

SHIPMOOR User Manual

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1. 3D session: Testing a mooring configuration

1.1. Minimum Requirements

You can use any browser from 2017 (Chrome 57+, Edge 41+, Firefox 52+, Safari 11+). Internet Explorer is too old (2013) and is not supported.

You can use <https://www.whatismybrowser.com> to check your browser version.

Microsoft Edge is installed by default on all Windows 10 computers (Start menu → type EDGE).

The recommended minimum screen resolution is 1280 (width) and 768 (height) so resolutions such as 1366 x 768 or 1280 x 1024 are fine. Higher resolutions are always more comfortable to work with.

The program can use up to about 380MB of memory.

The browser should run on a **desktop or laptop computer using a mouse**. Mobile platforms are not advisable.



It is easier to use a mouse with a middle button (wheel).

The program will be able to run on any mainstream computer equipped with a processor with integrated graphics, but the browser should have hardware acceleration activated. If the 3D visualisation shows artefacts, it is likely that the graphics driver requires updating. See Appendix 1 - Troubleshooting for more details.

If the 3D scene seems frozen, please note that the tab containing SHIPMOOR must be selected for the rendering engine to run (this is to avoid using computer resources when SHIPMOOR is not the selected tab). Clicking on the 3D scene will put the focus back on the SHIPMOOR tab and allow the program to resume.

If you have any issues with the minimum requirements, please contact us (<http://support.shipmoor.com>).

1.2. Logging in

Go to www.shipmoor.com and click on the **[MOORING ANALYSIS (3D)]** button or go directly to www.shipmoor.com/3d.

Note:

[] and **[]** refer to buttons to press.



Resizing your browser after starting your session will display scrollbars so it is recommended to maximise your browser window *before* going to www.shipmoor.com/3d (On Windows, you can press F11 to maximise your browser, on Mac click the window green button).

Log in with one of the usernames created by your company SHIPMOOR administrator. The login name should look like *user@XYZ* where XYZ is your company's allocated identifier.



Please note that the password is case sensitive so it must be entered exactly as provided.

Once logged in, select an existing **session** or a combination of berth and ship and press [Start]. Alternatively, you can enter a **session tag** (if known) along with the username and password and connect directly to the session.

A **session** is a specific case study, for a given ship and berth with defined environmental conditions and a mooring arrangement to test.



It is important to start a new session for each new case study. This makes sure that historical data remains available and is not overwritten by new cases. Mooring configurations can be copied from an old session to a new one.

A session is defined by an 8-character **session tag**, such as AYTWHLBN.

Note that you will only see the list of berths and ships that your company owns or for which access has been granted by another company. If you were expecting to see a ship or berth that is missing from the list, please contact your company SHIPMOOR administrator who can use the administration portal to email the company for which access is necessary.

1.3. Navigating in the 3D environment

To navigate, you can use the control panel displayed at the top right of the screen:

<p>Move the observer:</p> <ul style="list-style-type: none"> • left/right • forward/back • up/down 	
<p>Rotate view</p>	
<p>View from...</p>	
<p>Zoom in to selected item</p>	
<p>View keyboard shortcuts (press and hold)</p>	
<p>Display this user manual</p>	

You can also use the mouse and keyboard as described in the following sections.

1.3.1. On Windows

<p>MOUSE BUTTONS: Left - Select Middle - Move Right - Rotate</p> <p>Ctrl + Right or Shift + Right - Move</p>
<p>MOUSE WHEEL: Move the observer Fwd/Back (or use W and S)</p>
<p>KEYBOARD: WS - Move the observer Fwd/Back AD - Move Left/Right</p> <p>QE - Move the observer Up/Down (when looking at the horizon)</p>
<p>After selecting (left-click) an object: O - Off T - Translate (i.e. move) F - Focus</p> <p>Once focussed, Alt + Right Mouse Button orbits around the object.</p>

After pressing the **[F]** key or the **[FOCUS ON]** button to focus on an object, press **[Alt]** and use the right mouse button to *rotate/orbit around the object*.

If using a mouse with only 2 buttons (or a touchpad), press the left *Shift* or *Ctrl* keys and use the right button of the mouse to move (i.e., to simulate the middle button click).

If you do not have a mouse wheel available, you can zoom using the **W** or **S** keys instead. Note that *Shift* on some browsers may act as a toggle key (press once with the right button to activate, then press again *Shift* on its own to leave the "move mode" and go back to the "rotate mode"). On other browsers, *Shift* behaves in the same way as *Ctrl*.

1.3.2. On Mac

MOUSE: **Click** - Select **Space + Click** (and drag) - Move **B + Click** - Rotate

MAGIC MOUSE SCROLL: Move the observer Fwd/Back (or use **W** and **S**)

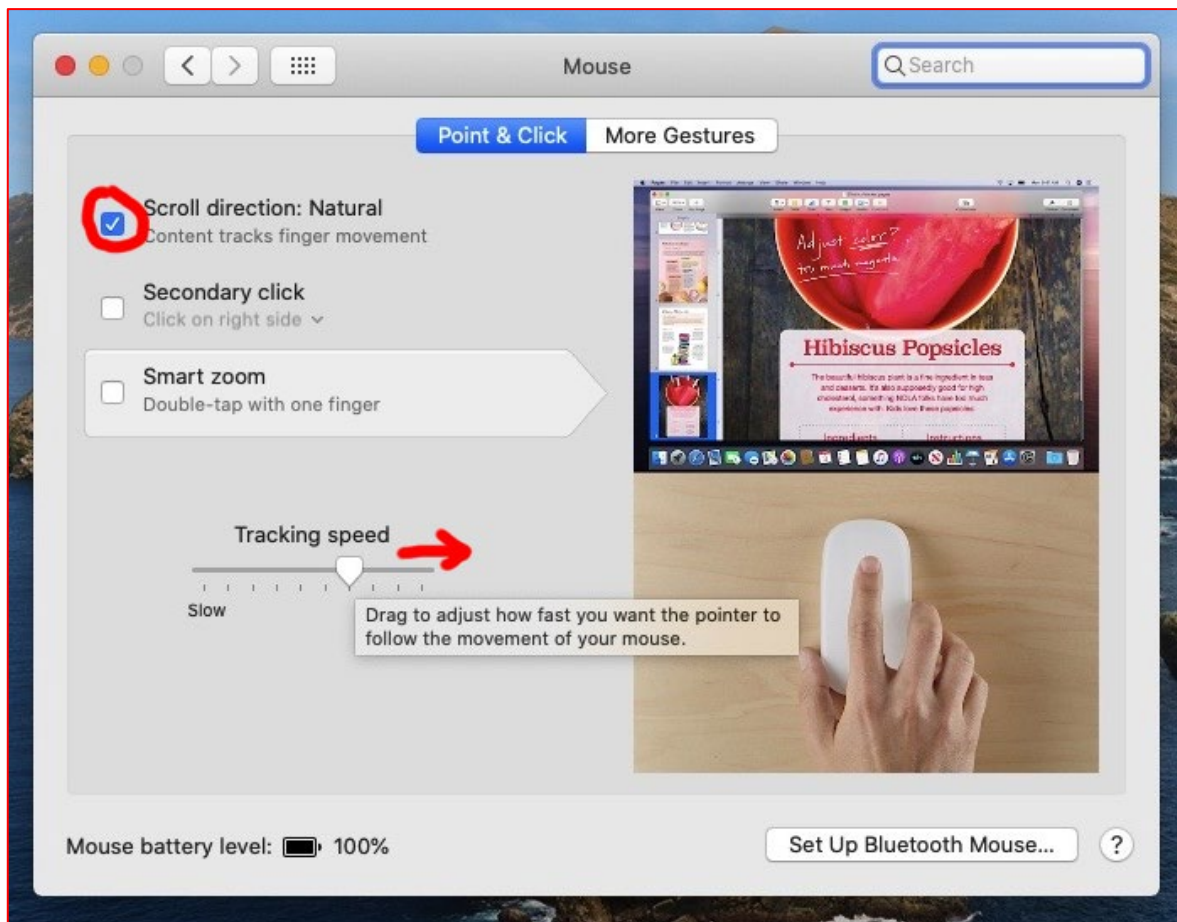
KEYBOARD: **WS** - Move the observer Fwd/Back **AD** - Move Left/Right
QE - Move the observer Up/Down (when looking at the horizon)

After selecting (left-click) an object: **O** - Off **T** - Translate (i.e. move) **F** - Focus
Once focussed, **V + Click** (and drag) orbits around the object.

Use **[Space]** and drag the mouse to move, **[B]** and drag to mouse to rotate (think as **[Space]** being the body and **[B]** the head).

After pressing the **[F]** key or the **[FOCUS ON]** button to focus on an object, press **[V]** and drag the mouse to *rotate/orbit around the object*.

You can use the Magic Mouse scroll gesture (slide up and down) to zoom in and out.



If the zoom in/out feature does not feel natural, try to adjust the *Scroll Direction* from the Mouse setup panel.

Increase the *tracking speed* if the movements in the 3D view are too slow.

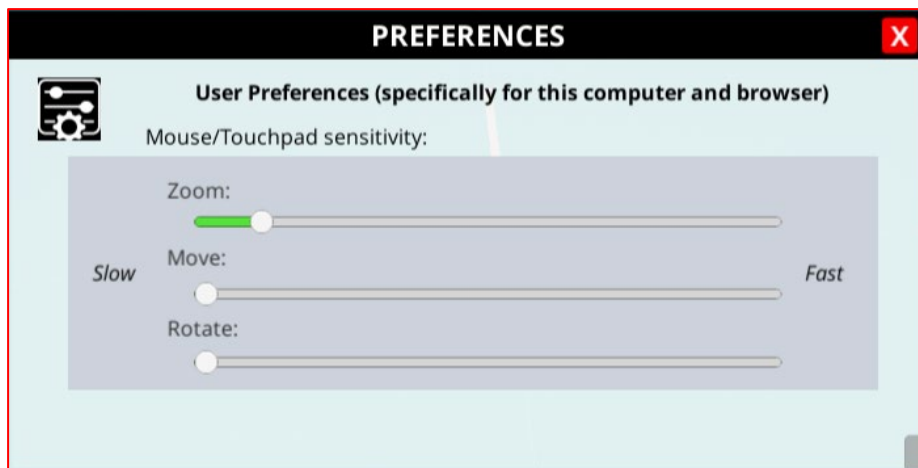
1.3.3. Preferences

The 'preferences' menu allows you to adjust the mouse or touchpad sensitivity for zoom, move and rotate functions. It can be accessed by clicking this icon in the top right of the screen:



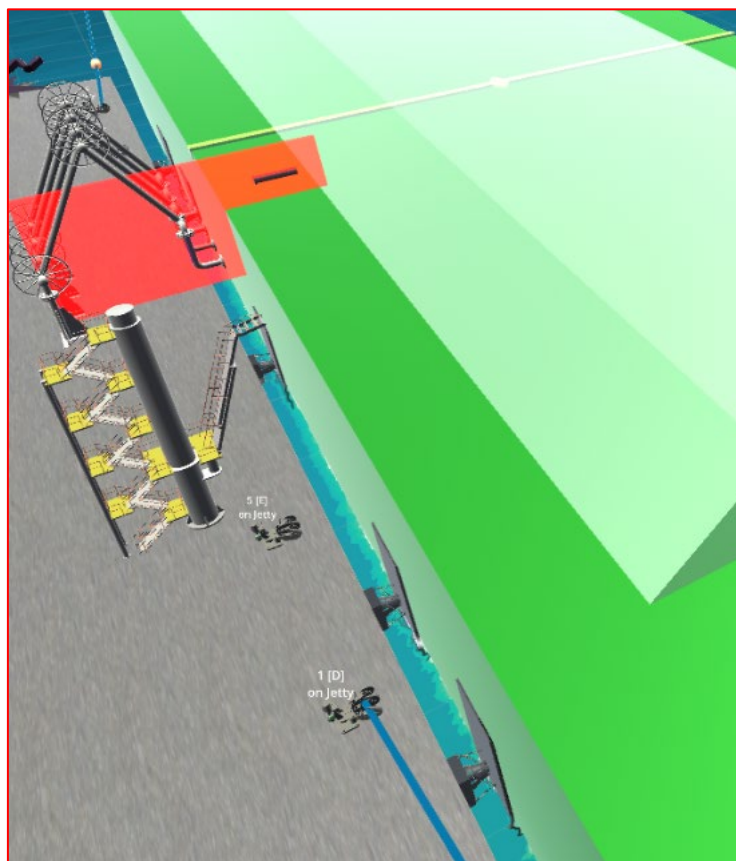
This will bring up the following dialogue box, where zoom, move and rotate functions can be adjusted to be slower or faster according to the user's preferences.

Please note that these preferences will only be applied to sessions using the same computer and browser, so may need to be adjusted again if you use a different computer or browser later.

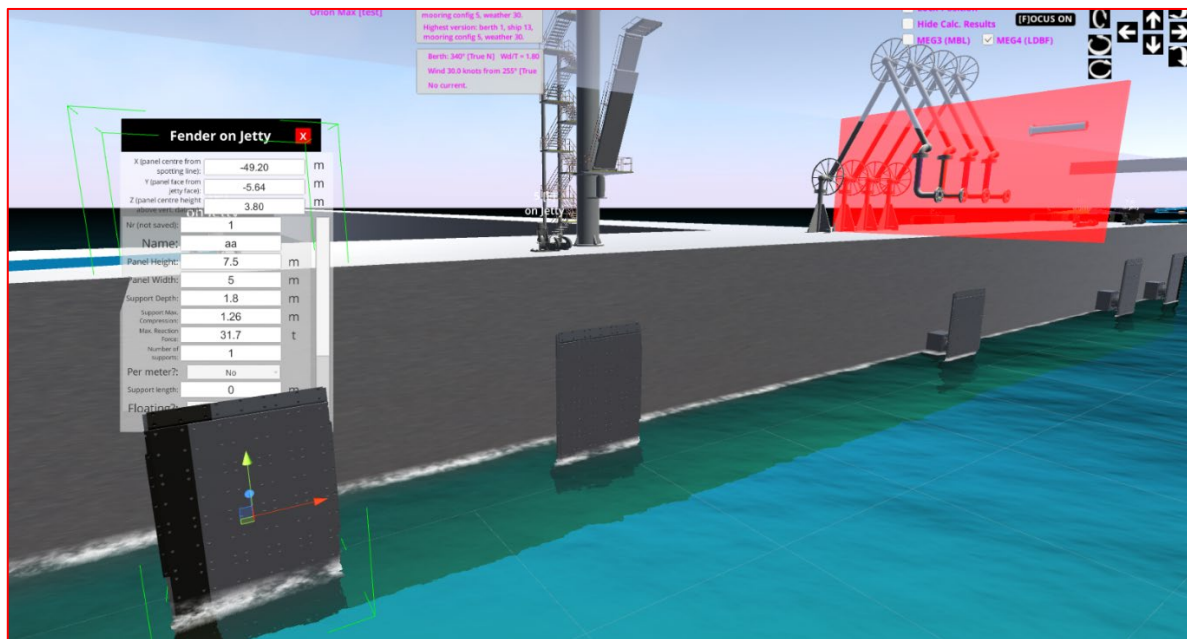


1.3.4. Dealing with obstructed or limited views

In some cases, you may find that the ship or jetty objects cause view of items like fenders and mooring points to be obstructed or limited. To overcome this, you can move the camera *inside* objects to get a better view, for instance if you want to have a better view of the fenders in the following case:



Navigating *inside* the ship's hull gives a much clearer view:



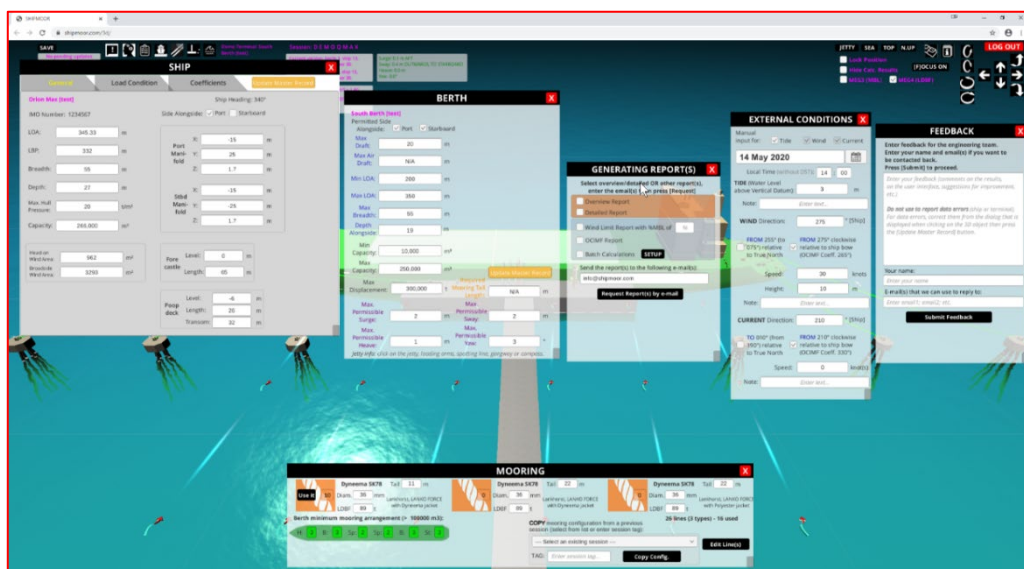
1.3.5. Moving and arranging dialog Boxes

The dialog boxes can be moved using their title bar and if necessary, the content of the boxes can be moved by dragging the dialog box panel. If you are using a smaller screen or lower resolution you may find this useful.

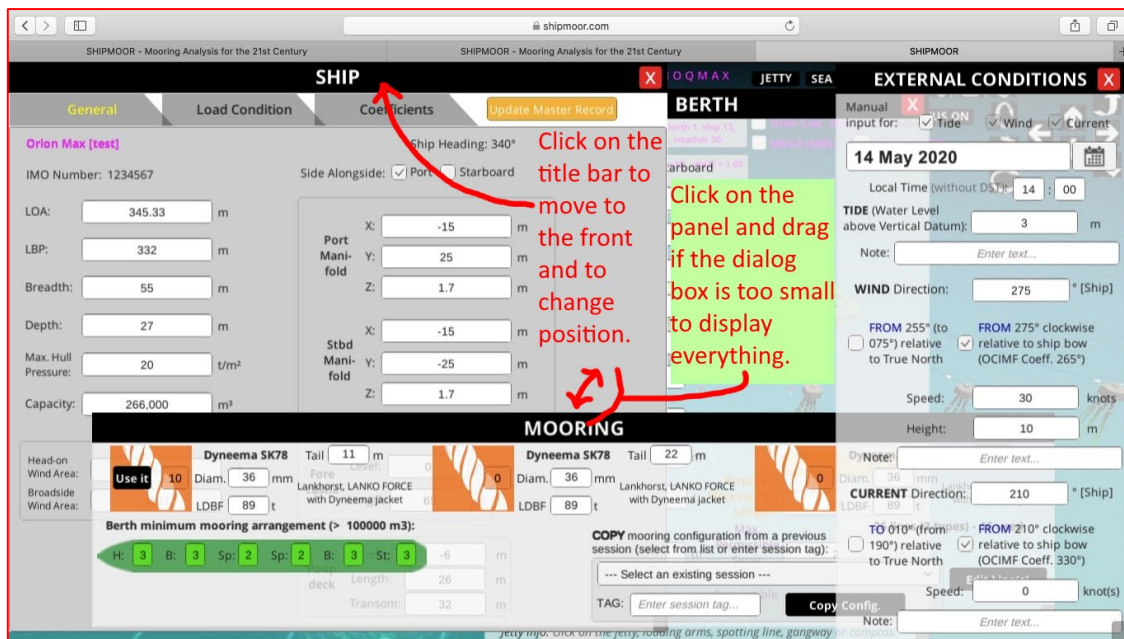
You can also resize any dialog box using the grey box at the bottom right of the window. This allows you to expand a window if it is too small or make it smaller if it is taking up too much space using a simple click and drag action.

Note that most dialog boxes remain open until you close them manually, so you can have multiple pop-up windows open at a single time.

At 1920 x 1080 resolution the windows should not overlap:



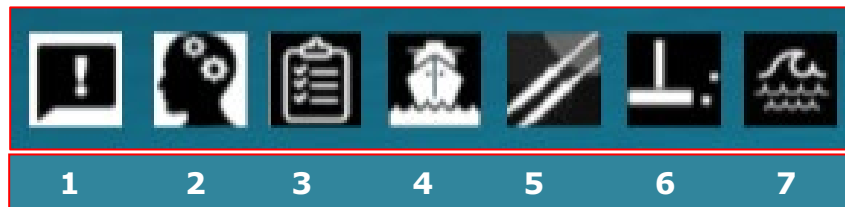
However, at lower resolutions you may need to close some dialog boxes or rearrange them as described above and shown in the image below.



1.4. Setting up parameters for an analysis

1.4.1. A guide to menu icons

Within the SHIPMOOR 3D environment are several different icons that can be clicked to access different functions and data entry pop-up boxes. The icons involved in navigating the 3D environment are located on the top right of the screen (explained in the sections above), while those involved in data manipulation and analysis functions are at the top left. The left-hand icon menu has seven icons:



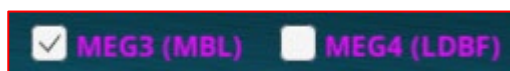
Going from left to right these icons are:

1. **Feedback** – click this icon to submit feedback to the SHIPMOOR team.
2. **Calculations** – click this icon to validate setup and run calculations to check a mooring arrangement.
3. **Reports** – click this button to set up and generate mooring analysis reports and send them to an email address of your choice.
4. **Ship parameters** – click this button to view and adjust ship parameters, including dimensional data, load conditions and coefficients.
5. **Mooring** – click this button to add and edit mooring lines in the current mooring arrangement or copy an existing mooring arrangement from another session.
6. **Berth** – click this icon to view and edit general berth data for the current session.
7. **Environment** – click this button to enter or adjust external conditions, including date, current and wind information.

1.4.2. MEG3 or MEG4 analysis

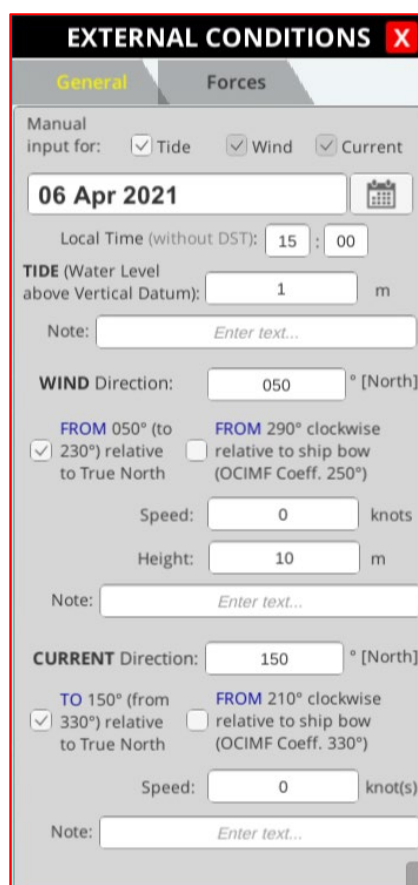
At the top right of the SHIPMOOR screen, there are two checkboxes that affect analysis. These allow you to select whether you wish to run calculations based on MEG3 or MEG4 standards, as set out in the respective editions of OCIMF's Mooring Equipment Guidelines. This selection determines whether the program uses MBL or LDBF values for mooring line calculations and helps the user to ensure the correct coefficient sets are selected for wind and current.

The MEG version is selected from the top right toolbar as shown below:



1.4.3. External Conditions

External conditions (date, local time and tide level, wind, current if non-zero and any forces from tugs, bank effects etc.) must be set before running your calculations. To start setting up the external conditions for your mooring analysis, click on the 'External Conditions' icon at the top left of the screen, which will bring up a data entry pop-up box with two tabs. The 'General' tab is used to enter date, wind, current and tide.

