

a. Rx Packets/Second: Displays the input rate of the received messages
b. Tx Packets/Second: Displays the output rate of transmitted messages
c. Rx Overflow: Displays the number of bytes in the case of an input buffer flow
d. Scrolling list of received (green) and transmitted (blue) messages

3. Data Tab
    a. Displays the decoded and published data

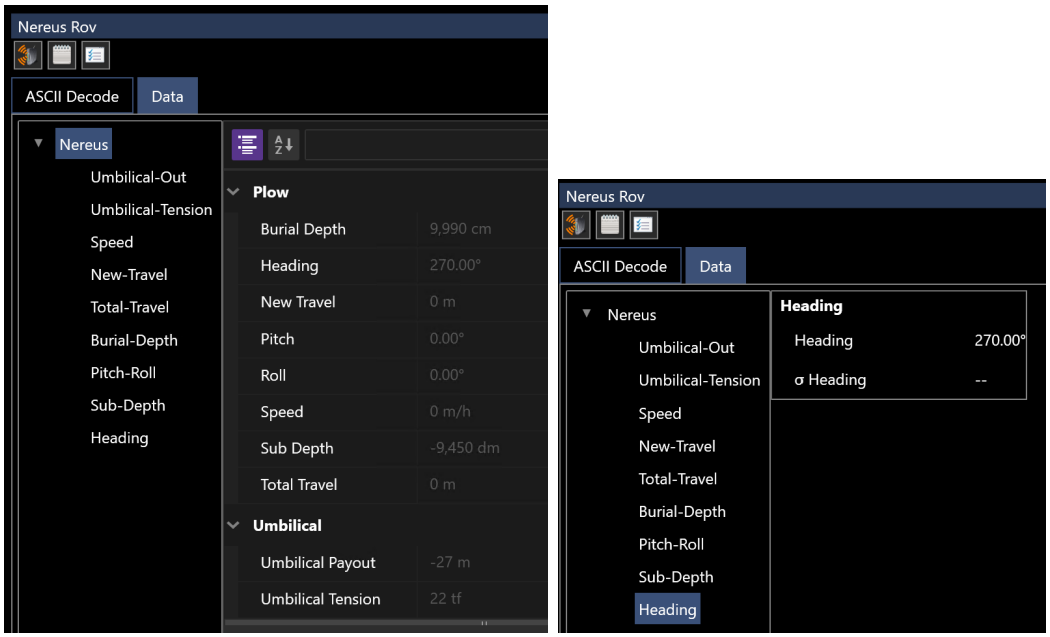


Figure 4 Nereus ROV Device Status View – Decoded and Published Data

    b. Selecting the top of the tree (e.g. Nereus) displays the decoded data in the right panel in the units and number of decimal places expected based on the documentation provided
    c. Expanding the branches in the tree (e.g., Umbilical Out, Umbilical Tension, etc.) lists the respective observation that are published and available for use elsewhere in NavView such as Text views and Data Recording

1.6 Input Telegram

Nereus ROV Message to NavView		
Field	**Format**	**Description**
1		Unknown
2		Unknown
3		ROV umbilical out (m)
4		ROV umbilical tension (tonnes)
5		ROV speed
6		ROV new travel (m)
7		ROV total travel
8		Burial depth (mm)
9		ROV roll (degrees)
10		ROV pitch (degrees)
11		Unknown
12		ROV depth (m)
13		ROV heading (degrees)
25	<CR><LF>	Carriage return Line feed

1.7 Output Telegram

NavView to Nereus ROV Message		
Field	**Format**	**Description**
1	dd.MM'mmm.H[1]	Ship latitude
2	ddd.M'mmm. H[2]	Ship longitude
3	dddd	Ship speed * 10
4	dddd	ROV reference vehicle (ship) heading * 10
5	ddddd	Water depth
6	dd.MM'mmm.H[1]	ROV jetting tool latitude
7	ddd.M'mmm. H[2]	ROV jetting tool longitude
8	dddddd	ROV jetting tool depth
9	ddd	Vehicle reference – ROV reference vehicle heading[3]
10	ddddd	USBL X
11	ddddd	USBL Y
12	ddddd	USBL Z
13	ddddd	LCE tension
14	ddddddd	ROV jetting tool KP
15	<CR><LF>	Carriage Return Line Feed

Notes:

1. Ship latitude format where:
   dd Degrees w/ leading zeros
   MM Minutes w/ leading zeros
   mmm Decimal of minutes with trailing zeros
   H Hemisphere, north = N, south = S
   Example N 3° 8.120' would be formatted to 03.08'.120.N
2. Ship latitude and longitude format where:
   ddd Degrees w/ leading zeros
   MM Minutes w/ leading zeros
   mmm Decimal of minutes with trailing zeros
   H Hemisphere, west = W, east = E
   Example W 33° 8.120' would be formatted to 033.08'.120.W
3. This term is not defined in available documentation, the user can select the heading data source as deemed appropriate, but no math is performed, and the selected heading is output as is.