A screenshot of a software dialog box titled 'EXTERNAL CONDITIONS' with a red 'X' close button. The dialog has two tabs: 'General' (selected) and 'Forces'. Under the 'General' tab, there are several input fields and checkboxes. At the top, 'Manual input for:' has three checked checkboxes: 'Tide', 'Wind', and 'Current'. Below this is a date field set to '06 Apr 2021' with a calendar icon. A 'Local Time (without DST):' field shows '15 : 00'. A 'TIDE (Water Level above Vertical Datum):' field is set to '1' m. There is a 'Note:' field with a placeholder 'Enter text...'. The 'WIND' section has a 'Direction:' field set to '050' ° [North]. Below it, there are two options: 'FROM 050° (to 230°) relative to True North' (checked) and 'FROM 290° clockwise relative to ship bow (OCIMF Coeff. 250°)' (unchecked). The 'Speed:' field is set to '0' knots, and the 'Height:' field is set to '10' m. Another 'Note:' field with a placeholder 'Enter text...' is present. The 'CURRENT' section has a 'Direction:' field set to '150' ° [North]. Below it, there are two options: 'TO 150° (from 330°) relative to True North' (checked) and 'FROM 210° clockwise relative to ship bow (OCIMF Coeff. 330°)' (unchecked). The 'Speed:' field is set to '0' knot(s). A final 'Note:' field with a placeholder 'Enter text...' is at the bottom.

If Dynamic Calculations are enabled, a new tab will appear in the external conditions window. For more information see [Section 1.6.6](#).

At present the checkboxes for manual input of wind and tide are always selected because automatic filling of these sections is not yet supported. However, the tide checkbox can be set to either manual or automatic input. You will only be able to manually enter a tide value if the manual input box is checked, otherwise this field will not be editable.

If you hover over the input field for the tide value, the LAT and HAT will be entered. Positive values are above vertical datum and negative values are below vertical datum. If LAT is used as the vertical datum this will be indicated as "VD is LAT".

EXTERNAL CONDITIONS X

General Forces

Manual input for: ☐ Tide ☒ Wind ☒ Current

26 Apr 2021

Local Time (without DST): 14 : 27

TIDE (Water Level above Vertical Datum): 0.397 m

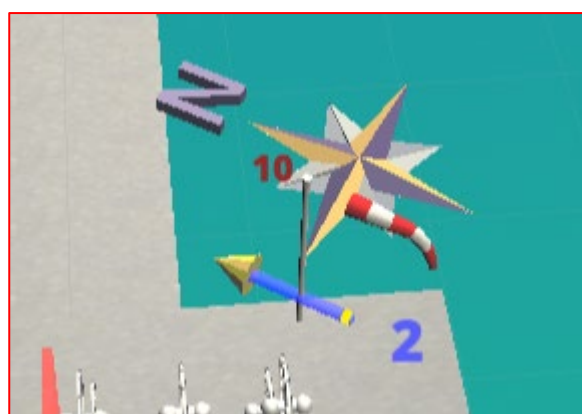
Note: VD is LAT
HAT is 4.8 m

WIND Direction: 210 ° [North]

Take care when entering the values, you wish to use for wind, current and tide, noting that the wind speed must be entered for the standard height of 10m.

Note that to enter the current and wind directions relative to the ship's bow instead of relative to North, you should first check the box next to that statement and then enter the direction in the relevant box.

To save these conditions, you must click the 'SAVE' button at the top left of the main SHIPMOOR screen. When the external conditions dialogue box is closed, the wind and current conditions can be seen on the jetty, represented by a windsock and a directional arrow respectively.



The 'Forces' tab allows you to enter other external forces that have specific magnitudes and positions, such as tugs pushing the ship or a bank effect in constricted waterways.

1.4.3.1. *A note on calculating current and wind velocity for MEG4 standards*

MEG4 states that “wind velocity is the velocity measured at the standard height of 10m above ground or water surface and is representative of a 30 second average mean velocity. The selection of the 30 second wind is based on the time it takes the forces in a mooring system to respond to wind velocity changes (30 seconds is a typical value for a large tanker). Smaller ships will respond more quickly than a fully laden VLCC, which may require longer to respond. However, for consistency a 30 second average period has proven to be an effective and uniform standard for all ship sizes and loading conditions.”.

The 30 second average mean wind speed must be converted to 10m height using the most appropriate formula which depends on the local terrain configuration.

The general formula (below) does not account for the roughness of the surface, the displacement of calm winds from the surface due to the presence of obstacles or the stability of the atmosphere.

$$\text{Wind Speed (10m, in knots)} = \text{Wind Speed (at height, in knots)} \cdot \left(\frac{10}{\text{Height}} \right)^{1/7}$$

MEG4 also states that “the current velocity is the average velocity over the draught of the ship.”.

1.4.4. Ship parameters

1.4.4.1. *Introduction*

Most details of ship conditions are pre-populated from the ship template, but there are a few things you will need to add (or may wish to change) before you can run an analysis (e.g., load condition).

Ship details can be viewed by selecting the ‘ship’ icon at the top left of the screen:



This will bring up the ‘ship conditions’ pop-up box where you can view and change three sets of values:

1. General ship data
2. Load condition
3. Wind and current coefficients

1.4.4.2. *General ship data*

General ship data will be automatically populated based on the ship dimensions entered in the ship’s record, though you may wish to change which side of the ship is alongside. Note that even though the data are pre-populated, you may change any value for your personal use in an individual mooring session without affecting the master data.

Session-specific changes can be made by editing the values in the ‘General’ tab of the ‘ship conditions’ pop-up window:

SHIP X

General
Load Condition
Coefficients
Update Master Record

160,000 m³ Membrane LNG template

IMO Number: TP20725

Ship Heading: 147°

Side Alongside: ☒ Port ☐ Starboard

LOA: m

LBP: m

Breadth: m

Depth: m

Max. Hull Pressure: t/m²

Capacity: m³

Port Manifold

X: m

Y: m

Z: m

Stbd Manifold

X: m

Y: m

Z: m

Head-on Wind Area: m²

Broadside Wind Area: m²

Fore castle

Level: m

Length: m

Poop deck

Level: m

Length: m

Transom: m

From this window you are also able to view two pdf reports by clicking on the relevant icons (just under the 'coefficients' tab):

1. **Ship data file.** If you click on the clipboard icon you can open a pdf of the vessel report. This is a document allowing you to view all the ship data for the ship used in the current 3D session. This includes details of any quality notes or comments, mooring line data, coefficients, and deck plans.
2. **Ship change log.** Clicking on the icon showing a rectangle with two circling arrows in the corner brings up the change log for the ship in use in the current 3D session. This pdf report gives details of all changes that have been made to the ship's data, including dates of changes and the name of the user who made those changes. Change details shown include values of specific data both before and after the change has been made. Any pending changes for a ship or terminal will also be viewable in the change log.

1.4.4.3. Load Condition

If there is more than one valid load condition, the appropriate load condition must be selected before performing any calculations. Loaded or ballast condition can be selected from a dropdown list. The other values in this box will update automatically once a condition has been selected.

SHIP

General
Load Condition
Coefficients
Update Master Re

LOAD CONDITION:

Fully laden
▼

Ballast And Heel
☒ Fully laden

Fully laden

Draft: m

Trim: m

Displacement: t

Block Coef:

CoGx: m

CoGy: m

CoGz: m

GMx: m

GMy: m

GMz: m

lxx: t.m²

lyy: t.m²

lzz: t.m²

Wind Force Front

X: m

Y: m

Z: m

Wind Force Side

X: m

Y: m

Z: m

Approximations calculated for this section (i.e., inertia, windage z-values and block coefficients) are valid for standard LNG carriers (Moss/membrane). Typical physical and realistic value limits for ship parameters used in SHIPMOOR calculations are summarised in the table below:

Parameter	Physical limit	Realistic limit (LNGC)	Comment
CB	Range 0 to 1	0.5 to 0.9	
COG X	Within ship +/- Lpp/2	+/-10% Lpp	Values beyond these limits would imply unusual loading conditions that would probably violate numerous other assumptions
COG Y	Within ship +/- B/2	0 (maybe +/-5% B at a push – but would imply a static heel angle)	
COG Z	Within ship +ve	0.5×Draught to 3.0×Draught	
GMT (roll)	none	+ve (typically several metres)	GMT value should be much smaller than GML value.
GML (pitch)	none	+ve (typically several hundred metres)	
Wind Z	In exposed area:	Draught < Z < Beam	Beam used as an approximate keel to cargo tank top measurement
	Draught < Z		

Note: Please contact us if you would like to discuss this further or check the validity for a different type of ship.

1.4.4.4. Wind and Current Coefficients

The 'coefficients' tab allows you to select the wind and current conditions from a drop-down list of options containing pre-populated coefficient sets. The user can select any set of wind or current coefficients that has been made available for the ship by the data owner. The program will highlight in red any coefficient sets that do not match the MEG version that has been selected but will not prevent the user from selecting these options if required.

SHIP

General Load Condition **Coefficients** Update Master Record

WIND COEFFICIENTS:

MEG ✓ MEG4 SIGTTO 2007 Prismatic

MEG4. LNG Carrier.

The wind coefficient values are based on a comprehensive set of wind tunnel tests conducted on prismatic and spherical gas carriers for SIGTTO's Prediction of Wind Loads on Large Liquefied Gas Carriers (2007).

Model tests covered the following sizes:
Prismatic 75,000, 135,000 to 155,000, 210,000 and 260,000m³

Applicable from ballasted to fully laden. Zero trim assumed.

No specific draft validity indicated.

No specific Wd/T validity indicated.

CURRENT COEFFICIENTS:

MEG ? MEG3 Tanker Ballast 1.5

MEG ? MEG3 Tanker Ballast 1.3

✓ **MEG** ? MEG3 Tanker Ballast 1.5

MEG ? MEG3 Tanker Laden 1.1

MEG ? MEG3 Tanker Laden 1.2

MEG ? MEG3 Tanker Laden 1.5

MEG ? MEG3 Tanker Laden 3.0

MEG ✓ MEG3/4 Tanker Laden 6.0 and over (deep water)

MEG ✓ MEG4 LNG Carrier 1.05

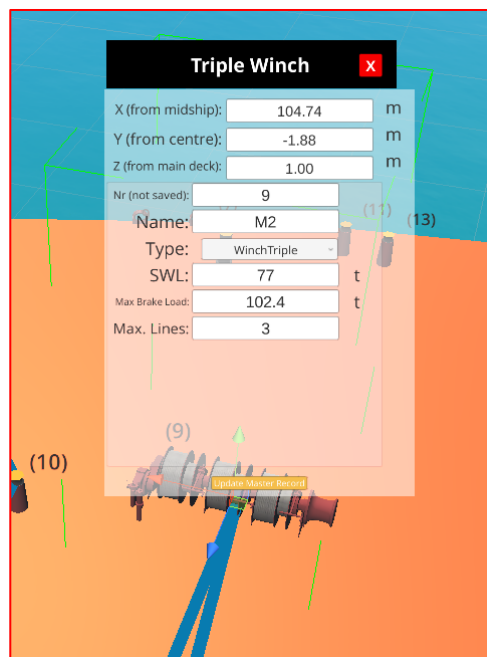
CAUTION: incorrect MEG version?

Ship draft is 9.2 m Wd/T = 1.74

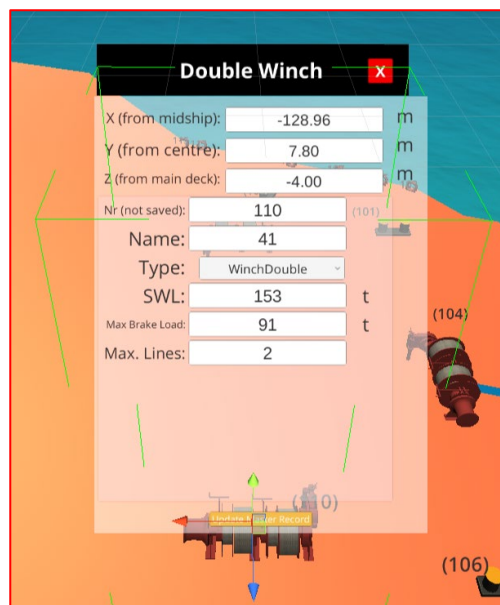
The Wd/T ratio for the current coefficients should be selected based on the Wd/T of the mooring configuration being considered. The most conservative case would be to select the next lowest Wd/T ratio. However, due to the non-linear nature of the current coefficient curves, this could lead to significantly higher current loads. For example, in the case of a Wd/T ratio of 1.28, it would be more appropriate to select a Wd/T ratio of 1.3 compared with 1.1.

1.4.4.5. Direct edit of 3D objects

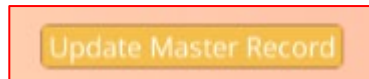
Ship moorings and fairleads can be updated directly in the 3D environment by selecting the relevant 3D objects using the left mouse button. This will bring up the item's properties in a pop-up box which can be edited, as well as highlighting the object in a green box:



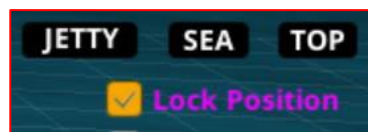
Initially, this may appear too small to be of use, but if you press [F] or click on **[FOCUS ON]** you can focus on a 3D object after selecting it (using a left mouse click), which will zoom in to a point where the data entry boxes are clear.



Any data can be edited here for use in the current session, but changes will not be made to the master data unless you click the yellow box at the bottom of the pop-up box to 'Update Master Record'. Clicking this button will send the data owner a request to make the changes permanent for all users and should be used if you discover any data you believe to be incorrect.



You can use the red, blue, and green arrows to move the 3D object along the X, Y and Z axis. To do this, click on the arrow pointing in the direction you wish to move the object and then drag the mouse to position it. To prevent these arrows from appearing, select **Lock Position** on the top right toolbar:



Note that you can edit 3D objects from the dialog box (for instance, change the type or name) but you cannot add or delete them. This must be done by your company SHIPMOOR administrator or the data owner. See [Section 1.8](#) for more information about submitting a change request.

1.4.5. Berth

You can view a selection of berth details for the current mooring analysis session by selecting the 'berth' icon in the top left menu:





This will bring up a data entry box like the one below:

BERTH

LNG Berth

Minimum beam: 40.00 m
Minimum Parallel Body Length (PBL): 120.60 m

Permitted Side
Alongside: ☒ Port ☐ Stbd



Max Draft: m

Max Air Draft: m

Min LOA: m

Max LOA: m

Max Breadth: m

Depth Alongside: m

Min Capacity: m³

Max Capacity: m³

Max Displacement: t

Max. Permissible Surge: m

Max. Permissible Heave: m

Required Mooring Tail Length: m

Max. Permissible Sway: m

Max. Permissible Yaw: °

Update Master Record

Either wire or HMPE. Polypropylene ropes/tails are not acceptable

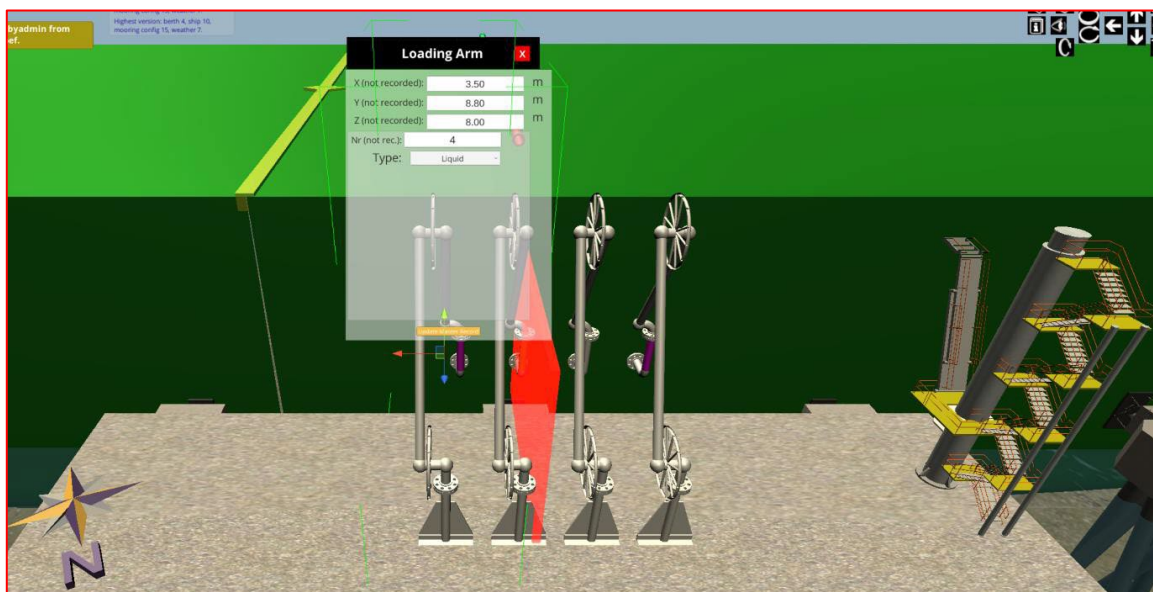
Jetty info: click on the jetty, loading arms, spotting line, gangway or compass.

Any data shown here can be changed for the current 3D session, but the master data will not be affected by these changes unless the user submits a change request to the data owner (see [Section 1.8](#)).

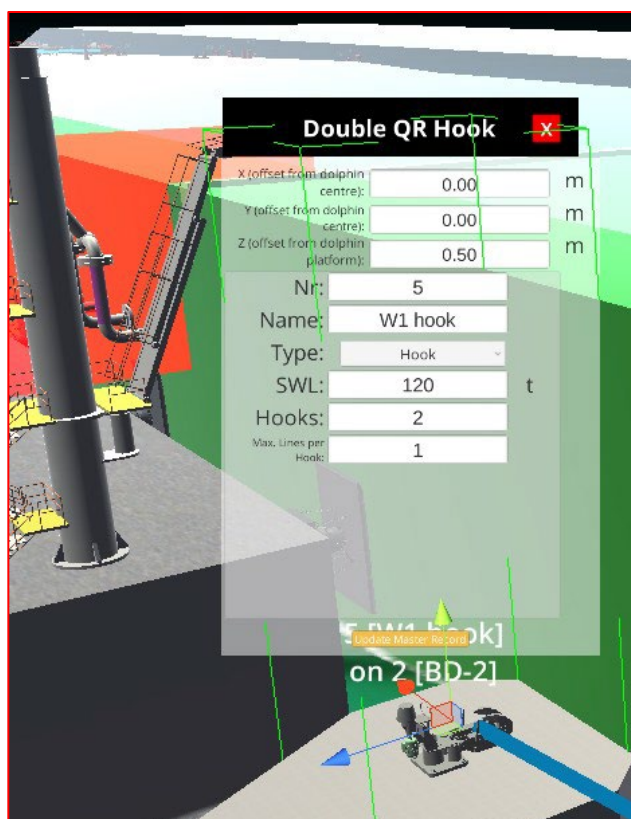
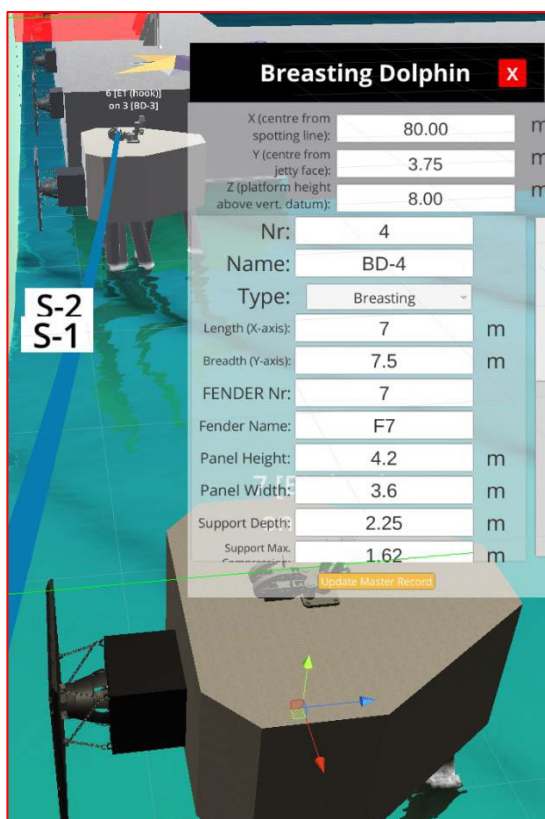
You can view the complete berth data by clicking on the clipboard icon in this box and see a history of all berth changes (the 'change log') by clicking on the icon showing a rectangle


with two circling arrows in the corner. Any pending changes for a ship or terminal will be viewable in the change log. Both buttons will open a pdf report in a new browser tab.

General berth details can also be changed by clicking on the jetty, loading arm, spotting line, gangway, or compass. This will allow you to edit the objects individually in pop-up boxes.



Dolphins, fenders, and hooks/bollards can also be updated by clicking on them.



 You can edit 3D objects from the dialog box, but you cannot add or delete them. This must be done by your company SHIPMOOR administrator or the data owner in the admin portal. See [Section 1.8](#) for information on how to submit requests to modify the master data, for approval by the data owner.

1.4.6. Mooring Configuration

To edit the mooring configuration, click on the mooring icon at the top of the screen:



This brings up the following input box:

It shows:

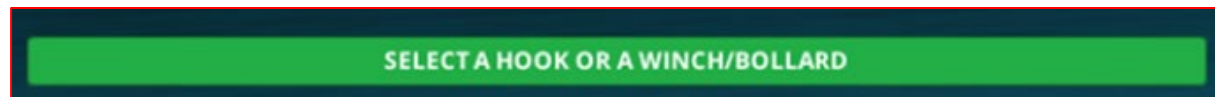
- How many lines are available for use (next to the 'Use it' button) and what type of lines they are.
- Any minimum mooring requirements specified by the terminal (green ship outline). If a terminal has not specified either a total number of lines or a minimum configuration, the relevant box(es) will display in grey. Note that the minimum requirements are for information only and a mooring analysis can be run even if the requirements are not met.
- The option to copy an existing mooring configuration from another session (see [Section 1.4.6.1](#)).
- How many lines are currently in use and the total number available on board.

To add mooring lines directly within the session first select the line type you want to use by clicking on it and then click 'Use it':



Note that the number to the right of the 'Use it' button shows the number of lines of this type remaining. If this number is zero, you will not be able to add this type of line until you have deleted one from use elsewhere.

After clicking 'Use it', this message will appear:

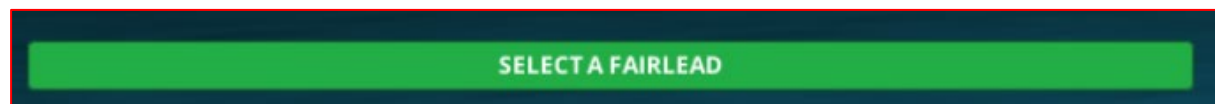


You can now left click on any winch or hook to select it. The selected mooring point will be highlighted with a green box:



Please note that if you have not clicked the 'Use it' button to add a line, clicking on a mooring point will bring up its properties and not select it for use.

After selecting either a mooring hook or winch, you will be prompted to select a fairlead:

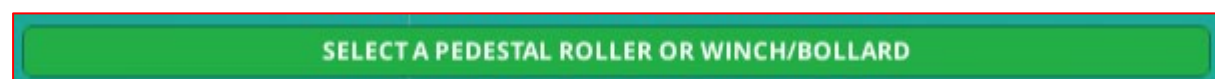
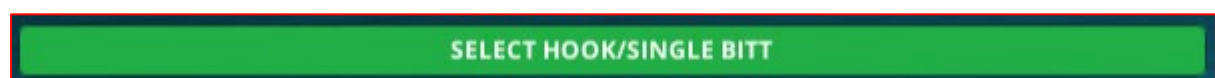


Suggested fairleads will be highlighted in blue:



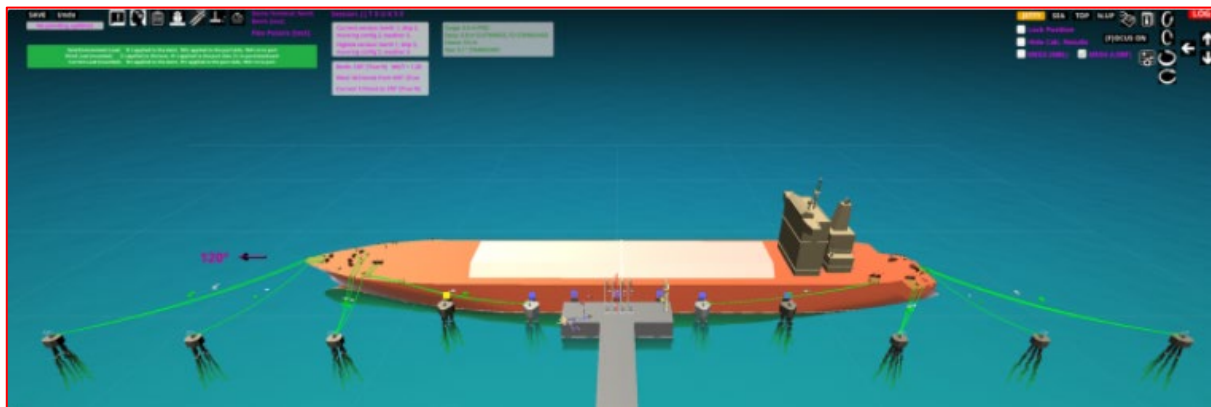
Left click on the desired fairlead to select it. If you wish to zoom in to see the ship's deck more clearly you can do so with the mouse wheel/middle button (click and drag to move, scroll to zoom). Note that clicking on anything other than a fairlead at this point will reset your selection.

Finally, you will be prompted to 'select a pedestal roller or winch/bollard' if you began with the mooring hook, or 'select hook/single bitt' if you started by selecting a mooring point on the ship.



Left click on the desired winch/hook to fix the line to that point and this will complete the addition of the mooring line. This process can be repeated (i.e., click 'Use it' again to start adding a second line) until you have all desired lines added.

At this point your 3D view should show something like this:



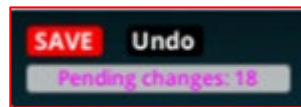
You can cancel the process of adding a line at any time before completing the final step by clicking 'Cancel adding mooring line':

A software interface for adding a mooring line. It features a 'Use it' button with a '3' next to it. Below this, it shows 'Dyneema' with a 'Tail' of '11 m', 'Diam.' of '36 mm', and 'LDBF' of '93.1 t'. The material is identified as 'Samson, Amsteel-Blue'. A section titled 'Berth minimum mooring arrangement (<= 217000 m3):' contains a row of green buttons labeled 'H: 4', 'B: 3', 'Sp: 2', 'Sp: 2', 'B: 3', and 'St: 4'. A red button labeled 'Cancel adding mooring line' is positioned to the right.

If you wish to delete a line after it has been added, click on the line name (e.g., H-1) and you will see a pop-up box that gives you the option to delete that line:

A pop-up dialog box titled 'MOORING LINE' with a red 'X' in the top right corner. Under the heading 'Line Used As:', there are three checkboxes: 'Head Line' (unchecked), 'Fwd Breast Line' (checked), and 'Fwd Spring Line' (unchecked). Below this, a message states: 'The selected fairlead is marked for use by Fwd Breast Line.' The 'Nr:' field contains the value '4'. The 'Pretension:' field contains the value '0 t'. The text '4) ID:2 Dyneema SK75 (UHMWPE) 42mm (tail: Nylon 96mm)' is displayed. At the bottom, there are two buttons: 'Delete Line' (red) and 'Confirm' (black).

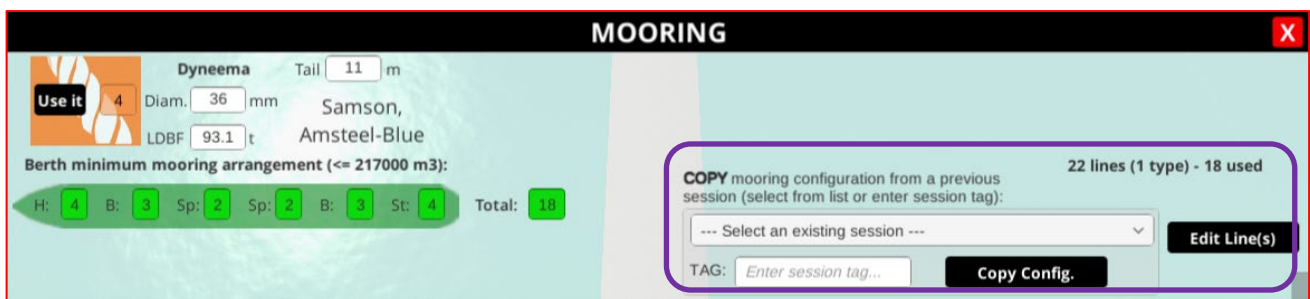
Make sure to save your configuration once completed. You may wish to save more frequently than this, but the system does not require you to save after every change. The number of changes currently unsaved (addition of one mooring line will be recorded as one change) is shown at the top left of the SHIPMOOR screen, next to the save button.



1.4.6.1. Copying a previous mooring configuration

It is possible to create a new case study by selecting the same berth and ship, then copying a previously tested mooring configuration. In this situation only the environmental conditions need to be adjusted for the new case.

If you want to copy a mooring configuration from a previous session, type in the relevant session tag or select the session from the dropdown box and click 'Copy config'. This will add the mooring lines in the same configuration as the selected session.



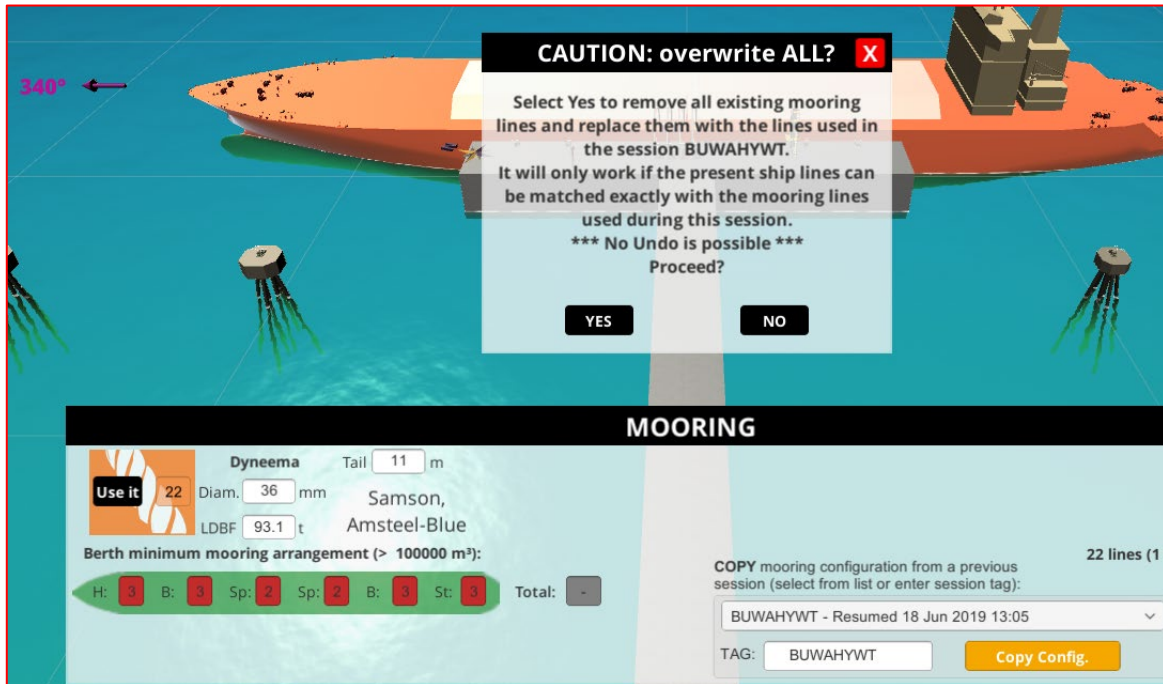
Please note the following:

- The copy will only work for the same ship alongside the same berth in the same orientation (i.e., same side alongside).
- It will overwrite any mooring line configuration currently in use in the session and cannot be undone.
- The program will attempt to reuse each previously selected line exactly, so:
 - If this is not possible (e.g., the line does not exist anymore in the ship inventory) a line of the exact same type (material, manufacturer, model, diameter, etc.) will be used.
 - If no line of the same type is available, the line will not be copied to the new session. This is because the use of a different type of line should be carefully reviewed.
 - If a mooring element has been moved since the last session (for instance a pedestal roller moved during dry dock), the line will be moved accordingly.
- You must save any pending changes in the session before copying the mooring configuration because the copy function will create a new session state that cannot be undone. Ideally, you should use the copy function at the start of a session.



After using the mooring configuration copy facility, it is essential to double-check the mooring configuration of the new session before starting any calculations.

When using the copy function, you will be prompted to save any pending changes before proceeding and asked to confirm that you wish to overwrite the current mooring configuration.



1.4.6.2. Validating terminal mooring requirements

There are two ways in which terminals commonly specify mooring requirements for ships:

- To provide a specific number of head/breast/spring/stern lines to be used.
- To provide a minimum total number of lines to be used, but no specific distribution of the lines.

If a specific layout is provided, the number of lines shown inside the ship image in the 'berth minimum mooring arrangement' section will be highlighted red until the minimum is reached in the current mooring configuration, when they will turn green. If a total number of lines is specified the 'total' box in that section will be highlighted red until the minimum number of total lines is reached, when it will turn green. Any requirements not specified by the terminal will remain grey and are not used for validation purposes.



Data will be validated before you run mooring calculations and any terminal mooring requirements not met will be highlighted to the user. Calculations can still be performed even if the terminal's mooring requirements are not met, the user must simply check a box to say "I'm ok with the warning(s), proceed with the calculations".

4	Warning	<p>The minimum mooring configuration required for berthing is not met:</p> <ul style="list-style-type: none"> - Headline(s) missing. - Forward breast line(s) missing. - Forward spring line(s) missing. - Aft spring line(s) missing. - Sternline(s) missing.
<div> <input type="checkbox"/> I'm OK with the warning(s). Proceed with the calculations. <button data-bbox="1197 779 1308 817">Continue</button> </div>		

This is covered further in [section 1.5.1 – validation](#).

1.4.6.3. *Editing mooring Lines*

Click on **[Edit Line(s)]** to access the list of all the mooring lines that have been added to the ship inventory on the web portal (master data) and to check their use.

The table allows the user to edit cells manually, using the arrows or tab button to navigate.

The following colour code is applied:

- Main line information – white
- Tail data – yellow
- Pretension – orange
- Calculation results – magenta.


In addition, if MEG4 has been selected as the calculation standard, any missing LDBF or TDBF values will show as solid red cells. *(This is not applicable for MEG3 standards because all mooring lines have an MBL value, while not all have yet had LDBF values released by the manufacturers.)* Manual addition of these values will remove the red shading.

MOORING LINES																								
Show Lines: <input checked="" type="checkbox"/> All <input type="checkbox"/> In use only					Change PRETENSION for all the lines in use and connected to a winch: <input type="text" value="Enter"/> t <input type="button" value="SET"/>										<input type="button" value="Cancel"/>									
	Diam. (mm)	MBL (t)	LDBF (t)	Tail?	Tail length (m)	Tail mat.	Manuf. name	Model	Description	Length (m)	Weight (kg/100m)	Tail Manuf. name	Tail Model	Tail Description	Diam (mm)	MBL (t)	LDBF (t)	Weight (kg/100m)	Pretension (t)	Tension (t)	% LDBF	Incl. down (°)	Length used (m)	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	7	85.5	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	7	98.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	3	88.7	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	6	79.3	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	9	60.6	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	46	12.1	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	28	25.8	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	19	23.8	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	4	68.8	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	765	0	0	4	64.3	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	42	153	12	Y	11	Nylon	Koronakis	Kapaneema	Primary mooring rope	220	0	Samson	RP-12 Nylon	Round plaited 12 Strand	96	190	18	0	0	0	0	0	0.0	
PE)	4																							

A default pretension should have been set up on the web portal for that ship. If this is not the case or if the pretension must be changed, you can update the pretension for all the lines that are connected to a winch using the box at the top of this table:

Change PRETENSION for all the lines in use and connected to a winch: t

You can also correct MBL/LDBF values or tail lengths if necessary.

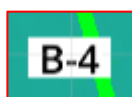
 The mooring line reaction curve can only be changed from the web admin portal, so it is not possible to change anything fundamental to the nature of the mooring line itself.

If you wish to view only the lines that are currently in use in the mooring arrangement, you can select 'in use only' at the top left of this display to filter accordingly. Selecting the 'all' checkbox again will revert to the default of showing all lines on board.

Show Lines: ☒ All ☐ In use only

1.4.6.4. Editing a single line in the 3D view

If a fairlead's valid use has been properly entered on the web portal (see [Section 2.3.6](#)), the line use should be automatically selected. If this is not the case, click on the white line label (e.g., H-1, S-1, B-3) to change the use, line number and pretension.



In these labels the following abbreviations are used:

- Head line – H
- Breast line – B
- Spring line – S
- Stern line – St

Clicking this label will bring up the line's information and allow you to change the line's use and pretension value. You can also 'delete' the line, which will remove it from the current mooring arrangement and add it back into the ship's inventory as available for use.

1.4.7. Saving, undoing, and redoing session changes

Press **[SAVE]** at the top left of the main SHIPMOOR screen to store changes you have made to your session data. Once a change has been saved, you can undo it (or redo it) within the same session. Saved changes will be carried forward to the next time this session is accessed, but once you have logged out, you will no longer be able to roll back to an earlier saved state, i.e., the session state when you log out will be a fixed starting point for any future logins to that session.

Saved changes apply to the current session environment only. No changes are made to the master data unless a change request is submitted, and no changes are made to any other sessions you are running with the same ship/berth.

Each time an edit is made, the related current version is incremented:

You can access previous versions by using the **[Undo]** and **[Redo]** buttons but only for changes made in the session that is currently running (i.e., until you log out).

'Undo' will always restore the session to the previous saved state, it does not undo changes one by one. If there are pending changes this means that none of those changes will be saved and if no pending changes are present, it will roll back all changes updated at the last save point. This applies in reverse to the 'Redo' function.

If you use **[Undo]**, the 'highest version' number shows the limit you can reach when using the **[Redo]** button.

The 'Undo' and 'Redo' buttons are not visible if the relevant actions are not possible, e.g., at the start of a new session or before any 'undo' actions have been performed.



Please note that if you undo a set of changes and edit the resulting configuration, you will not be able to go back to the original version once new changes are saved. For example, if there are five versions 1-2-3-4-5, you can undo from version 5 to version 3 then edit again. When saving, a new version 4 is saved and the previous versions 4 and 5 are lost.

1.5. Calculating

To start a mooring analysis, click on the calculate icon.

1.5.1. Validation

Before the program will run a calculation on the current mooring arrangement, it will attempt to validate some of the data and provide the user with an indication of settings that might be missing or incorrect. The data it will check are:

- Current – have values been entered?
- Wind – have values been entered?
- Tide – have values been entered?
- Current coefficients – do the selected coefficients match the ship's depth/draught ratio?
- Mooring configuration – have any terminal requirements been met? If not, what is missing?
- Unsaved changes – are there any unsaved changes?

Any errors or missing information will be highlighted as shown in the example below.

VALIDATING DATA BEFORE CALCULATIONS
X

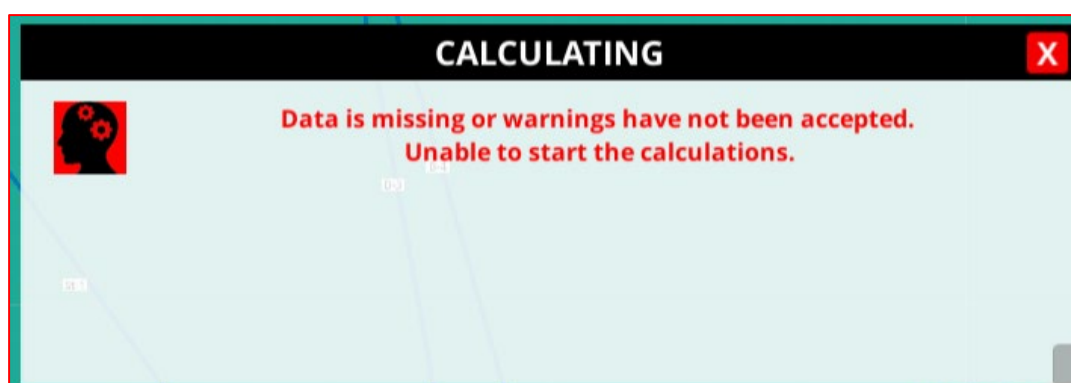
Basic Ship/Shore Compatibility VERIFIED.

Nr	Type	Information
1	Missing Data	Save any pending change(s).
2	Remark	Tide level entered as 0 m.
3	Remark	No wind entered.
4	Remark	No current entered.
5	Warning	The selected current coefficients are for a different depth/draft ratio: 3.0 while the ship has a ratio of 1.16
6	Warning	The minimum mooring configuration required for berthing is not met: - Headline(s) missing. - Forward breast line(s) missing. - Forward spring line(s) missing. - Aft spring line(s) missing. - Sternline(s) missing.

☒
I'm OK with the warning(s). Proceed with the calculations.

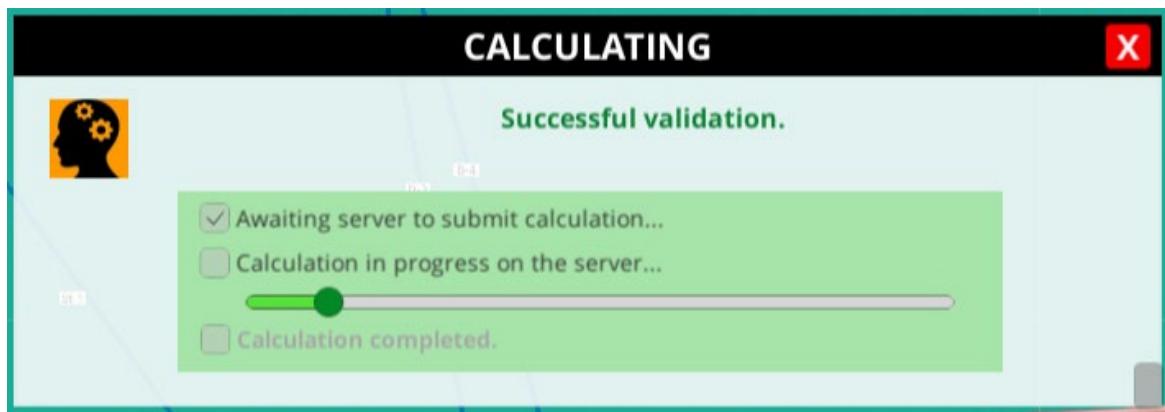
Continue

The user may choose to run a mooring analysis without fixing any highlighted issues by checking the box to say "I'm ok with the warning(s). Proceed with the calculations." If this box is not checked, clicking 'continue' will result in an error message and calculations will not be run.



1.5.2. Running a calculation

Once all errors and warnings have been accepted or corrected, the program is able to run a calculation. This is done by clicking the 'Calculate' icon as described above, accepting any warnings, and then clicking 'Continue'. Static calculations usually take a few seconds to complete and while they are running you will see a box showing progress:

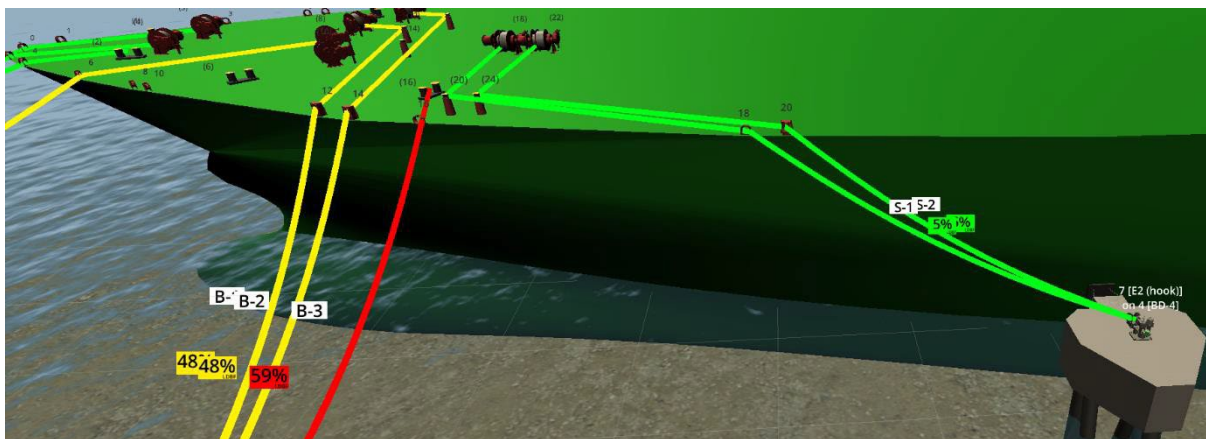


Once the box next to 'Calculation completed' has a tick in it, the calculation results will be ready to view, and reports can be generated.

Note: This calculation will use one static calculation token. For more information, please refer to [Section 2.9](#) of this manual.

1.5.3. Mooring Lines MBL/LDBF

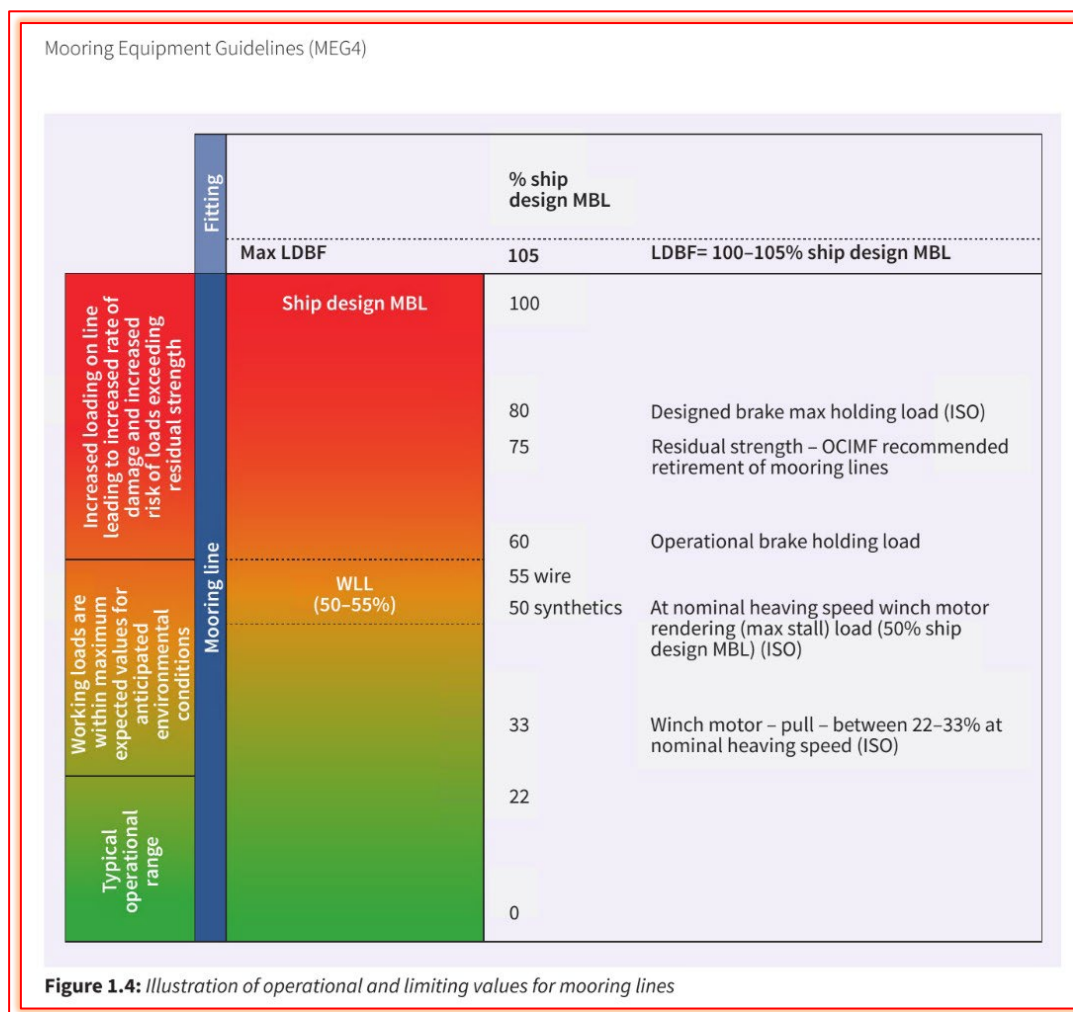
Once calculations have been run, mooring lines will no longer appear as blue lines, but are colour-coded based on their load as a percentage of MBL or LDBF depending on whether the user has selected MEG3 or MEG4 respectively (see [Section 1.4.2](#)).



The line colours represent the following statuses:

- Green lines are OK.
- Yellow lines are over 40% MBL or LDBF
- Red lines are over 50% (synthetics) or 55% (wire) MBL or LDBF

These colours are based on the operational and limiting values for mooring lines given in MEG4.



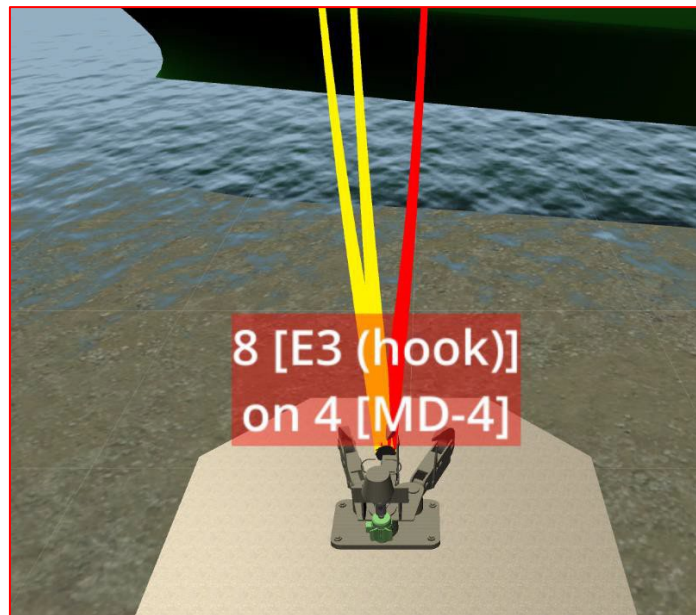
(MEG4 extract)

More detailed results for the mooring lines are available in the reports.

1.5.4. Mooring element safe working loads (SWL)

If the SWL of any mooring element (fairlead, hook etc.) is exceeded, it will be highlighted in red and identified as shown below. Note that this will only occur if the load goes above 100% of the stated SWL value, there are no warnings displayed at different percentage loads.

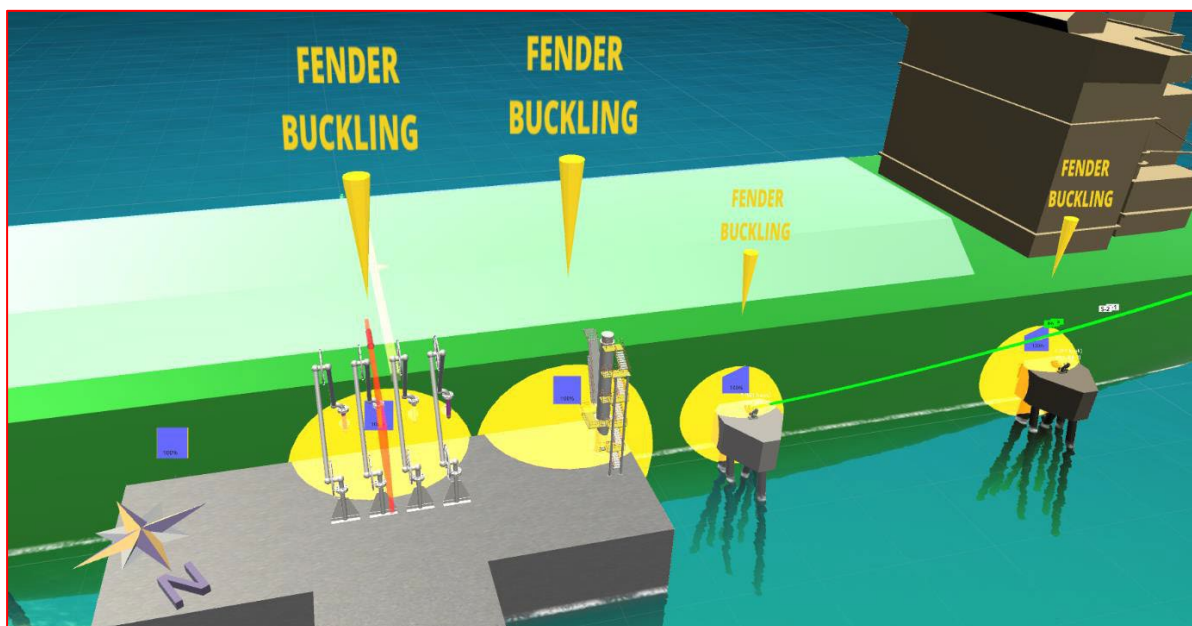
The label shows the number and name of the mooring point and the dolphin or jetty that it is installed on. Further details of loads on the mooring elements can be viewed in the overview and detailed reports.



1.5.5. Fenders

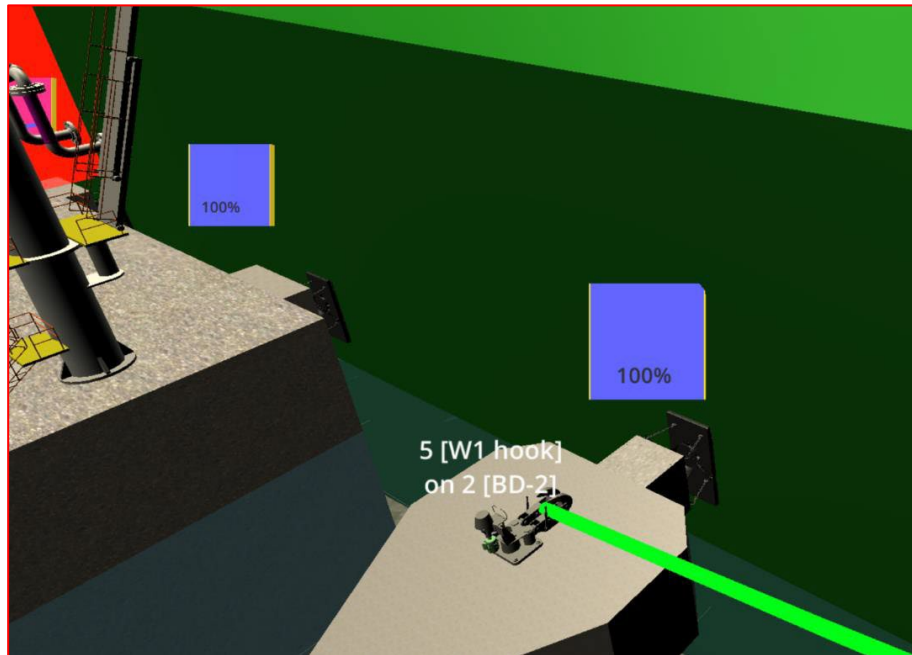
1.5.5.1. *Compression*

Any fender which experiences excessive compression, i.e., exceeds the buckling value, will be highlighted.

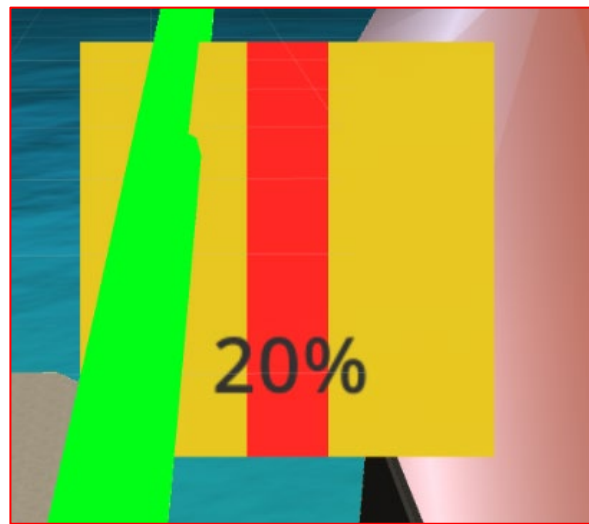
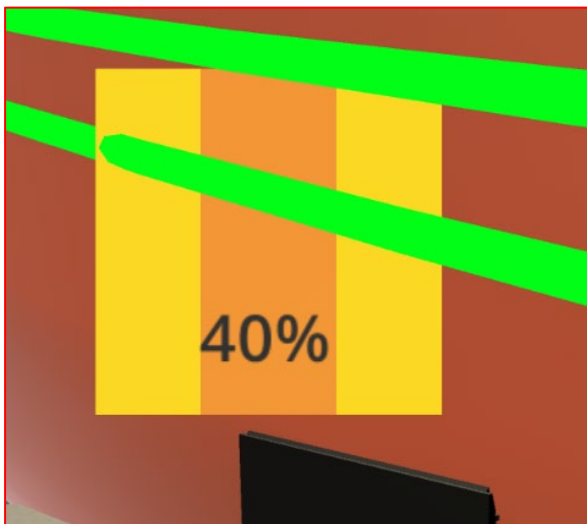


1.5.5.2. *Contact Area*

The contact area of each fender is also indicated.



In case of partial contact, the area shown is not representative of the positioning of the contact area, it just shows the proportion of fender in contact with the hull. Partial contacts below 50% will show as amber and if the contact is lower than 25% the fender contact will be shown in red.



Partial fender contact could lead to a high pressure on the ship's hull or line/point loads on the hull depending on the design of the fendering system, so they must be carefully considered when conducting a mooring analysis.

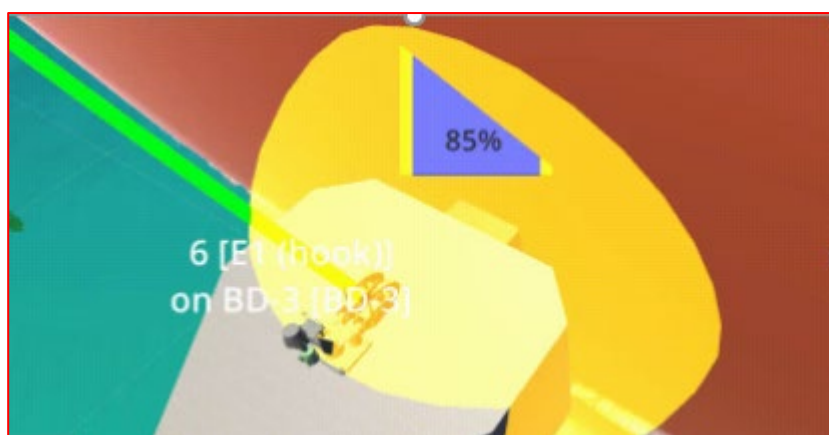
The detailed report will contain further information.



The contact area represented in the 3D view is the fender contact area with the parallel body of the ship **before environmental forces are applied**. If the wind blows the ship away from the fenders, the contact area that is displayed does not change. It will, however, be clear from the 3D view that the ship is not touching the fenders anymore and the reports will indicate "No Contact".

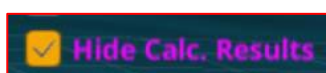
1.5.5.3. Hull pressure limits

If the maximum hull pressure is exceeded at any fender contact point, the area will be highlighted in yellow, and the panel contact diagram will shake every five seconds.



1.5.6. Hiding the calculation results

After a calculation, it is possible to hide the calculation results temporarily (for instance, if they are obscuring something) by checking the 'hide calc. results' box at the top right toolbar.



This will remove all colour coding of mooring lines as well as fender contact areas and any fender buckling warnings.

1.6. Sending and viewing reports

1.6.1. Report types

Note: you can only generate reports after one or more calculations have been performed. If no calculations have been performed in the current session, the program will run the calculations when you request a report. This will go through the same process of validation as described in [Section 1.5.1](#) and will require the user to accept any warnings or update the current configuration to address any issues prior to the calculation being run.

When you click on the 'Send reports' icon, the report dialog box will appear. This allows the user to select one or more reports from the following selections:

- [Overview Report](#)
- [Detailed Report](#)
- [Wind Limit Report](#) (the default wind limit is for 40% MBL)
- [OCIMF Report](#)
- Batch calculations
- [Dynamic Report](#)



These reports have been split into two sections as shown in the image below. Only reports from one section at a time can be generated in a single request.

GENERATING REPORT(S)
X

Select *overview* and/or *detailed* to generate report(s) for a single case based on the displayed ship load condition, wind/current coefficients and external conditions (environment, such as water level, wind, current).

☒ Overview Report
☒ Detailed Report

OR

Setup one or more reports (*Wind Limit*, *OCIMF Report* or *Batch Calculations* and generate them at once).

☐ Wind Limit Report

SETUP

☐ OCIMF Report

SETUP

☐ Batch Calculations

SETUP

Send the report(s) to the following e-mail(s):

Enter email1; email2; etc.

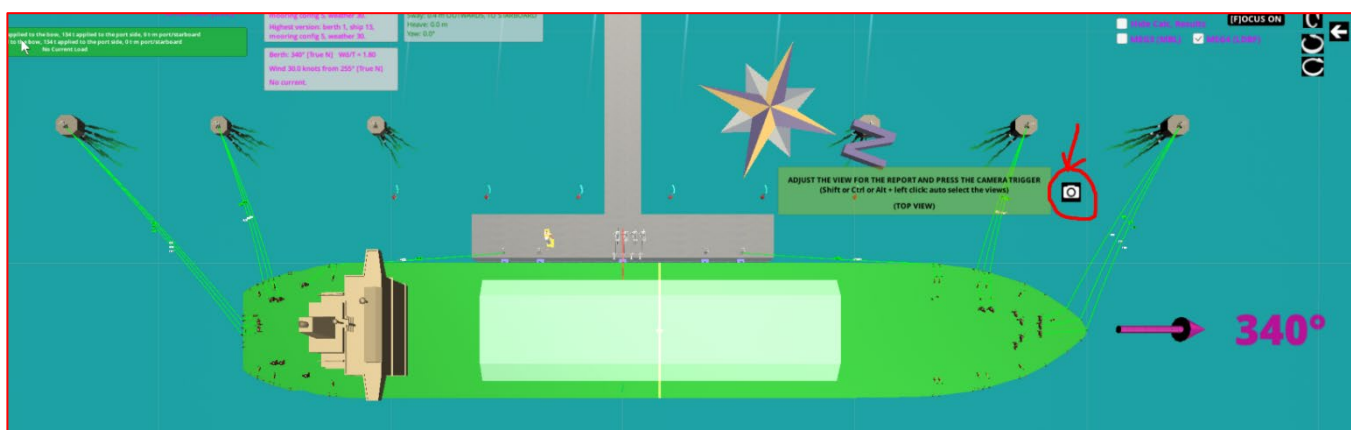
Request Report(s) by e-mail

- The first section is for reports with fixed external conditions (water level, wind and current) at a given time.
- The second section is for reports testing varying conditions (wind limits, OCIMF conditions, batch conditions).

1.6.2. Generating an overview or detailed report

If you would like to create an overview or detailed report, just check the box(es) next to your desired report(s) and enter an email address where you would like to receive them. You can then click 'Request report(s) by email' to start generating the reports.

When you click to request reports, you will be able to adjust the camera position for the images included in them, showing the mooring arrangement from different angles. Follow the on-screen instructions if you wish to adjust the view and click the camera icon when satisfied. There are three viewing angles included in the reports (top view (shown below), bow/fwd view and stern/aft view), so you will need to complete this process for each of those positions. To accept the default positions, you can just click the camera icon each time without adjusting the position.



Once you have adjusted and accepted the image view, the report(s) will be generated and sent by email to the chosen email address(es). It normally takes just a few seconds to create the reports.

Once the reports have been generated, you can also view them online. After requesting a report, an icon showing an image of an eye will appear to the right of the selected reports.

GENERATING REPORT(S)

Select **overview** and/or **detailed** to generate report(s) for a single case based on the displayed ship load condition, wind/current coefficients and external conditions (environment, such as water level, wind, current).

☒ Overview Report

☒ Detailed Report

OR

Setup one or more reports (*Wind Limit, OCIMF Report or Batch Calculations* and generate them at once).

☐ Wind Limit Report **SETUP**

☐ OCIMF Report **SETUP**

☐ Batch Calculations **SETUP**

Send the report(s) to the following e-mail(s):

Clicking on this icon will open a new browser tab with your chosen report viewable as a pdf. It may take a few seconds for the report to become available, so if it does not work first time, please wait a few moments, and try again. The link to the webpage containing

the report can be copied and shared with colleagues who may have difficulty receiving or opening pdf files sent as email attachments.



Please note that if you close this box, the eye icons will not be immediately available the next time you open the report generator. You will need to generate the reports again to be able to view and click on these in your browser.

1.6.3. Generating a wind limit report

To generate a wind limit report, check the box next to that option in the 'generating reports' dialog box and then click the 'setup' button next to it. This will open a new pop-up box allowing you to edit the water level, current coefficients, and load condition.

In addition, this box shows the current direction and speed that has been set in 'External Conditions', and this can be changed here if necessary. Any changes made in this setup will automatically be saved in the session before generating reports. You will also be able to select up to four different values of max percentage of mooring line loads for which the wind limit must be calculated.

When you click 'Confirm configuration' this dialog box will be closed and you will be taken back to the main 'Generating reports' box, where you can enter your email address and click to request the reports by email.

1.6.4. OCIMF Reports

OCIMF provides the following guidance in MEG4, and it is this on which the OCIMF reports in SHIPMOOR are based.

3.2.2 Standard environmental criteria

For all ships above 16,000 DWT intended for general worldwide trading, the mooring restraint available on board the ship as fixed equipment should be sufficient to satisfy the following conditions:

60 knot wind (defined below) from any direction simultaneously with:

3 knots current at 0 degrees or 180 degrees

or

2 knots current at 10 degrees or 170 degrees

or

0.75 knots from the direction of maximum beam loading

For oil tankers, water depth to draught ratios (Wd/T) for these conditions are to be taken as 1.05 when loaded and 3.0 when in ballast. For gas tankers above 150m in length the Wd/T should be taken as 1.05 for all conditions, since the draught of a gas carrier changes little during normal cargo transfer operations.

Table 3.1 shows that the drag forces do not change significantly with low under keel clearance values, so a Wd/T value of 1.05 is adequate for general use. While a number of terminals have a minimum Wd/T ratio alongside the berth of 1.02, this ratio will tend to occur around low slack water when average current velocities would be less than when the water level is at a Wd/T of 1.05. It is therefore recommended that the average velocities suggested in the standard criteria be used with the 1.05 ratio.

The worst-case conditions to be used for calculating the range of extreme values are:

- Ship ballasted, highest astronomical tide.
- Ship loaded, lowest astronomical tide.

UKC (Metres)	Water Depth (Metres)	Draught (Metres)	Wd/T	Direction	Longitudinal X Force (Tonnes)	Lateral Y Force (Tonnes)
0.4	22.7	22.3	1.02	10 off bow	10.8	204.9
0.5	22.8	22.3	1.024	10 off bow	11.6	213.9
1.1	23.4	22.3	1.05	10 off bow	16.8	272.5
2.2	24.5	22.3	1.1	10 off bow	-12.0	211.7
44.6	66.9	22.3	3	10 off bow	-6.0	25.6

Table 3.1: Loaded 250,000 DWT tanker low under keel clearance current drag forces

When a terminal designer reviews the need for shore augmentation, e.g. secondary mooring lines, calculations will need to be more precise. Actual site data and an appropriate range of ship data should be used for calculations as described in section 3.2.3.

Wind velocity is the velocity measured at the standard height of 10m above ground or water surface and is representative of a 30 second average mean velocity. The selection of the

Mooring Equipment Guidelines (MEG4)

30 second wind is based on the time it takes the forces in a mooring system to respond to wind velocity changes (30 seconds is a typical value for a large tanker). Smaller ships will respond more quickly than a fully laden VLCC, which may require longer to respond. However, for consistency a 30 second average period has proven to be an effective and uniform standard for all ship sizes and loading conditions. Many engineering standards (for fixed structures) use a one-minute average. Conversion factors from one-minute average mean velocity data records are defined in British Standards Institution (BSI) BS 6349-1-1 *Maritime Works. General. Code of Practice for Planning and Design for Operations and DNV RP C205 Environmental Conditions and Environmental Loads*.

The current velocity is the average velocity over the draught of the ship.

Note: before requesting an OCIMF report, it is important to set up the ship for the conditions defined in MEG4 (or MEG3 if appropriate).

To set up an OCIMF report, click the relevant checkbox in the 'Generating reports' dialog box and then click on the 'Setup' button next to it. This will bring up the pop-up box to configure options for the OCIMF report:

CONFIGURE OCIMF REPORT

Enter the water level from the berth Vertical Datum, the ship load condition and the current coefficients for the water depth to draft ratio. These settings are shared across all reports.

Water level above vertical datum (VD):

1.0 m (VD is LAT)

LOAD CONDITION:

Fully laden

CURRENT COEFFICIENTS:

MEG ✓ MEG4 LNG Carrier 1.05

Wd/T = 1.05

The Wd/T ratio for the current coefficients should be selected based on the Wd/T of the mooring configuration being considered. The most conservative case would be to select the next lowest Wd/T ratio. However, due to the non-linear nature of the current coefficient curves, this could lead to significantly higher current loads. For example, in the case of a Wd/T ratio of 1.28, it would be more appropriate to select a Wd/T ratio of 1.3 compared with 1.1.

Usage: Ballast and Laden.

LNG Carrier current coefficients are matching closely with figures for laden tankers except for Cy when Wd/T = 1.05 and 1.10.

No specific draft validity indicated.

Coefficients valid for Wd/T of 1.05

Test with wind from any direction of

60 knots

Confirm Configuration

The setup of the correct water depth to draft ratio (Wd/T) and the selection of the proper ship wind/current coefficients is left to the user. The program will only issue warnings if the OCIMF MEG3/MEG4 conditions are not strictly met, as shown in the image above. A warning will also be displayed during validation if the coefficients selected do not match the depth to draft ratio.

The OCIMF criteria specify a wind speed of 60 knots, but this value exceeds most operational limits in place at LNG terminals, so there is the option to reduce this value in the bottom left of the pop-up box.

The program will automatically test the 8 OCIMF conditions for one load condition, i.e., ballast or loaded. This means that to run all 16 OCIMF conditions (8 loaded, 8 ballast), you will need to run the OCIMF report twice, selecting a different load condition each time. An example of the overview and details for the first condition from the report are shown below (calculated with MEG3 selected).

1	60 knots of wind from any direction with 3 knots of current at 0° (stern)	FAILED
2	60 knots of wind from any direction with 3 knots of current at 180° (bow)	FAILED
3	60 knots of wind from any direction with 2 knots of current at 10°	FAILED
4	60 knots of wind from any direction with 2 knots of current at 350°	FAILED
5	60 knots of wind from any direction with 2 knots of current at 170°	FAILED
6	60 knots of wind from any direction with 2 knots of current at 190°	FAILED
7	60 knots of wind from any direction with 0.75 knots of current at 090°	PASSED
8	60 knots of wind from any direction with 0.75 knots of current at 270°	FAILED

*Recommended Water depth to draft ratio 1.1 (except oil tanker in ballast: 3.0)
Static only (no waves, no swell).
Force from right astern 0° and compass angles anti-clockwise.*

OCIMF Criteria Nr 1

60 knots of wind from any direction with 3 knots of current at 0° (stern)

FAILED

Wind Dir				Fenders		
Rel. Ship Bow	From True North	Mooring Lines Highest % MBL	Mooring Hooks Highest % SWL	Highest % Buckling Compression	Buckling Exceeded	Max Reaction Force Exceeded
000°	147°	56% (AB 2)	57% (Nr 4)	4	None	None
015°	162°	60% (AB 2)	62% (Nr 4)	27	None	None
030°	177°	62% (AB 2)	63% (Nr 4)	47	None	None
045°	192°	53% (AB 2)	54% (Nr 4)	63	None	None
060°	207°	34% (AB 2)	35% (Nr 4)	68	None	None
075°	222°	17% (AB 2)	17% (Nr 4)	56	None	None
090°	237°	0% (N/A)	0% (N/A)	43	None	None
105°	252°	0% (N/A)	0% (N/A)	30	None	None
120°	267°	12% (St 1)	12% (Nr 1)	34	None	None
135°	282°	19% (St 1)	19% (Nr 1)	36	None	None
150°	297°	22% (St 1)	23% (Nr 1)	30	None	None
165°	312°	26% (St 1)	26% (Nr 1)	23	None	None
180°	327°	26% (St 1)	27% (Nr 1)	18	None	None
195°	342°	25% (St 1)	25% (Nr 1)	9	None	None
210°	357°	27% (FB 2)	27% (Nr 8)	0	None	None
225°	012°	35% (FB 2)	36% (Nr 8)	0	None	None
240°	027°	39% (FB 2)	40% (Nr 8)	0	None	None
255°	042°	47% (FB 1)	48% (Nr 9)	0	None	None
270°	057°	54% (FB 1)	55% (Nr 9)	0	None	None
285°	072°	58% (FB 1)	59% (Nr 9)	0	None	None
300°	087°	60% (FB 1)	61% (Nr 9)	0	None	None
315°	102°	57% (FB 1)	58% (Nr 9)	0	None	None
330°	117°	47% (FB 1)	47% (Nr 9)	0	None	None
345°	132°	44% (AB 2)	45% (Nr 4)	4	None	None

In line with MEG4 section 3.4.2, the overview, detailed and OCIMF reports also highlight the following:

- vertical angles above 25° for breast and spring lines
- horizontal angles above 15° from abeam for breast lines
- horizontal angles above 10° from the ship heading for spring lines.

1.6.5. Batch Calculations

To generate a report for a series of batch calculations, check the box next to 'Batch calculations' in the 'Generating reports' dialog box and then click on the adjacent 'Setup' button to open the window where you can configure your batch calculations.

The default values for batch calculations are the wind, current and water levels entered in the 'External Conditions' dialog box with 45° angle intervals.

It is possible to set another angle interval and create a scenario sweeping for wind or for current. The default sweep is 360° but this can be adjusted using the 'sweep range' slider. If a wind sweep is selected, you can set a constant current, and if a current sweep is selected you can set a constant wind. In both cases you can set a constant water level. The images below show details of the configuration screen.

SWEEP for: ☐ Wind ☒ Current **Enter Wind direction:** ☒ from, relative to N ☐ from, relative to ship

Set INTERVAL between the sweep directions: **SET** **starting sweep from:** ☐ North ☒ Ship bow

Set CONSTANT Sweep Speed [knots]: **SET** **sweep range 360°**

Set CONSTANT Wind dir. from, relative to N [°]: **SET**

Set CONSTANT Wind Speed [knots]: **SET**

Set CONSTANT Water Level [m]: **SET**

Press [ADD] to add up to 4 tables. Click on a table to edit any value (except the sweep directions) directly.

Current dir. from, relative to ship	000°	030°	060°	090°
Current dir. from, relative to N	120°	150°	180°	210°
Current dir. to, relative to N	300°	330°	000°	030°
Current Speed [knots]	1.5	1.5	1.5	1.5
Wind dir. from, relative to N [°]	050°	050°	050°	050°
Wind Speed [knots]	25	30	30	30
Water Level above Vertical Datum [m]	1	1	1	1

Wind dir. from, relative to ship	000°	030°	060°	090°
Wind dir. from, relative to N	120°	150°	180°	210°
Wind dir. to, relative to N	300°	330°	000°	030°
Wind Speed [knots]	25	20	30	30
Current dir. to, relative to N [°]	180°	180°	180°	180°
Current Speed [knots]	1.5	1.5	1.5	1.5
Water Level above Vertical Datum [m]	1	1	1	1

Although the 'SET' buttons make it simple to automatically pre-fill the table, any cell can be edited manually, using the arrows or tab button to navigate the table. This means you can set different current, wind, or water level for any section of the 360° sweep. Up to 4 different scenarios can be created for a single batch report request, each running either a current sweep or a wind sweep.

The batch report is sent as an email with links to each individual case. For example:

Batch Set A Calculation 1 : 30 knot wind from 147 °N, 0.5 knot current to 140 °N, Tide 3 metre(s)
[Download Batch Set A Calculation 1](#)
[Excel - Batch Set A Calculation 1](#)
[Project XML - Batch Set A Calculation 1](#)

Batch Set A Calculation 2 : 30 knot wind from 192 °N, 0.5 knot current to 140 °N, Tide 3 metre(s)
[Download Batch Set A Calculation 2](#)
[Excel - Batch Set A Calculation 2](#)
[Project XML - Batch Set A Calculation 2](#)

A summary Excel file will also be included as an attachment.

1.6.6. Dynamic Calculations

Dynamic calculation settings can be accessed through the external forces section. When dynamic conditions are enabled, a third tab will be visible, where the dynamic parameters (primary and secondary waves, gust winds) can be set up. The following configurations are allowed:

EXTERNAL CONDITIONS X

General Forces **Dynamic**

Primary Wave (e.g. Wind Waves)

Direction: 125 ° [North]

FROM 125° (to 305°) relative to True North ☒ FROM 005° clockwise relative to ship bow (OCIMF Coeff. 175°) ☐

Significant Height: 2.5 m

Period: 18 sec

Spectrum: JONSWAP Gamma: 5.0

Secondary Wave (e.g. Swell)

Direction: 000 ° [North]

FROM 000° (to 180°) relative to True North ☒ FROM 240° clockwise relative to ship bow (OCIMF Coeff. 300°) ☐

Significant Height: 0.0 m

Period: 0 sec

Spectrum: JONSWAP Gamma: 3.3 (peak-enhancement factor)

Wind (dynamic)

☐ 18 knot(s) from 200° [North] 1-hour mean (see General - Wind)

Gusts Wind Spectrum: API (American Petroleum Institute)

Wind (dynamic)

☒ API (American Petroleum Institute)

18 NPD (Norwegian Petroleum Directorate)

(se Ochi-Shin

Gu Wills

- Gust winds only
- Primary waves only
- Primary and secondary waves
- Gust winds and primary waves
- Gust winds, primary and secondary waves

The primary and secondary waves will also be visible in the 3D environment if the view is adequately zoomed in on the water surface. In the settings you can enter the direction, the significant wave height, and the wave period for primary and secondary waves. There are also four wind spectra available to select from - API, NPD, Ochi-Shin, and Wills.



Note: The primary and secondary wave directions are relative to the ship's bow instead of being relative to North. Wave direction entry is also limited to 10° intervals. Such intervals have been selected for the calculation engine, as it is using precalculated values every 10° to maintain high accuracy and fast calculation time.

After the dynamic tab is filled, you can save the changes and generate the reports. The dynamic reports can be selected by ticking the checkbox next to *Dynamic Calc* and selecting the desired report.

GENERATING REPORT(S)

BEFORE REQUESTING REPORTS, PLEASE
VALIDATE THE MOORING CONFIGURATION BY
RUNNING AT LEAST ONCE THE CALCULATION:
FOR A SINGLE CASE based on the currently
displayed ship load condition, wind/current
coefficients and external conditions (such as
water level, wind, current).

GENERATING REPORT(S) X

Select *overview* and/or *detailed* to generate report(s) for a single case based on the displayed ship load condition, wind/current coefficients and external conditions (environment, such as water level, wind, current).

☐ Detailed Report
 ✓ Dynamic Calc

OR

Setup one or more reports (*Wind Limit*, *OCIMF Report* or *Batch Calculations* and generate them at once).

☐ Wind Limit Report
☐ OCIMF Report
☐ Batch Calculations

SETUP

SETUP

SETUP

✓ Dynamic Calc

Send the report(s) to the following e-mail(s):

Enter email1; email2; etc.

Request Report(s) by e-mail



Note: Similarly to Static calculations, you can only generate reports after at least one calculation has been performed. If no calculations have been performed in the current session, the program will run the calculations when you request a report. This will go through the same process of validation as described in section 1.5 and will require the user to accept any warnings or update the current configuration to address any issues prior to the calculation being run.

A confirmation email will be sent to you, which will include a link to the task list, where you can view the progress of the submitted calculations, the entered dynamic parameters and any errors that occurred.

SHIPMOOR Dynamic Calculation Reports for session HRSABJDR

Your dynamic calculation request is being processed.

You can monitor the progress and access the reports for completed calculations at <https://www.shipmoor.com/admin/DynamicResults.aspx?SessionID=HRSABJDR-1-4-2-2>.

Best Regards,

The SHIPMOOR Team

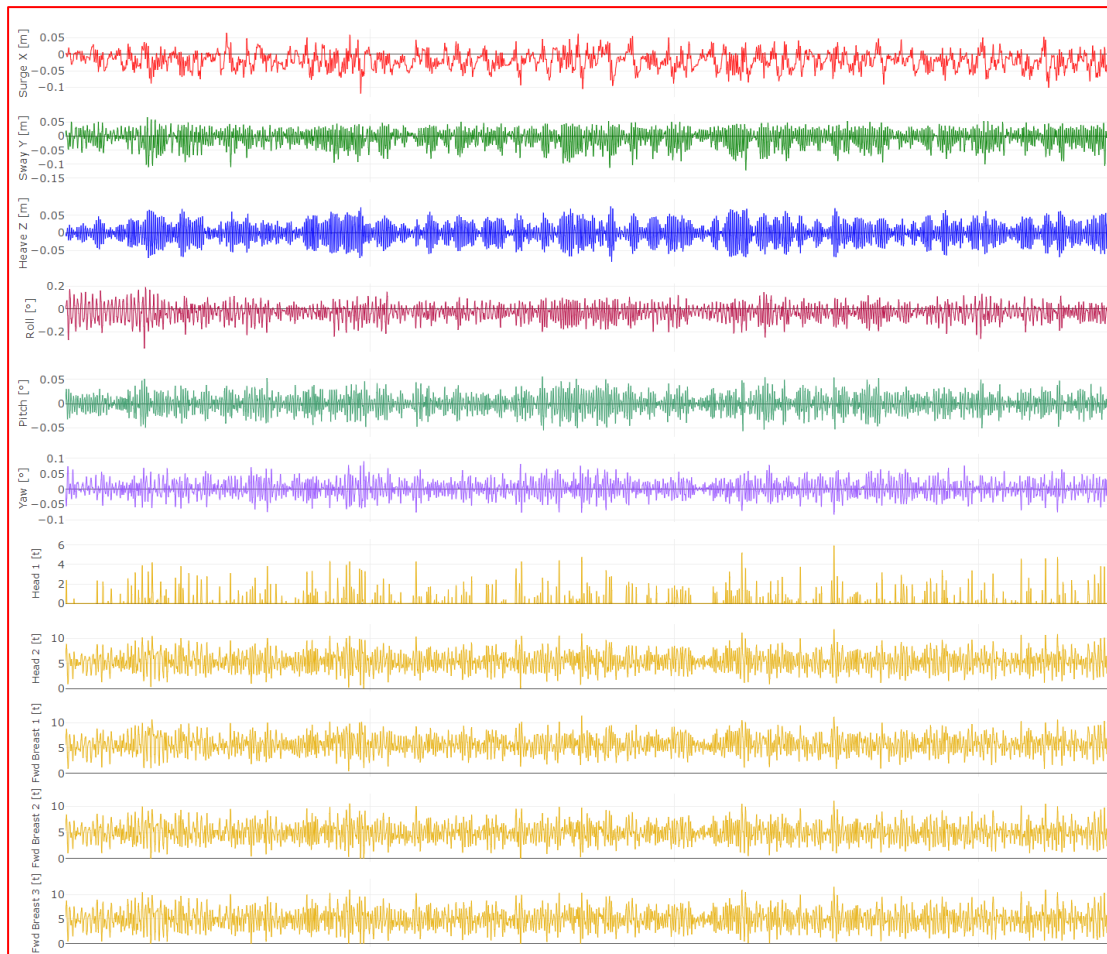
Dynamic Calculation Results for session: HRSABJDR-1-4-2-2 - status at 07 Feb 2022 12:01:23						Refresh
Batch Number	Task ID	Parameters	Status	Submitted	Completed	
1	1	Show	Submitted	07 Feb 2022 12:00		

After the dynamic calculations are complete, the report and the time series will be available from the previously sent out link. You will also receive an email upon the completion of calculations which will include a link to the same task list. The comment cell will display whether task was completed successfully or failed. It will also display warnings, any approximations and ship templates used in the calculations.

Available Reports	Comment
	<p>Task completed successfully</p> <p>Caution: Ship was found matching main characteristics, however no matching hydrostatics was found within the following limits:</p> <p>LCG (95% to 105%),VCG (95% to 105%),Metacentric height (95% to 105%),Radii gyration X (95% to 105%),Radii gyration Y (95% to 105%),Radii gyration Z (95% to 105%)</p> <p>Detailed Time Series</p> <p>Calculations carried out with closest match:</p> <p>Q Max template:</p> <p>LCG = 165.0,VCG = 15.4,Metacentric height = 9.9,Radii gyration X = 20.4,Radii gyration Y = 83.0,Radii gyration Z = 86.3</p>

Now you can view the results in the form of a detailed report (*.pdf* format) and time series. When you click the *Time Series* button, please allow some time for the time series graphs to be generated. You will then be able to view the time series for three hours of simulation.

The analysis will show ship motions in six Degrees of Freedom (in metres [m] for *Surge*, *Sway*, and *Heave*; in degrees [°] for *Roll*, *Pitch* and *Yaw*), with the forces (in tonnes-force) acting on each of the lines and fenders. You can zoom in and out using the scroll button on your mouse when viewing these series.



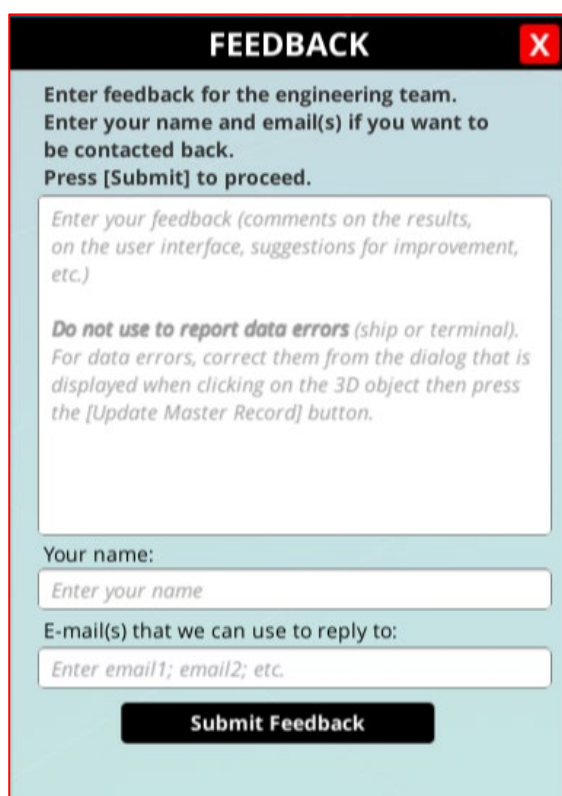
Note: If several dynamic calculations are submitted consecutively, the results for the individual tasks may return out of order.

1.7. Feedback to the SHIPMOOR team

If you would like to provide any feedback about your experience of using the SHIPMOOR 3D environment to run a mooring analysis, you can click on the 'feedback' icon:



This will bring up a free text box allowing you to send any comments you have about the system to the SHIPMOOR development team, who will get back to you as soon as possible.



As noted in the feedback window, please do not use this to report data errors, which should be reported to the data owner directly using the 'update master record' button near the data in question.

1.8. Request changes to the master data

While it is possible to edit the ship, berth, or mooring lines data from the mooring analysis session, this only affects the session itself. The master data shared by the data owner is unchanged.

If the master data itself needs to be updated (e.g., if you find an error), it is possible to send a change request to the owner of the data by clicking the **[Update Master Record]** button.

Double Winch X

X (from midship): m

Y (from centre): m

Z (from main deck): m

Nr:

Name:

Type:

SWL: t

Max Brake Load: t

Max. Lines:

Update Master Record

COMMIT CHANGE(S) X

You are ready to submit a *change request* to the data owner for the selected 3D object.

If the change is accepted (you should get a reply from the data owner about it), this will modify the object data for every SHIPMOOR user when starting a new mooring analysis session.

Press [Submit] to proceed.

Enter a comment for the data owner, explaining why the data that has been changed in the 3D object dialog should be modified in the master copy for use by everyone (e.g. dry dock modification, data error, etc).

*Make clear what the **source of the updated data** is.*

Submit Master Record Change Request

The process for the data owner is explained in [Section 2.5](#). The user will be notified by email of the data owner's decision (i.e., accept or reject the change request). The email will be in the following format, providing space for the data owner to comment on why the change request has been accepted or rejected:

You are receiving this email because a change request submitted by you has been processed - the details are as follows:

REJECTED:

Flex Polaris [test] (Session: DEMOQFLX)

Ship Mooring - Change SWL from 100 to 125

Comment: The winch has been replaced in dry dock but the SWL is indeed 100t, not 125t.

Any pending changes for a ship or terminal will be viewable in the change log, accessed by clicking on this icon in the relevant ship or berth data entry boxes in the 3D environment:



1.9. Saving

Each session stores its own unique copy of the master data for the ship and berth.

Press **SAVE** to store any change to your copy of the master data for the session. The master data itself is not modified.

1.10. Logging out

It is important to use the 'log out' button to quit the program before closing the browser tab because this allows the server database to be updated properly. The 'log out' button is located at the top right of the main SHIPMOOR screen.



LOG OUT

If you close the browser window/tab without using the 'log out' button, changes may not be saved correctly.

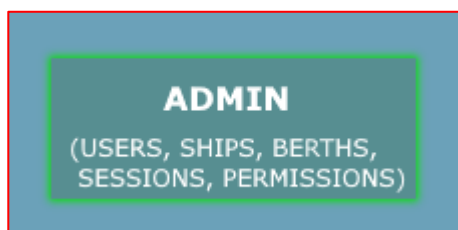
When logging out, users will be given the option to 'log out and restart', which will open a new SHIPMOOR login screen to allow the user to quickly move to a different mooring analysis session if desired.

2. Managing SHIPMOOR from the web admin portal

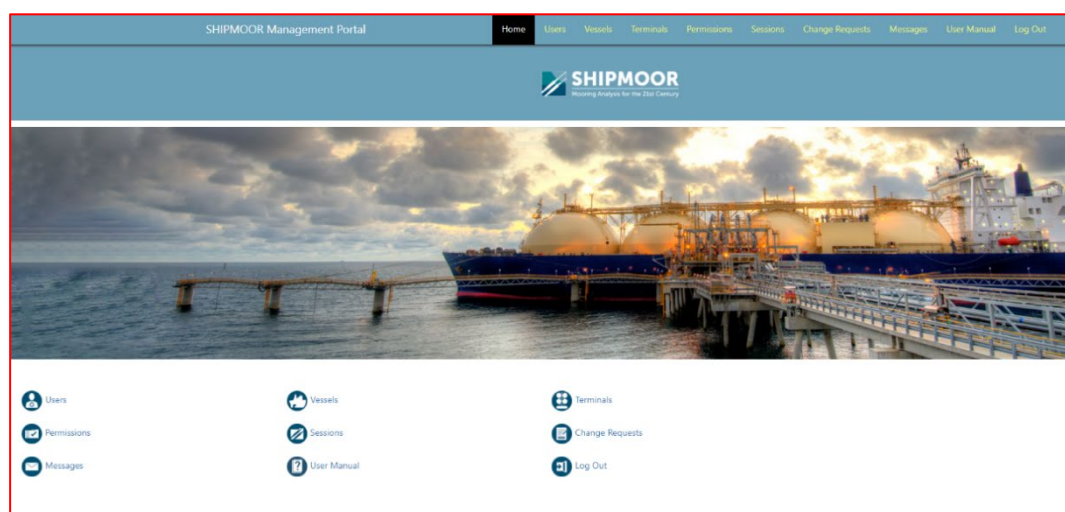
2.1. Logging in to the admin portal

To access the admin portal, go to www.shipmoor.com and click on the **[ADMIN]** button or go directly to <https://www.shipmoor.com/admin>. This function is only available to your company's SHIPMOOR administrator.

Note: **[]** and **[]** refer to buttons to press



Log in with a SHIPMOOR administrator account to be taken to the home page of the admin panel, where you will be able to access all the admin functions.



The administrator is responsible for:

- Adding/removing mooring analysis (3D) users for the company.
- Adding/editing the master data for the company ships and terminals.
- Granting permissions to view the company data.
- Contacting other companies to get data access permissions if required.
- Accepting or denying change requests to the master data coming from mooring analysis (3D) users.
- Managing mooring analysis sessions (e.g., archiving old sessions, accessing previous reports, etc.).

By default, there will be only one company administrator allocated, but if you would like to add a second administrator, please contact the SHIPMOOR team to set this up.

2.2. Managing users

[Add User] allows the administrator to add mooring analysis session users for the company, up to the total number specified by the subscription.

- Each user has a name such as user_name@XYZ, where XYZ is your company's allocated identifier.
- The password can be set or reset.
- The email address is the one used to send the mooring analysis reports to.
- The comment is optional.

The table showing the users also indicates when users are actively connected ("licence in use").

SHIPMOOR Management Portal

Home Users Vessels Terminals Permissions Sessions Change R

Manage Users for: Demo Company

	UserName	Email	Licence In Use	Comment
Edit Delete	user@DEMO	info@shipmoor.com		

Edit User (Leave password blank to retain existing password)

User Name: user@DEMO

Password:

☐ Show Password

Email: info@shipmoor.com

Comment:

Save

2.3. Managing your ship data

The data available to use in the web portal is the **master data** belonging to the company that is the **data owner**. However, you can view a read-only copy of other vessels that have been made available to you by clicking on the 'Other Vessels (Read Only)' button in the vessel selection panel.

Manage Vessels for:

Witherby LNG Ports

Other Vessels (Read Only)

The master data is used to start each mooring analysis session and any changes made to the data during that session are local to that session i.e., no changes are made to the master data. However, a change request can be generated by the session user that will need approval from the data owner (see section [2.5 Managing change requests](#)).

You can only edit the master data for ships that the company owns/operates, and these changes must be made through the admin portal when logged in as the company's SHIPMOOR administrator.

Name ^	IMO Number	Type	Capacity	
145,000 m³ Moss LNG template	TP56499	LNG Tanker Spherical/Moss	145000 m3	Edit Delete
160,000 m³ Membrane LNG template	TP20725	LNG Tanker Membrane Mark III	160500 m3	Edit Delete
85,000 m³ LPG template	TP01316	LPG Tanker Fully Refrigerated	85000 m3	Edit Delete
Atlantic Max template	TP67969	LNG Tanker Membrane Mark III	170200 m3	Edit Delete
Q Flex template	TP43707	LNG Tanker Membrane Mark III	210100 m3	Edit Delete
Q Max template	TP87144	LNG Tanker Membrane Mark III	266000 m3	Edit Delete

[Add Vessel](#)
[Filter the grid by entering values in the top cells and pressing Enter](#)
[Import Vessel from Excel](#)
[Copy an Existing Vessel](#)

To access your existing ship data and add new ships to your company's account, select the **[Vessels]** tab at the top of the page, which will bring up a page containing a table that allows you to select a ship to view the data, add a new ship, import ship details from Excel or copy an existing vessel (e.g., for use in adding sister ships).



Note that it is possible for two companies to share ownership of a ship's data e.g., if they are joint owners/operators. In this instance either company's admin user may edit the master data and accept/reject change requests. Please contact the SHIPMOOR team if you would like to set shared ownership for a ship.

2.3.1. Adding a new ship

There are four different methods to add a ship to the system:

1. **[Copy an Existing Vessel]** and adapt the data to match the new ship. This can be done using one of the templates that are available or another company ship for which you have access permissions)
2. **[Import Vessel from Excel]**. Blank data entry Excel worksheets are available at <https://www.shipmoor.com/excel>. The import routine validates the data and returns appropriate error messages if corrections are needed before import.

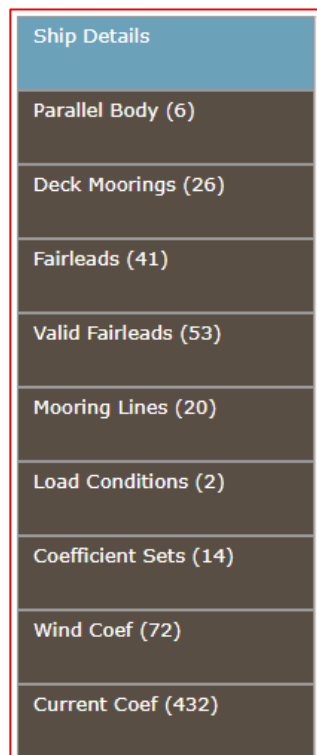


It is strongly recommended that you only import the Excel worksheet once, then use the web portal to tweak the data errors. Importing the same ship from an Excel sheet multiple times will result in the loss of all change history records.

3. **[Add Vessel]** to create the vessel manually.
4. *Import files from existing programs.* Please contact us if you would like to discuss importing existing file formats to SHIPMOOR.

Once you have added a ship, you will be able to add and edit the ship specifications and mooring lines by navigating through the side menu to each data section. The next few

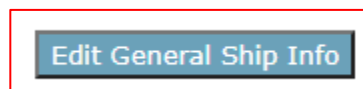
sections of this manual will take you through this menu in more detail.

A vertical menu titled 'Ship Details' with a blue header. Below the header are ten items, each in a dark brown box with white text. The items are: Parallel Body (6), Deck Moorings (26), Fairleads (41), Valid Fairleads (53), Mooring Lines (20), Load Conditions (2), Coefficient Sets (14), Wind Coef (72), and Current Coef (432).

Ship Details
Parallel Body (6)
Deck Moorings (26)
Fairleads (41)
Valid Fairleads (53)
Mooring Lines (20)
Load Conditions (2)
Coefficient Sets (14)
Wind Coef (72)
Current Coef (432)

2.3.2. Ship details

With the 'Ship details' tab highlighted in the left menu, you can click on [\[Edit General Ship Info\]](#) to enter key dimensions, manifold position, wind areas, etc.



Forecastle and poop deck height and length are only important for displaying the ship properly.

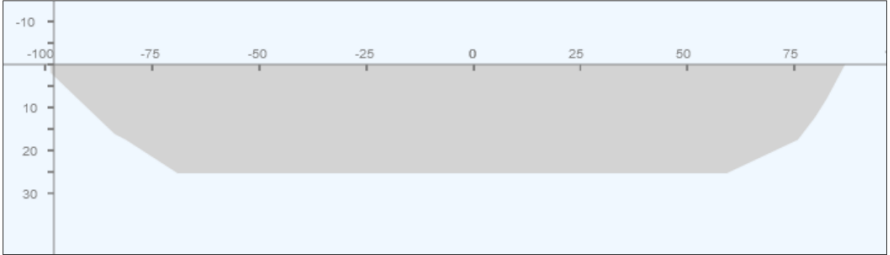
The bridge height at main deck is used to approximate the positions where the wind forces need to be applied (see section [2.3.10 Load conditions](#)).

The full ship data can be exported as PDF to allow anyone to validate the data. To create the PDF file, click on [\[View as Pdf\]](#).

2.3.3. Parallel body

Click on [\[Add Lower Level\]](#) and enter the distance from midship and the depth (distance) from the main deck for each significant point of the hull belonging to the ship's parallel body:

Add Parallel Body Point




Parallel Body Lower Level

Distance (m) ... (X longitudinal axis, 0 at midship LBP/2, + FWD)

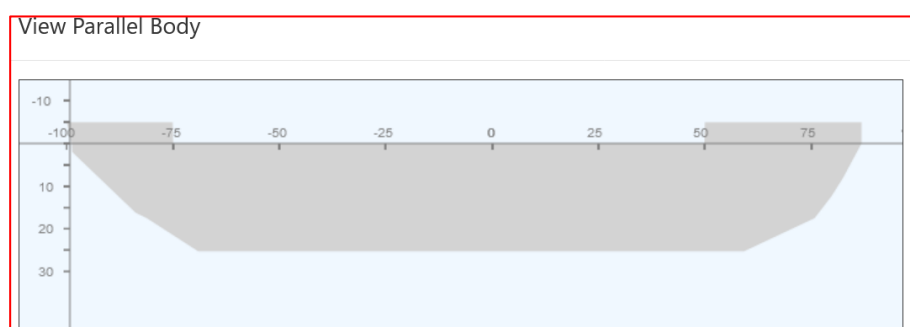
Depth (m) ... (Z height, 0 at main deck level (27.3m above the keel), + DOWN)

You can also edit a point of the parallel body by clicking on the corresponding link on the last column 'Edit' of each row of the Parallel Body table. This will be the case for each table showing a list of similar vessel data.

To [Delete](#) point(s) of the parallel body, select on or more rows and click on [\[Delete Selected\]](#).

 Do not enter the same distance from midship twice – if necessary, you can vary the position by a tiny amount.

If the parallel body extends above the main deck, use [\[Add Upper Level\]](#) and enter negative values for depth:

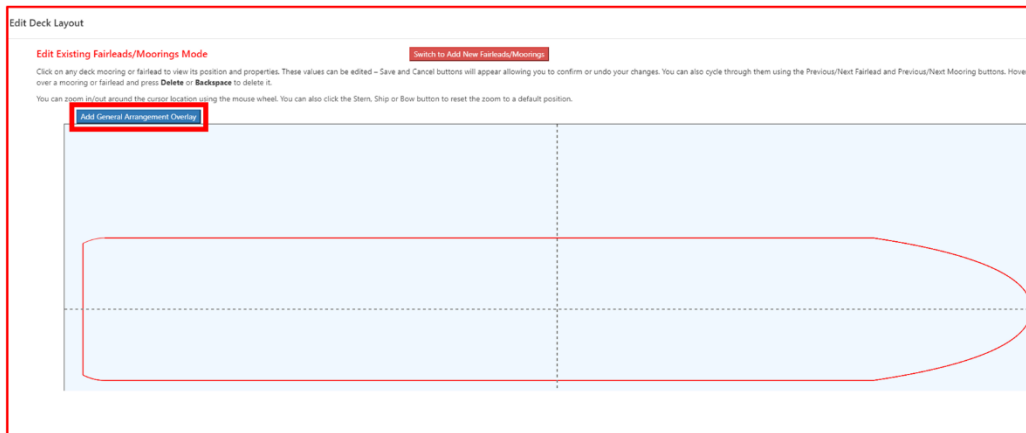


2.3.4. Deck moorings

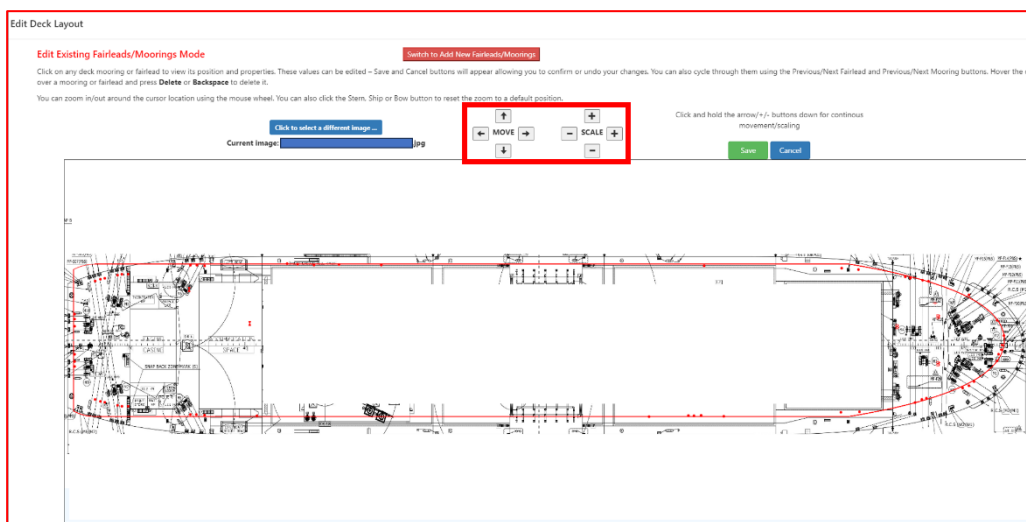
2.3.4.1. General Arrangement overlay

In the 'deck moorings' section, users can place the ship's General Arrangement (GA) as an overlay to quickly and easily enter deck moorings and fairleads.

To place the overlay, click [\[Edit Deck Layout\]](#) → [\[Add General Arrangement Overlay\]](#) → [\[Select Image\]](#).



After selecting the ship's GA image, align the ship outline with the GA overlay using the '**MOVE**' and '**SCALE**' functions.



Once the GA overlay matches the ship outline, click **[Switch to Add New Fairleads/Moorings]**.



Using the menu, select the element you would like to add, and check that the entered values for the mooring element are correct.

Point the mouse cursor at the position of the element on the GA overlay, then hold **[SHIFT]** and **[left-click]** to insert the mooring element.

To simultaneously add an identical mooring element on both Port and Starboard side, hold down [**SHIFT**] + [**CTRL**] and then [**left-click**].

Add New Fairleads/Moorings Mode

Switch to Edit Existing Fairleads/Moorings

Add: Type: Height above Deck (m): SWL per drum (t)
(100% Ship Design MBL)

Max Lines: Max Brake Load per drum (t)
(60% SWL)



Note: If there have been no previous deck mooring or fairlead entries for the ship, it will be necessary to enter the safe working load (SWL) value of the element in tonnes (and Maximum Brake Load per drum for winches).

To delete a mooring element, simply hover over it with a mouse cursor and, once the object is highlighted, press [**DELETE**] or [**BACKSPACE**].

When adding fairleads, please ensure the correct designation is selected: head/stern and/or breast and/or spring. This will allow easy identification of the lines during mooring analysis and in the reports.

Edit Deck Layout

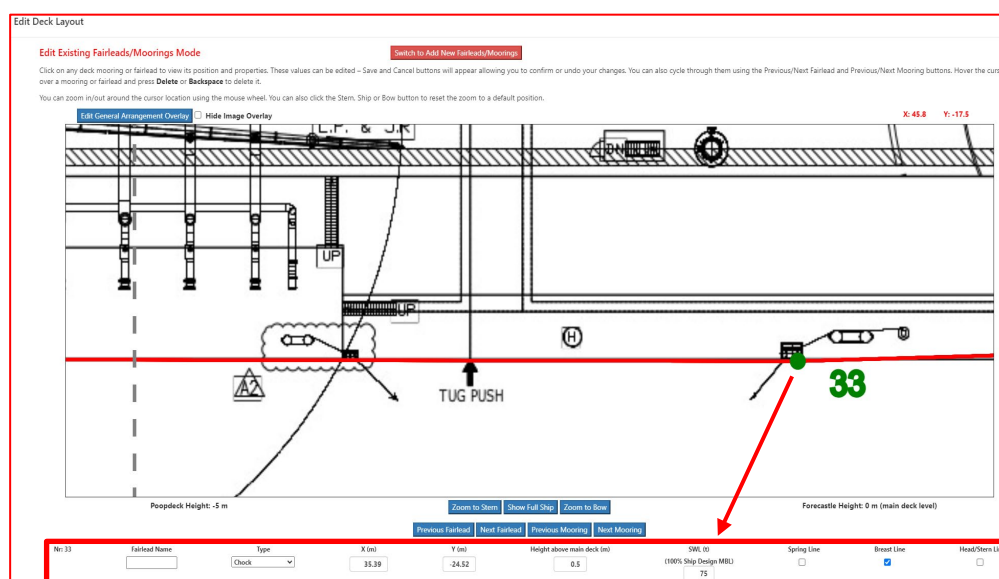
Add New Fairleads/Moorings Mode

Switch to Edit Existing Fairleads/Moorings

Add: Type: Height above Deck (m): SWL (t)
(100% Ship Design MBL)

☐ Spring
☒ Breast
☒ Head/Stern

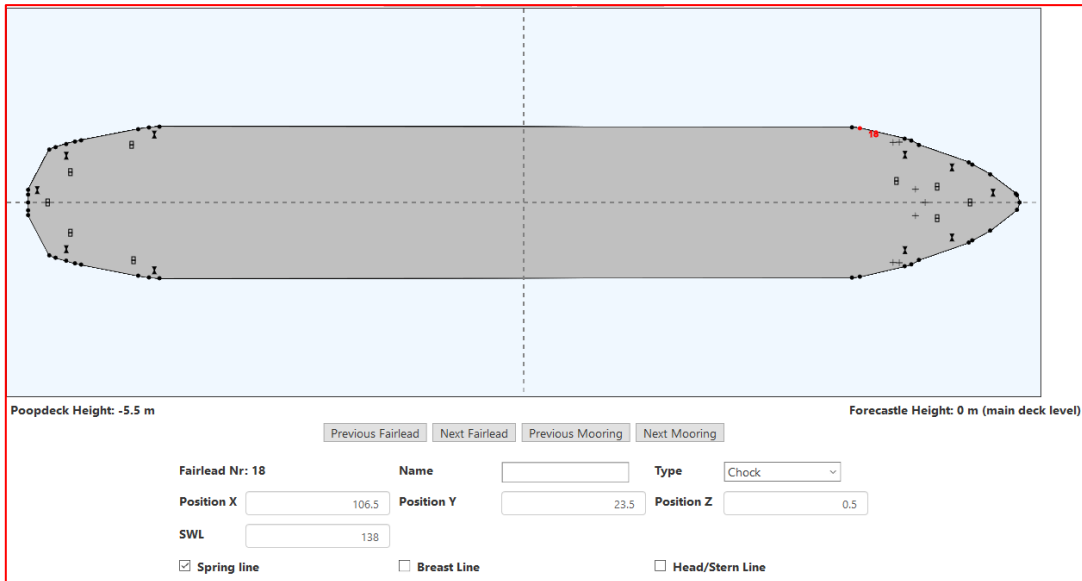
Click [**Edit Existing Fairleads/Moorings**] to adjust the created fairleads and mooring points. Select the element and the parameters will be displayed. You can then change the entered values.



Note: When adding mooring points and fairleads using the overlay function, SHIPMOOR considers the mooring element longitudinal position and automatically adjusts the height (z) values for poopdeck and forecandle.

2.3.4.2. Manual deck mooring entry

Click on **[Add Deck Mooring]** to input data for winches, bollards, pedestal rollers and fairleads, then use **[Edit Deck Layout]** to check/correct the layout:



The screenshot displays a ship's deck layout with various mooring points marked. Below the layout, there is a data entry form for a specific mooring. The form includes fields for Fairlead Nr, Name, Type, Position X, Position Y, Position Z, and SWL. It also has checkboxes for Spring line, Breast Line, and Head/Stern Line. Navigation buttons for Previous/Next Fairlead and Previous/Next Mooring are present.

Fairlead Nr:	Name	Type	Position X	Position Y	Position Z	SWL	Spring line	Breast Line	Head/Stern Line
18		Chock	106.5	23.5	0.5	138	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The height (z position) is the position where the mooring line runs above the main deck, e.g., a pedestal roller height could be 1 m and the centre of the winch drum where the line is secured is also about 1 m high, but a bollard will usually be closer to 0.3 m high.

[Delete Deck Moorings] allows the user to delete one or more selected rows of the deck moorings table. To delete multiple lines, click on the first line you wish to select. The row will be highlighted in blue. Use 'Ctrl Click' to select one or more extra lines or use 'Shift Click' to select adjacent rows. Click on 'Edit' to update a single row.

2.3.5. Fairleads

It is important to enter fairleads on both port and starboard sides so that the ship data is available and accurate for all mooring situations. By default, the program adds symmetrical fairleads automatically.

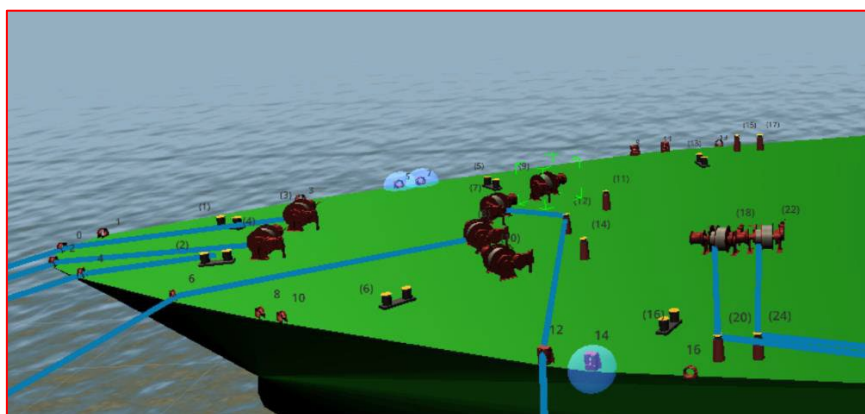
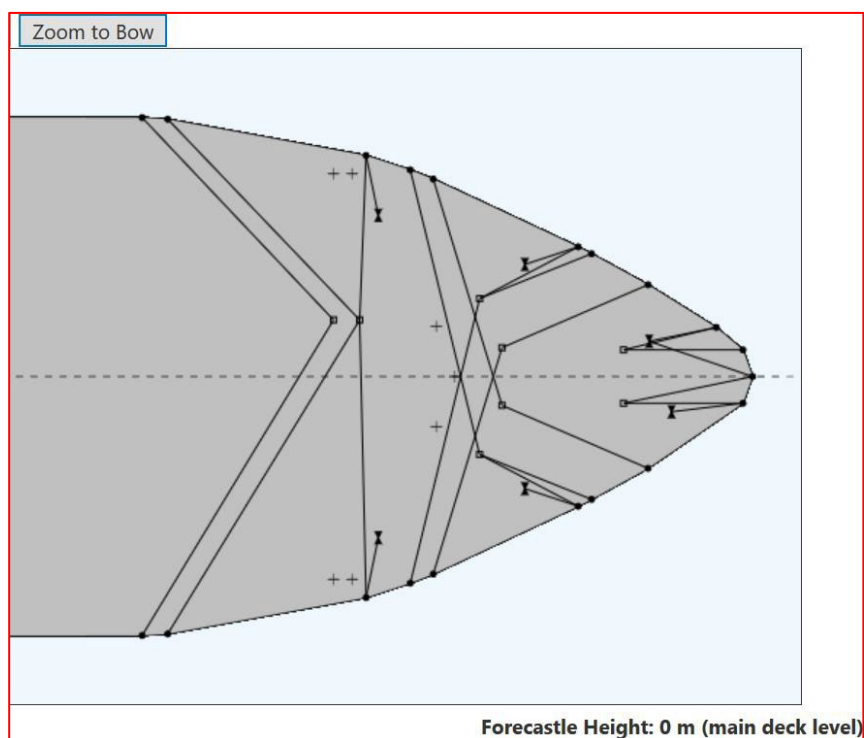
The height (z position) is the position where the mooring line runs above the main deck. For instance, a multi angle roller or chock fairlead will let the mooring line run at approximately 0.5 m from the main deck.

Click on **[Add Fairlead]** and deck moorings, then use **[Edit Deck Layout]** to check/correct the layout.

[Delete Fairleads] allows the user to delete one or more selected rows of the fairleads table. To delete multiple lines, click on the row of the first line to select. The row will be highlighted in blue. Use 'Ctrl Click' to select one or more extra lines or use 'Shift Click' to select adjacent rows. Click on 'Edit' to update a single row.

2.3.6. Valid fairleads

In the 'valid fairleads' section, users can link ship mooring points and fairleads to the most appropriate connecting points. This section is not mandatory, but it helps the user to quickly see the recommended fairleads when selecting a deck mooring or vice-versa by highlighting the associated points in the 3D environment.

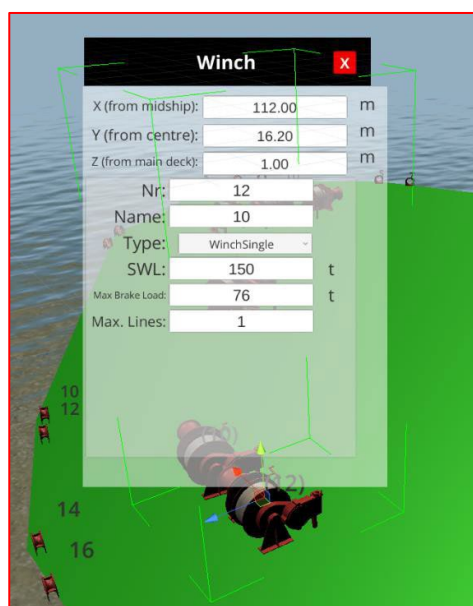



2.3.7. Visualising the ship

It is possible to validate the master data by visualising the ship in 3D (click on [Visualise Ship](#)) at any time.


If the ship does not look as expected, make sure to check that all the general ship information (such as dimensions, forecastle and poop deck height and length) and the fairleads (port *and* starboard side) have been entered correctly.

Any ship object can be moved or edited in the 3D environment. After selecting a 3D object using the left mouse button, press [F] or click on **[FOCUS ON]** to focus on a 3D object after selecting it (left click). You can use the on-screen arrows to move the 3D object along the X, Y, Z axis by clicking on an arrow and dragging the mouse button to reposition the object.



 Note that you can edit 3D objects (for instance, change the SWL) but you cannot add or delete them. This must be done from the respective forms of the web portal.

When pressing **[SAVE]**, changes are applied to the master data. **Because the 3D visualisation is being used by the owner of the data, this will directly update the master data** (instead of being a change request as described in *Request changes to the master data* above).

 After saving changes from the 3D visualisation, you need to press **[Refresh Data]** on the management portal to synchronise the portal data with the latest changes before doing further editing from the portal. In a similar way, you should not edit the 3D view from an already open browser tab after making changes from the portal but instead click again on **[Visualise Ship]** to display an up-to-date version of the ship.

See **section 1.3 Navigation** for more information on using the 3D environment.

2.3.8. Data quality

Fields followed with a grey button showing 3 dots are fields for which a comment on the data quality can be added.



By default, all fields are expected to be validated and of the highest quality. These will be displayed as white, and no comment is necessary in such cases.

In addition, there are 4 other possible options and each of these is colour coded:

1. Highest – validated (*default, white*)
2. **Good** – not validated.
3. **Unknown source**
4. **Estimated data**
5. **Data missing** (reminder flag that data must be obtained)

For instance:

It is strongly recommended that these comments are used to highlight any data that should be refined at a later stage of data entry.

These comments are also shown in the detailed mooring analysis report, which will allow end users to check unexpected results against any comment that has been left on the data quality.

2.3.9. Mooring Lines

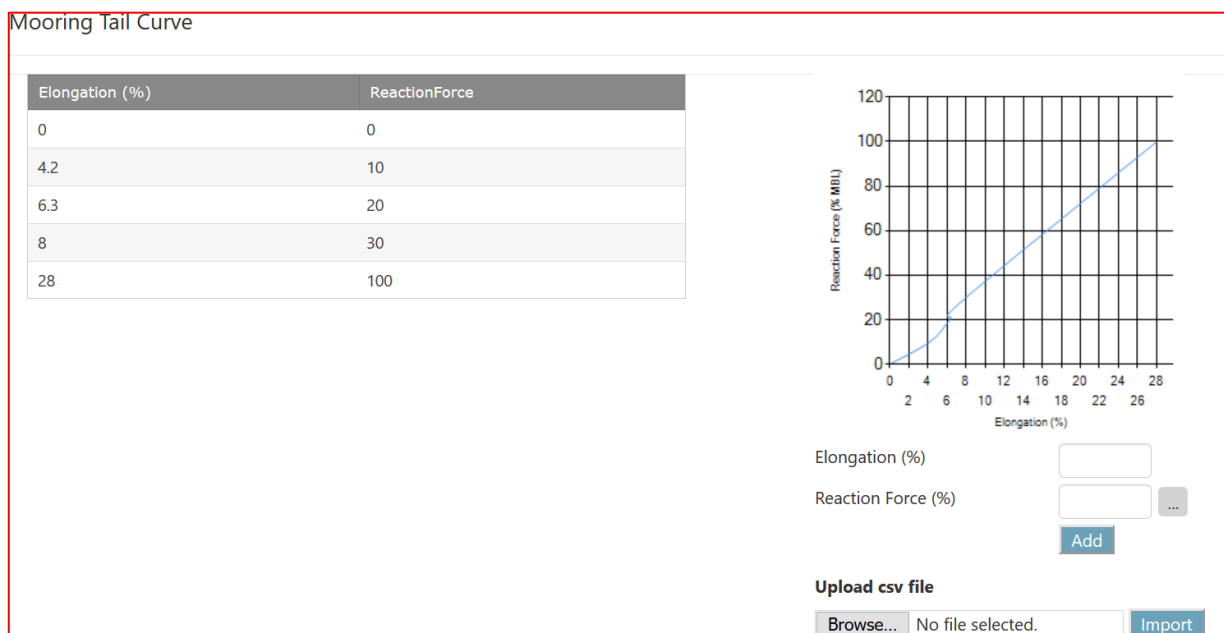
To add a new mooring line, click on **[Add Mooring Line]** and select the main line material, followed by the manufacturer and model from a comprehensive list of manufacturers.

The mooring lines are grouped by material. You can expand or collapse the view of a material by clicking on the + or – signs in the first column:

	Material ^	Manufacturer	Model	Description	Line ID
+	Material: Dyneema SK78 (20)				
-	Material: Steel Wire (4)				
	Steel Wire	Manufacturer [test]	STW	Test data	34

	Material ^	Manufacturer	Model	Description	Line ID
-	Material: Dyneema SK78 (20)				
	Dyneema SK78	Samson	872	non-jacketed 12-strand single-braid AmSteel-Blue	40

When adding new mooring lines, multiple identical lines can be created at the same time. Line and tail reaction curves will be imported from the manufacturer catalogue.



Dotted lines (or thin lines in the reports) indicate extrapolated data (linear extrapolation). To enter reaction curves manually (or from a CSV file), click on the [Edit](#) link of the 'Line Curve' or the 'Tail Curve' columns of the mooring lines table. For more information on CSV files, see section [2.4.8 Fenders](#).

If the line and/or tail details are entered manually, or if adjustments are necessary on the basic line/tail data (LDBF, length, weight, etc.), add a single line, make all the adjustments necessary and use [\[Duplicate Mooring Line\]](#).

Once a line is created, it will be assigned a line ID. This is a reference number allowing a user to identify a specific line in case it is not strictly identical to the other lines, e.g., if an individual line has been shortened.

To delete multiple mooring lines, click on the row of the first mooring line you want to select. The row will be highlighted in blue. Use 'Ctrl Click' to select one or more extra lines or use 'Shift Click' to select adjacent rows and then press [\[Delete Mooring Lines\]](#).

Material: Steel Wire (8)								
Steel Wire	Survitec	6x36 IWRC 1770	Standard Galvanised Steel Wire Rope	30	50.4	220	28	321
Steel Wire	Survitec	6x36 IWRC 1770	Standard Galvanised Steel Wire Rope	29	50.4	220	28	321
Steel Wire	Survitec	6x36 IWRC 1770	Standard Galvanised Steel Wire Rope	28	50.4	220	28	321
Steel Wire	Survitec	6x36 IWRC 1770	Standard Galvanised Steel Wire Rope	27	50.4	220	28	321

2.3.10. Load conditions

For each relevant condition (for instance, *Ballast* or *Fully Laden*), you will need to enter:

- Draft
- Trim
- Displacement
- Block Coefficient
- Centre of Gravity (G)
- Metacentric Height GM
- Inertia OR Radius of Gyration
- Positions at which to apply the frontal and side wind forces. If the x and y values for these are left blank, 0 will be entered as a default.

Edit Load Condition

Cancel

Name

Ballast

Draft (m)

9.2

Trim (m)

0

(+ by stern)

Displacement (t)

83,000

Block Coefficient ()

0.74

Use Approximation (see User Manual for details)

Centre of Gravity

X (m)

5.5

(longitudinal axis, 0 at midship LBP/2, + FWD)

Y (m)

0

(transversal axis, 0 centre, + port side)

Z (m)

14

(height, 0 at keel, + UP)

Metacentric Height GM

X (m)

7.1

(longitudinal axis, + FWD)

Y (m)

543

(transversal axis, + port side)

Z (m)

0

(height, + UP)

Inertia

Use Approximation (see User Manual for details)

☒ Inertia (t · m²)

☐ Radius of Gyration (m)

X

26,279,994.19

17.79

(Longitudinal axis)

Y

434,297,242.37

72.34

(transversal axis)

Z

444,223,716.01

73.16

(vertical axis)

Position to apply the frontal wind force to

Use Approximation (see User Manual for details)

X (m)

0

(longitudinal axis, 0 at midship LBP/2, +FWD)

Y (m)

0

(transversal axis, 0 centre, + port side)

Z (m)

27.8

(height, 0 at keel, + UP)

Position to apply the side wind force to

Use Approximation (see User Manual for details)

X (m)

0

(longitudinal axis, 0 at midship LBP/2, +FWD)

Y (m)

0

(transversal axis, 0 centre, + port side)

Z (m)

22

(height, 0 at keel, + UP)

Save and Close

The formulas used to approximate the inertia are:

- $I_{xx} \approx \text{Displacement} \times (0.35 \times \text{Beam})^2$
- $I_{yy} \approx \text{Displacement} \times (0.25 \times \text{LBP})^2$
- $I_{zz} \approx \text{Displacement} \times (0.25 \times \text{LBP})^2$

If the radius of gyration is entered, it is converted into a value for inertia using the formula below:

$$R_x = \sqrt{\frac{I_{xx}}{m}} \quad \text{where } m \text{ is the displacement}$$

It is the inertia value and not the radius of gyration that is stored in the SHIPMOOR system. Standard coefficients give forces and moments acting at midships so the positions to apply the wind forces to are usually $X = 0$ and $Y = 0$.

The formulas used to approximate Z (height) are:

- Frontal Wind Force $Z \approx \text{Draught} + 0.5 \times (\text{Distance Keel to Bridge} - \text{Draught})$
- Side Wind Force $Z \approx 0.6 \times \text{Distance Keel to Bridge}$

A formula to estimate the block coefficient, C_B , is as follows:

$$C_B = \text{Displacement (in tonnes, and not deadweight)} / (\text{LBP} \times \text{Beam} \times \text{Design draught} \times 1.025)$$

where 1.025 is the density of sea water in tonnes/m³.

For LNG carriers ONLY, the following table of estimated block coefficients can be used:

Capacity range (m ³)		C_B average (estimated)
From:	To:	
20,000	50,000	0.74
50,000	120,000	0.75
120,000	139,000	0.71
139,000	150,000	0.73
150,000	160,000	0.75
160,000	170,000	0.77
170,000	175,000	0.77
175,000	200,000	0.75
200,000	250,000	0.77
250,000	262,000	0.80

2.3.11. Coefficient sets

The ship hull must be associated with two (one for wind, one for current) or more coefficient "sets" (defined as a sequence of coefficients from 000° to 350°, usually with 10° interval).

Various sets of SIGTTO and OCIMF coefficients are available:

Coefficient Set ^	Angle (°) ^	CFx (N)	CFy (N)	CMz (Nm)
+ Coefficient Set: MEG3/4 Tanker Laden 6.0 and over (deep water) (36)				
+ Coefficient Set: MEG4 LNG Carrier 1.05 (36)				
- Coefficient Set: MEG4 LNG Carrier 1.1 (36)				
MEG4 LNG Carrier 1.1	0	0.034	0	-0.001
MEG4 LNG Carrier 1.1	10	0.013	0.338	-0.14
MEG4 LNG Carrier 1.1	20	0.0555	0.715	-0.189
MEG4 LNG Carrier 1.1	30	0.098	1.092	-0.238
MEG4 LNG Carrier 1.1	40	0.1193	1.461	-0.227
MEG4 LNG Carrier 1.1	50	0.1407	1.83	-0.216
MEG4 LNG Carrier 1.1	60	0.162	2.199	-0.205

You can also use [\[Add Coefficient Set\]](#) to define a set of wind or current coefficients specifically measured/calculated for the ship's hull.

For a given coefficient set you must enter a description of the set and the type of coefficients (wind/current/wave) it is to be used for. You can optionally enter a 'Usage Note' to assist the user in selecting the appropriate set for a given situation.

You can also enter the relevant vessel *Draft* and/or *Depth to Draft Ratio* that the set may be used for, and these values will be used to display a warning to the user if they select a coefficient set for which the *Draft* or *Depth to Draft Ratio* is more than 10% above or below the one seen in their mooring situation.

After adding the definition of a coefficient set (description, usage, etc.), it will be necessary to import the actual coefficients as [described in 2.3.12 and 2.3.13](#).

Edit Coefficient Set Cancel ✕

Description: MEG4 LNG Carrier 1.1

Usage Note: Ballast and Laden.
LNG Carrier current coefficients are matching closely with figures for laden tankers except for Cy when Wd/T = 1.05 and 1.10.

MEG Version: 4

Applicable to: ☐ Wind ☒ Current

Draft (m) - Optional:

Depth to Draft Ratio - Optional: 1.1

Add Next Coef. Set Save and Close

This information will allow the user of the 3D mooring analysis to select the appropriate coefficients to use for a given mooring situation e.g., *Depth to Draft Ratio* (see [section 1.4.4.4. – wind and current coefficients](#)).

Use [\[Add Standard Coefficients\]](#) if specific sets of coefficients are not available for the hull. This allows the use of SIGTTO or OCIMF coefficients as a first approximation.

Selecting a standard set of coefficients automatically adds the relevant coefficients for wind and current, as described in [sections 2.3.12 and 2.3.13](#).

Add Standard Coefficients

Cancel

You can choose a preset from the list and/or select items individually

Please select ...

Please select ...
Large LPG Carrier
LNG Carrier - Moss
LNG Carrier - Prismatic

Clear Selection

Applicable To		Description	Usage Note	Draft	Depth/Draft Ratio	
Wind	Current					
[X]		MEG3 SIGTTO 1985 Spherical	MEG3. LNG Carrier.SphericalTanks.			<input type="checkbox"/>
	[X]	MEG3/4 Tanker Conv. Ballast	Ballast. Conventional Bow (V-shaped, bulbous).The wind coefficients for oil tankers are unchanged from MEG3.These wind coefficients were reviewed with the conclusion that they remain valid for double-hulled tankers down to 16,000 DWT.The coefficients are only valid for ships with superstructure at the stern.The trim is assumed to be 0.8° in the ballast condition.When the trim differs significantly, a correction to the yaw moment may be necessary.			<input type="checkbox"/>
	[X]	MEG3/4 Tanker Conv. Laden	Fully Laden. Conventional Bow (V-shaped, bulbous).The wind coefficients for oil tankers are unchanged from MEG3.These wind coefficients were reviewed with the conclusion that they remain valid for double-hulled tankers down to 16,000 DWT.The coefficients are only valid for ships with superstructure at the stern.The trim is assumed to be zero in the fully laden condition.When the trim differs significantly, a correction to the yaw moment may be necessary.			<input type="checkbox"/>
	[X]	MEG4 SIGTTO 2007 Spherical	MEG4. LNG Carrier.The wind coefficient values are based on a comprehensive set of wind tunnel tests conducted on prismatic and spherical gas carriers for SIGTTO's Prediction of Wind Loads on Large Liquefied Gas Carriers (2007).Model tests covered the following sizes:Spherical 125,000, 135,000 and 150,000m³Applicable from ballasted to fully laden. Zero trim assumed.			<input type="checkbox"/>

[Delete Coefficient Sets] will delete the selected set(s) of coefficients.



Note: deleting a coefficient set will delete not only that set of coefficients but also all associated wind and current coefficients linked to it.

To delete multiple sets, click on the row of the first set to select it. The row will be highlighted in blue. Use 'Ctrl Click' to select one or more extra rows or use 'Shift Click' to select adjacent rows.

2.3.12. Wind coefficients

This section is only necessary for wind coefficients that are specific to the hull (i.e., non-standard coefficients).

[Add Wind Coeff] allows the user to add a specific set of coefficients for the ship's hull, linked to a set already defined in the main coefficient set table (See section 2.2.11).

Add Wind Coefficient Cancel

Enter coefficients in OCIMF Convention (0° stern, 90° stbd, 180° bow, 270° port), or you can upload a csv file containing the coefficients

Note: Coefficients presented in the Section are for wind and current angles of attack from 0-180 degrees but are also valid for angles from 181-359 degrees with appropriate sign changes.

Coefficient Set: Please select ...

☐ Mirror coefficients

Angle (°): Please select ...

CFx (N): Please select ...

CFy (N): ...

CMz (Nm): ...

Upload CSV file (.csv)

Browse... No file selected.

☐ If your csv file uses the SIGTTO convention select this checkbox to convert it to OCIMF.

Import

Coefficients must be entered following the OCIMF convention, but the program can read a CSV file set up using the SIGTTO convention and will automatically mirror the coefficients if they are entered for one side only.

[Assign To Coefficient Set] allows the user to select one or more rows (angle + coefficients) and to (re)assign these to another existing set of coefficients:

Reassign Wind Coefficients ×

Select which coefficient set you wish to reassign the selected coefficients to: MEG3 SIGTTO 1985 Prismatic

Reassign

Coefficient Set	Angle (°)	CFx (N)	CFy (N)
+ Coefficient Set: MEG3 SIGTTO 1985 Prismatic (36)			
- Coefficient Set: MEG4 SIGTTO 2007 Prismatic (36)			
MEG4 SIGTTO 2007 Prismatic	0	0.918	0.002
MEG4 SIGTTO 2007 Prismatic	10	0.963	0.143
MEG4 SIGTTO 2007 Prismatic	20	0.974	0.313

[Delete Coefficients] allows the user to select one or more rows and delete them.

To select multiple rows, click on the first row you want to select. The row will be highlighted in blue. Use 'Ctrl Click' to select one or more extra rows or use 'Shift Click' to select adjacent rows.

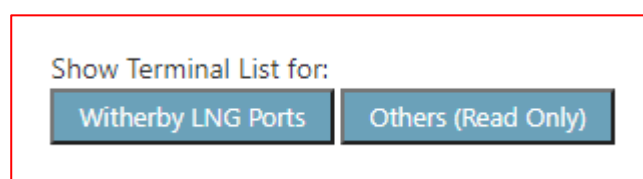
2.3.13. Current coefficients

This section is only necessary for current coefficients that are specific to the hull (i.e., non-standard coefficients).

The add/assign/delete coefficient buttons and the input form are identical to those used in the Wind Coefficients input form (see section 2.3.12).

2.4. Managing terminals

The data available to use in the web portal is the **master data** belonging to the company that is the **data owner**. However, you can view a read-only copy of other terminals that have been made available to you by clicking on the 'Others (Read Only)' button in the terminal selection panel.



Show Terminal List for:

Witherby LNG Ports Others (Read Only)



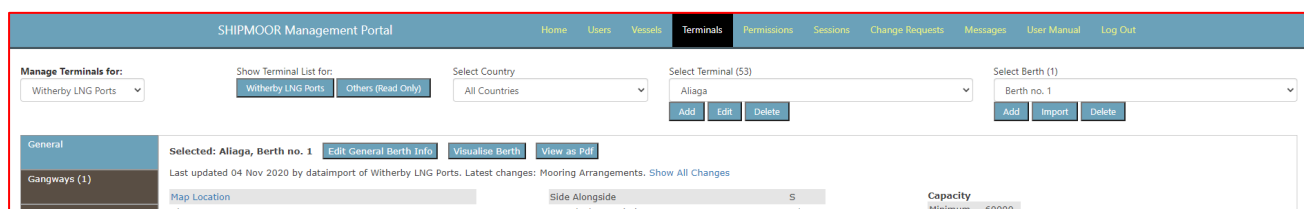
Note that it is possible for two companies to share ownership of a terminal's data e.g., if they are joint owners/operators. In this instance either company's admin user may edit the master data and accept/reject change requests. Please contact the SHIPMOOR team if you would like to set shared ownership for a terminal.

The master data is used to start each mooring analysis session. If the data (for instance, the position of a hook on a mooring dolphin) is modified during a mooring analysis session, the master data is not updated. However, a change request can be generated by the session user that will need approval from the data owner (see [section 2.5 - Managing change requests](#)).



You can only edit the master data for berths where your company is the data owner.

To access a berth, you own in the database, first select the **Terminals** tab. You will then be shown three drop-down boxes allowing you to filter by country, terminal, and berth to view the desired berth in the admin portal. These must be selected in that order (country → terminal → berth), which runs from left to right in the display.



SHIPMOOR Management Portal

Home Users Vessels **Terminals** Permissions Sessions Change Requests Messages User Manual Log Out

Manage Terminals for: Witherby LNG Ports

Show Terminal List for: Witherby LNG Ports Others (Read Only)

Select Country: All Countries

Select Terminal (53): Allaga

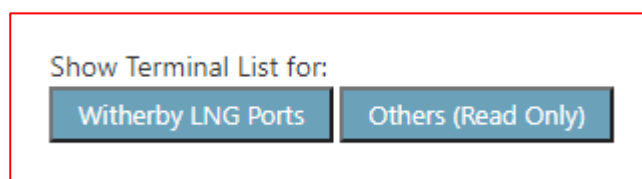
Select Berth (1): Berth no. 1

Selected: Allaga, Berth no. 1

Last updated 04 Nov 2020 by dataimport of Witherby LNG Ports. Latest changes: Mooring Arrangements. Show All Changes

Map Location	Shape	Side Alongside	Vessel Min LGA (m)	Capacity
		S	N/A	Minimum: 60000

You can also choose to view a table of all terminals for which you own the data by clicking the button showing your company account name to the left of the drop-down boxes (the 'Witherby LNG Ports' button in the image below).



This table will show the terminals in alphabetical order by name. To access the data for a terminal from this view, click on the terminal you want to view and then click [\[Select this terminal\]](#). If the terminal has more than one berth this will show the first berth alphabetically and you can switch between berths using the filters at the top of the page, as described above.

2.4.1. LNG berths

Company subscriptions include access to both LNG Port Info and SHIPMOOR, so all the LNG terminal berths are pre-populated, and their data are controlled directly by Witherbys. Any change requests created by session users will be sent to the Witherby LNG team, who will be responsible for updating the berth data based on feedback from terminals.

The Witherby account managing the LNG berth data is called **Witherby LNG Ports** and they can be contacted by emailing the SHIPMOOR support team (see [Section 4](#)) or directly submitting change requests for LNG terminal data within SHIPMOOR.



If there is an LNG berth you would like to use with SHIPMOOR that is not currently available in the SHIPMOOR berth list, please contact the SHIPMOOR support team to discuss adding this to the system.

2.4.2. Adding a new (non-LNG) berth

There are three different methods to add non-LNG berths to the system:

1. [\[Import Berth from Excel\]](#). Blank data entry Excel worksheets are available at <https://www.shipmoor.com/excel>.

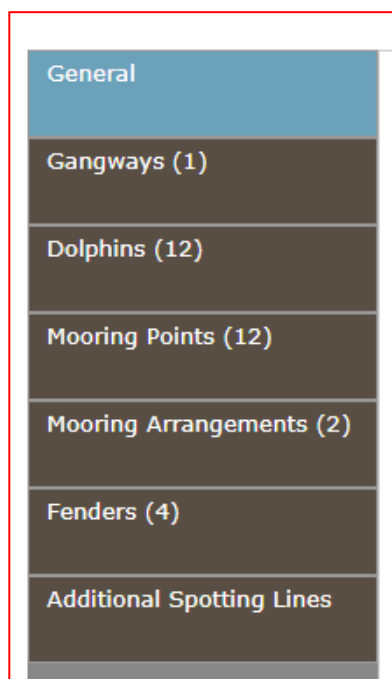


It is strongly recommended that you only import the Excel worksheet *once* and then use the web portal to fix any data errors. Importing the same berth from an Excel sheet multiple times will result in the loss of any change history records.

The import routine validates the data and returns appropriate error messages if corrections are needed before import.

2. [\[Add Berth\]](#) to create the berth manually.
3. *Import files from existing programs.* Please contact us if you would like to discuss importing existing file formats to SHIPMOOR.

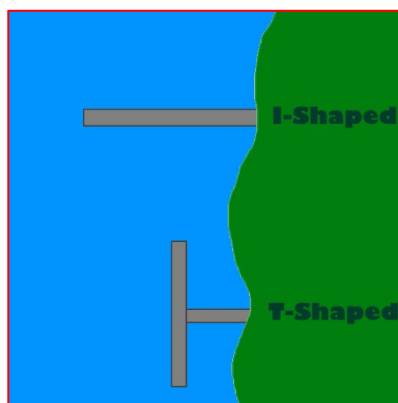
Once you have added a new berth, you can add and edit the berth data by navigating through the left-hand menu. The following sections of this manual will take you through these in more detail.



2.4.3. General berth information

Click on [\[Edit General Berth Info\]](#) to enter the following:

- Berth name, position, type, orientation, dimensions and permitted side alongside.
- Berth shape (this is for visualisation only):



- Vertical (Chart) Datum and MSL or tide
- Max. dimensions and capacity for ships
- Loading Arms (spotting line)
- Max. permissible surge, sway, heave, yaw.
- Required mooring tail length and other information (if any).

2.4.4. Gangways

Click on [\[Add Gangway\]](#) to enter:

- Name, type, comment
- Main dimensions and working range.

You can also [Edit](#) or [Delete](#) a gangway by clicking on the corresponding link on the last column ('Edit') of each row of the Gangway table. This will be the case for each table showing a list of similar berth data.

2.4.5. Dolphins

To add a new mooring dolphin, click on [\[Add Dolphin\]](#) and enter the dolphin type, name, the position of the centre of the platform and the size of the platform. The size can be approximate, it is used for the visualisation only. Enter the SWL of the dolphin structure if known. If the dolphin SWL is not known, this will be assumed to be at least equal to the combined safe working loads of any mooring points situated on the dolphin.

2.4.6. Mooring Points

To add a new mooring point, click on [\[Add Mooring Point\]](#) and enter the location of the mooring point (main jetty or one of the dolphins), the name and type of mooring.

If the mooring point type is a quick release (QR) hook, enter:

SWL per Hook (t)	<input type="text" value="120"/>	...
No of Hooks	<input type="text" value="3"/>	...
Maximum Lines per hook	<input type="text" value="1"/> v	...

Otherwise (e.g., for bollards), enter:

SWL (t)	<input type="text" value="120"/>	...
Maximum Lines for Mooring Point	<input type="text" value="1"/> v	...

The position of the mooring points can be entered relative to the dolphin (or jetty if the dolphin is attached to the jetty rather than a dolphin):

Position

☒ **Offset**

X (m) ...

Offset from the dolphin centre or jetty spotting line (+ right seen from the ship)

Y (m) ...

Offset from the dolphin centre or jetty face (+ shore-side)

Z (m) ...

Offset from the dolphin height or jetty height Z (+)

Alternatively, the position of the mooring points can be entered as absolute values:

☒ **Absolute**

X (m) ...

Centre distance from jetty spotting line (+ right of the spotting line seen from the ship)

Y (m) ...

Centre distance from jetty face (+ shore-side)

Z (m) ...

Centre height above vertical datum (+ above)

2.4.7. Mooring arrangements

To add a new mooring arrangement, click on [\[Add Mooring Arrangement\]](#) and enter the minimum number of required lines (head/stern lines, forward/aft breast lines, forward/aft spring lines) for all ship types or for specific ship cargo capacity limits or capacity ranges.

☒ **Capacity Limit**

Less than or equal ...

☐ **Capacity Range**

Capacity Unit

Headlines <input type="text" value="4"/> ...	Sternlines <input type="text" value="4"/> ...
Fwd Breastlines <input type="text" value="3"/> ...	Aft Breastlines <input type="text" value="3"/> ...
Fwd Springs <input type="text" value="2"/> ...	Aft Springs <input type="text" value="2"/> ...

☒ **Capacity Range**

From ... To ...

Capacity Unit

Headlines <input type="text" value="3"/> ...	Sternlines <input type="text" value="3"/> ...
Fwd Breastlines <input type="text" value="3"/> ...	Aft Breastlines <input type="text" value="3"/> ...
Fwd Springs <input type="text" value="2"/> ...	Aft Springs <input type="text" value="2"/> ...

2.4.8. Fenders

To add a new fender, click on [\[Add Fender\]](#) and then select the fender manufacturer, type, model, and rubber grade from a comprehensive list of pre-populated data.

Alternatively, custom fenders can be entered manually, but must include a reaction curve.

To manually enter a reaction curve, click on the [Edit Curve](#) link of the 'Fender Curve' column of the fender table.

To copy a reaction curve from a previously entered reaction curve, select the corresponding fender, and tick the check box "Copy Curve".

Edit Fender

☐ Select a fender from the lookup data

☒ Enter fender details manually

Yokohama Fender (pneumatic, foam)?

No

Manufacturer

Trelleborg

Type

Super Cone Fender

Model

SCN 2250

Fender Rubber Grade

F1.4

Fender Name

F1

Attached to

☐ Main Jetty

☒ Dolphin

1 (BD-1) (Breasting Dolphin)

Location

X (m)

-80

...

panel centre distance from spotting line (+ right of the spotting line seen from the ship)

Y (m)

-2.4

...

panel face distance from jetty face (must be - sea-side)

Z (m)

5.9

...

panel centre height above vertical datum (+ above)

Panel Height (m)

4.2

...

Panel Width (m)

3.6

...

Number of supports

1

Support Depth (m)

2.25

...

Support Max. Compression (% Depth)

72

...

Support Buckling Compression (% Depth)

35.11

...

Max. Reaction Force per support (t)

38.55

...

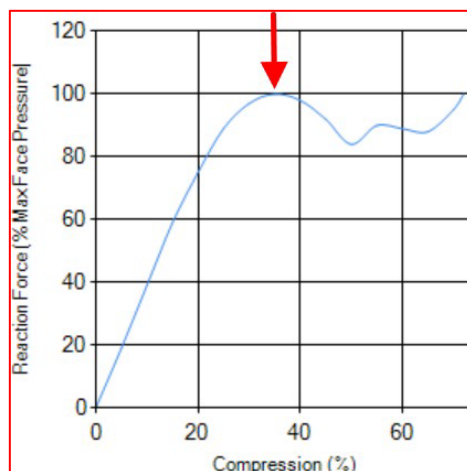
☐ Per Meter

☐ Copy Curve from another Fender:

2 (F2)

Note: The *support depth* is the total physical depth of the panel support while the *support maximum compression distance* is the distance corresponding to 100% compression on the fender curve.

The *support buckling distance* is the distance corresponding to the first compression percentage that results in 100% reaction force:



Fender curves can be entered manually or uploaded from a CSV file (a text file containing several lines with compression and reaction force separated by a comma).

Fender Curve

Compression (%)	Reaction Force (%)	Edit
0	0	Edit Delete
5	20	Edit Delete
10	39	Edit Delete
15	58	Edit Delete
20	76	Edit Delete
25	90	Edit Delete
30	98	Edit Delete
35	100	Edit Delete
40	98	Edit Delete
45	94	Edit Delete

```

testfender.csv - Notepad
File Edit Format View Help
0,0
5,20
10,39
15,58
20,76
25,90
30,98
35,100
40,98
45,94
50,90
55,88
65,90
70,96
72,100
    
```

Upload csv file

No file chosen

The CSV file must contain rows with 2 values, first the compression percentage in % (0-100)

2.4.8.1. Validation of fender location

When adding new fenders, the SHIPMOOR program will check to make sure these are in valid locations. This involves two checks:

- Is the fender in a location that is not already occupied? This prevents accidental entry of duplicates.
- If a fender is listed as being attached to a mooring dolphin, is it in a compatible location? This prevents the user from adding fenders to an incorrect dolphin or from adding them in a position that does not align with the dolphin's location.

If these two checks are not passed, the program will show the user an error message to let them know what the problem is:

Error saving Fender

There is already another Fender at position -100, -2.5, 2

Error saving Fender

Fender is attached to a dolphin but the X position 25m is too far from the Dolphin position 50m

2.4.8.2. Floating fenders

Floating fenders are not currently supported in SHIPMOOR but will be added as an option in the near future. If you do wish to run an analysis involving floating fenders in the meantime, please contact the SHIPMOOR team for assistance.

2.4.9. Additional spotting lines

Some terminals have more than one spotting line, e.g., for conventional and small scale LNGCs or for LNG and LPG carriers in multi-product berths. These can be added in the 'Additional Spotting Lines' section of the terminal data tab.

Add Spotting Line

Cancel ✕

Name of secondary spotting line

Distance from main spotting line, + right of the main spotting line seen from the ship (m)

...

Max Permissible Movement (optional):

Surge (m)

...

Sway (m)

...

Heave (m)

...

Yaw (°)

...

Add Next Spotting Line

Save and Close

2.4.10. Visualising the berth

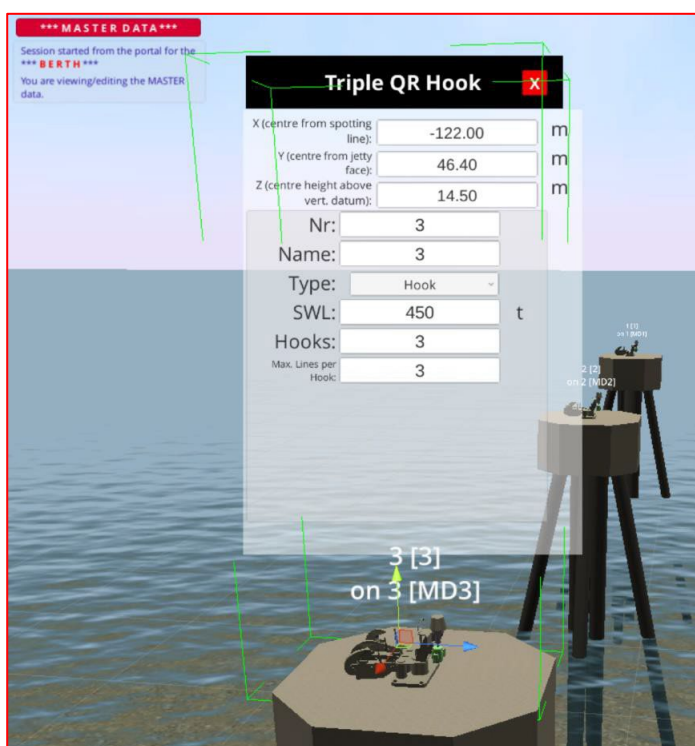
It is possible to check the master data by visualising the berth in 3D (click on [\[Visualise Berth\]](#)) at any time.

If the berth does not look correct, make sure to check that the general berth information has been entered correctly.

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Any berth object can be moved or edited in the 3D environment.



Select the object you wish to edit using the left mouse button and then press **[F]** or click on **[FOCUS ON]** to focus on it. You can use the on-screen arrows to move the 3D object along the X, Y, Z axis by clicking on an arrow and dragging the object to the desired position.



Note that you can edit 3D objects (for instance, change the number of hooks) but you cannot add or delete them. This must be done from the respective forms of the web portal.

When pressing **[SAVE]**, changes are applied to the master data. **Because the 3D visualisation is being used by the owner of the data, this directly updates the master data.** Changes made by a user who is not the data owner must be submitted as a change request as described in section **1.8 - Request changes to the master data.**



After saving changes from the 3D visualisation, you need to press **[Refresh Data]** on the management portal to synchronise the portal data with the latest changes before doing further editing from the portal. In a similar way, you should not edit the 3D view from an already open browser tab after making changes from the portal but instead click again on **[Visualise Ship]** to display an up-to-date version of the ship.

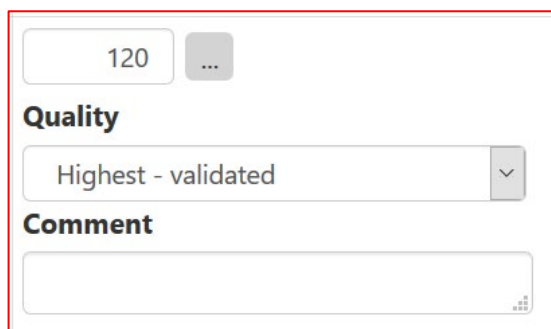
See **section 1.3 – Navigating in the 3D environment** for more information on using the 3D environment.

2.4.11. Data Quality

Fields followed by a grey button showing 3 dots are fields for which a comment on the data quality can be added.

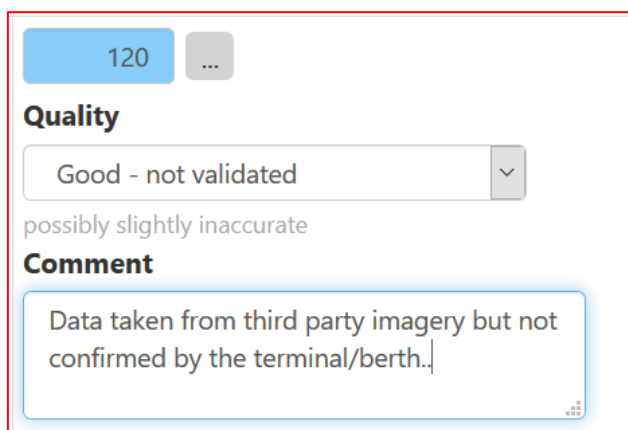


By default, all fields are expected to be validated and of the highest quality. No comment is necessary in such case:



However, there are 4 other possible options and each of these is *colour coded*:

1. Highest – validated (default, white)
2. **Good** – not validated.
3. **Unknown source**
4. **Estimated data**
5. **Data missing** (reminder flag that data must be obtained)



It is strongly recommended that these comments are used to highlight any data that should be refined at a later stage of data entry.

These comments are also shown in the **detailed mooring analysis report** (see **Section 1.6**), which will allow end users to check unexpected results against any comment that has been left against the data quality.

2.5. Managing change requests

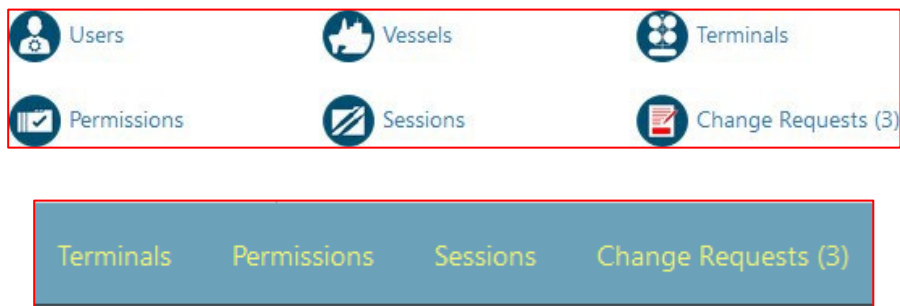
This page allows you to view details of any requests submitted by mooring analysis users asking to update the master data of a berth or vessel for which you are the data owner, and to accept or reject these change requests.

When users submit a change request, the data owner(s) will receive an email in the following format:

You are receiving this email because one or more change requests has been received for the ship: Flex Polaris [test]

Please log in to the ShipMoor portal to view the details of the change requests.

Additionally, while there are unresolved change requests, this will be highlighted on the Admin Portal home page and navigation bar.



The top table on the 'Change Requests' page shows a list of all ships and berths for which there are unresolved change requests. Select a row in this table and the details of all the change requests that have been received will be displayed in the bottom table. Here you can see who has submitted the change request and when, and how their proposed change compares to the current value in the master data.

You can view all the changes for a given ship/berth, or using the drop-down box above the bottom table you can choose to view only the change requests for a given type of object e.g., fairleads/dolphins/etc.

Show Changes for: Load Conditions						
Changes						
<input type="checkbox"/>	Item	Modified Property	Current Value	Proposed Change	User	Change Request Submitted
<input type="checkbox"/>	Load Condition 100%	Side Wind Force Z Position	5	7	mark.wood@shipmoor.com	05 Dec 2018 - Session: QKACNKH
<input type="checkbox"/>	Load Condition 100%	Side Wind Force Z Position	5	6	mark.wood@shipmoor.com	05 Dec 2018 - Session: YWUCLZTX
<input type="checkbox"/>	Load Condition 100%	Centre Of Gravity X	15	14	mark.wood@shipmoor.com	05 Dec 2018 - Session: YWUCLZTX
<input type="checkbox"/>	Load Condition 100%	Centre Of Gravity X	15	14	mark.wood@shipmoor.com	04 Dec 2018 - Session: QKACNKH
Accept Selected Reject Selected						

You can accept or reject change requests, either individually or in batches by ticking the checkboxes in the rows you wish to process, then clicking [Accept Selected] or [Reject Selected].

An email will be sent by the SHIPMOOR system notifying the users who submitted the change requests that their request has been accepted or rejected.

When rejecting a change request or group of change requests, you will also be given the opportunity to enter a comment which will be included in this email.

2.6. Permissions

This page is where the data owner can grant permissions to allow other users of SHIPMOOR to use your company's ship and/or terminal data in a mooring analysis. For terminals with multiple births, the permission is always granted for the whole terminal.



By default, all data is shared publicly within SHIPMOOR, which means that other SHIPMOOR users can select your ships and/or berths to use for mooring analysis sessions. This is the best way to ensure that everyone is using the latest version of the data and that data is kept up to date by regular user feedback.

Users starting mooring analysis sessions can read the master data, but they **can never edit this master data**. If appropriate, a change request can be generated by the session user that will need approval from the data owner (see [Section 2.5 - Managing change requests](#)).

To limit the period during which a given ship/terminal is shared, or to limit the list of companies that it is shared with, edit the permissions using the [Edit](#) link in the first column.

The same page also shows the list of permissions that have been received, for ships and for terminals.

Ships

Terminals

Ship Permissions Granted to Other Users

Edit	Ship Name	Granted To	Expiration Date	GrantedBy
No records returned				

[Add Ship Permission](#)

Filter the grid by entering values in the top cells and pressing Enter

Ship Permissions Received from Other Users

Ship Name	Received From	Expiration Date
145,000 m³ Moss LNG template	Witherby Curated Data	
160,000 m³ Membrane LNG template	Witherby Curated Data	
85,000 m³ LPG template	Witherby Curated Data	
AMAX Copy	Witherby Office	
Atlantic Max template	Witherby Curated Data	
Bellatrix Atlantic [test]	Demo Company	
Flex Polaris [test]	Demo Company	
Jims Ship	SHIPMOOR community	
Orion Max [test]	Demo Company	
Q Flex template	Witherby Curated Data	
Q Max template	Witherby Curated Data	
Test QFLEX 1	Venture Global LNG	

Filter the grid by entering values in the top cells and pressing Enter

Use the links below to contact another company's SHIPMOOR system administrator to arrange sharing access to data, etc

[Click here to contact another SHIPMOOR Company](#)

[Click here to check the company responsible for a particular vessel/terminal](#)

If a ship or terminal is not accessible, it is possible to use the link '[Click here to check the company responsible for a particular vessel/terminal](#)' to see who the data owner is. You can then use '[Click here to contact another SHIPMOOR Company](#)' to contact the data owner and request access.

2.7. Sessions

The 'sessions' page shows a log of all the mooring analysis sessions that have been started by the users of the company. A session starts when a company user goes to www.shipmoor.com/3d, logs in and selects a ship and berth from the available list.

The main table shows the session tag (a unique 8 letter code allowing access to the session), main user, date of last use and the combination of berth and ship for which a mooring analysis has been made.

2.7.1. Viewing and modifying a session

By selecting a row of the table, it is possible to see more details on the session, like the number of changes made on the ship, berth, external conditions, and mooring configuration (each time the user saves a session, it creates a new *version* of the modified data). The time of first and last use, and the total duration are also indicated.

If calculations have been made, they will appear in the **results** table below the main table. Clicking on a link in the "Available Reports" column displays the report as it has been generated at the time indicated in "Calculation Date".

2.7.2. Archiving a session

By selecting a row to highlight it and clicking on [\[Archive\]](#), it is possible to archive a session. Archived sessions are not listed anymore in a user's mooring analysis login page, but a user can still access the session by entering the 8-character session tag when logging in.

Manage Sessions for: Demo Company						Archive Sessions:		Selected Row		Archived
Session Tag	Main User	Last Use	Berth	Ship	Archived					
1 JUMBCSTC	user@DEMO (info@shipmoor.com)	09 Jun 2020	South Berth (California LNG)	Orion Max (test) (1234567)	False					
2 DEMOQFLX	user@DEMO (info@shipmoor.com)	09 Jun 2020	North Berth (test) (Demo Terminal)	Rex Polaris (test) (7654321)	False					
3 DEMOQMLX	user@DEMO (info@shipmoor.com)	19 May 2020	South Berth (test) (Demo Terminal)	Orion Max (test) (1234567)	False					
4 DEMOQMAO	user@DEMO (info@shipmoor.com)	10 May 2020	South Berth (test) (Demo Terminal)	Beatrix Atlantic (test) (1751751)	False					
5 YBMWIRRN	user@DEMO (info@shipmoor.com)	27 Apr 2020	South Berth (test) (Demo Terminal)	Q Max template (TP97144)	False					
6 WQYSKMLH	user@DEMO (info@shipmoor.com)	15 Apr 2020	North Berth (test) (Demo Terminal)	85,000 m³ LPG template (TP01316)	False					
7 DEMO1600	user@DEMO (info@shipmoor.com)	15 Apr 2020	North Berth (test) (Demo Terminal)	160,000 m³ Membrane LNG template (TP20725)	False					
8 DMFDSIEDK	user@DEMO (info@shipmoor.com)	31 Mar 2020	South Berth (test) (Demo Terminal)	ZZZ TEST (TP89273)	False					
9 LYSZPTTP	user@DEMO (info@shipmoor.com)	23 Mar 2020	South Berth (California LNG)	145,000 m³ Moss LNG template (TP56495)	False					
<div><input type="checkbox"/> View all sessions (including archived)</div>										
Selected Session: DEMOQFLX										
Main user: user@DEMO (info@shipmoor.com)			Current version ship: 4		Highest version ship: 4					
First use: Tuesday, May 12, 2020			Current version berth: 3		Highest version berth: 3					
Last use: Tuesday, June 9, 2020			Current version environment: 9		Highest version environment: 9					
Duration (min):			Current version mooring config: 4		Highest version mooring config: 4					
Berth: North Berth (test) (Demo Terminal)										
Ship: Rex Polaris (test) (7654321)										
Results:										
SessionID			Version			Calculation Date		Available Reports		
			Berth	Ship	Mooring Config.	Environ. Conditions				
1	DEMOQFLX		3	4	4	9	04 Jun 2020 12:05			
2	DEMOQFLX		3	4	4	8	29 May 2020 10:52			
3	DEMOQFLX		3	4	4	7	29 May 2020 10:50			
4	DEMOQFLX		3	4	4	6	28 May 2020 15:54			
5	DEMOQFLX		3	4	4	5	28 May 2020 15:11			
Batch	Iteration	Wind Direction (From °N)	Wind Speed	Current Direction (To °N)	Current Speed	Tide Level	Available Reports			
A	1	350	15	300	2	1	Detailed Batch Report Annex			
A	2	350	15	30	2	1	Detailed Batch Report Annex			
A	3	350	15	120	2	1	Detailed Batch Report Annex			
A	4	350	15	210	2	1	Detailed Batch Report Annex			
A	5	120	15	10	1.1000002384186	1.14999997615814	Detailed Batch Report Annex			
A	6	210	16	10	1.2000004768372	1.25	Detailed Batch Report Annex			
A	7	300	17	10	1.29999995211628	1.35000002384186	Detailed Batch Report Annex			
A	8	30	18	10	1.39999997015814	1.45000004768372	Detailed Batch Report Annex			
6	DEMOQFLX		3	4	4	4	22 May 2020 17:20	Detailed		
7	DEMOQFLX		3	4	4	3	15 May 2020 07:54	Overview Detailed Wind Limit OCIMF		
8	DEMOQFLX		2	4	4	3	15 May 2020 07:48	OCIMF		
9	DEMOQFLX		1	3	4	3	14 May 2020 12:40			
10	DEMOQFLX		1	3	3	3	12 May 2020 13:26	Overview Detailed Wind Limit		

Archived sessions are also removed from the main table unless the 'View all sessions (including archived)' checkbox is selected.

In addition to archiving a single row, it is also possible to archive all the sessions older than 1 week, 1 month, 3 months, 6 months and 1 year.

2.8. Messages

If you need to contact another company's SHIPMOOR administrator but do not have their email address, you can use the '[Click here to contact another SHIPMOOR Company](#)' link at the bottom of either the Permissions or Messages pages.

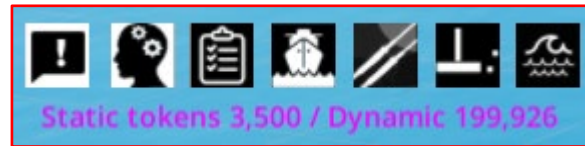
This will send an email to the address of that company's SHIPMOOR administrator. You can also view a list of your received and sent messages on the Messages page.



When new messages are received a notification will be shown on the admin portal home page and navigation bar.

2.9. Calculation Tokens

The calculation tokens represent how many static and dynamic calculations remain on the account available to the user. In the 3D environment, the remaining number of calculation tokens will be indicated at the top of the screen under the menu icons.



Please see below examples of how many calculations the various reports use:

Static

- Single mooring arrangement validation = 1 calculation token
- Single case of load condition, tide, wind, current = 1 calculation token
- OCIMF report: 8 current cases x 24 wind directions = 192 calculations (one load case); Ballast and Laden = 2 x 192 = 384 calculation tokens
- Wind sweep report: 5 maximum wind cases x 24 wind directions x 6.6 (worst number of searches between 0 and 100 knots) = up to 792 calculation tokens
- Batch calculations: the number N of cases set up by the user = N calculation tokens

Dynamic

- Single case of load condition, tide, wind, current, and **waves**: 1 calculation token
- Batch calculations: the number N of cases set up by the user = N calculation tokens

The remaining number of calculation tokens is also displayed from the main page of the SHIPMOOR Admin portal for the company administrators.



Extra token bundles can be purchased by clicking **(Purchase additional tokens)** link, which will open your default email application and create a new message addressed to sales@shipmoor.com. The purchased tokens will be added on the next working day (Monday–Friday) and invoiced as usual.

3. Troubleshooting

3.1. SHIPMOOR 3D does not run

SHIPMOOR uses a technology called webassembly and WebGL 2.0 (falling back to WebGL 1.0 if necessary).

Such technology is supported in any browser from 2017 (Chrome 57+, Edge 41+, Firefox 52+, Safari 11+). **Internet Explorer is too old** (2013) and is not supported. Microsoft Edge is installed by default on all Windows 10 and Windows 11 computers (Start menu → type EDGE).

You can use <https://www.whatismybrowser.com> to check your browser version.

Go to <https://www.shipmoor.com/3d/southhook> to display a test scenery.

Do you see the following port entrance (South Hook LNG Terminal, Milford Haven, in UK)?



If it does not work, go to <https://webglreport.com/?v=2> to get a report of your browser support of WebGL:

WebGL 1

WebGL 2

✓ This browser supports WebGL 2

Platform:	Win32
Browser User Agent:	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/83.0.4103.116 Safari/537.36 Edg/83.0.478.58
Context Name:	webgl2
GL Version:	WebGL 2.0 (OpenGL ES 3.0 Chromium)
Shading Language Version:	WebGL GLSL ES 3.00 (OpenGL ES GLSL ES 3.0 Chromium)
Vendor:	WebKit
Renderer:	WebKit WebGL
Unmasked Vendor:	Google Inc.
Unmasked Renderer:	ANGLE (NVIDIA GeForce GTX 1080 Direct3D11 vs_5_0 ps_5_0)
Antialiasing:	Available
ANGLE:	Yes, D3D9
Major Performance Caveat:	No

Vertex Shader

Transform Feedback

3.2. SHIPMOOR is slow

3.2.1. The 3D visualisation is slow

Make sure that **hardware acceleration** is enabled for your browser.

For Firefox or Safari, see 3.2.1.2 and 3.2.1.3.

To quickly test the hardware acceleration with Chrome or Edge, go to <https://webglreport.com/?v=2>.



If "Unmasked Rendered" shows "Google SwiftShader" rather than a graphic card brand such as NVIDIA, AMD, or Intel, you are not using hardware acceleration. See 3.2.1.1 and 3.2.1.4 for further guidance on this issue.

3.2.1.1. Chrome

You can get a report on the graphic capabilities by typing <chrome://gpu> in the URL bar.

To turn on hardware acceleration:

- Type <chrome://settings>.
- At the bottom of the page, click **Show advanced settings...**
- Under **System**, make sure the box next to Use hardware acceleration when available is checked.
- Try loading the page again.

3.2.1.2. Firefox

You can get a report on the graphic capabilities by typing <about:support> in the URL bar and scroll to "Graphics".

To turn on hardware acceleration:

- Click on Firefox Menu button (top right) select **Options**.
- Under **General** tab, scroll down to **Performance** section.
- Select "Use hardware acceleration when available".
- Restart the browser.

3.2.1.3. Safari

Recent versions of Safari have WebGL 1 activated by default.

You should make sure that Safari is updated to the latest version (13 or 14 Beta).

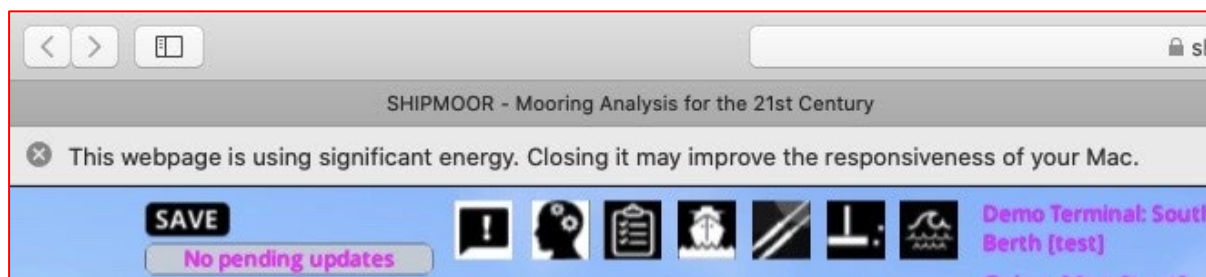
WebGL 2 is available from Safari **Develop** menu > Experimental Features > WebGL 2.0 but the experimental version does not work with SHIPMOOR (as tested in August 2020).

Older versions of Safari activate WebGL from Safari **Preferences** menu > **Security** > Allow WebGL checkbox (before Safari 8, WebGL was activated from the Develop menu > Enable WebGL checkbox).

(**Develop** menu:

- From the menu bar, click Safari and then select **Preferences**.
- Select the **Advanced** tab.
- Ensure that the **Show Develop menu in menu bar** checkbox is checked)

Safari may display a warning when you are working with SHIPMOOR:



You can safely ignore this warning. SHIPMOOR is indeed a 3D software running on a webpage and this requires a higher energy than a "normal" static webpage.

As soon as the SHIPMOOR browser TAB is deselected (i.e., another browser TAB is selected), the 3D program stops and does not use energy.

3.2.1.4. Edge

- Click on the **Settings and more** (Alt+F) 3-dot menu icon and select **Settings**.
- Select **System** on the left side and turn on **Use hardware acceleration when available** (default).
- Click on the **Restart** button to apply.

3.2.2. The data entry/admin portal is slow

Selecting a ship or berth loads a lot of data from the server to allow editing faster individual details. This is by design.

If you have problems using the portal, contact the SHIPMOOR team or visit the helpdesk and FAQ site at <http://support.shipmoor.com>.

3.2.3. The calculations are slow

Static calculations should take a few seconds to complete.

If you are making a large batch calculation, the batch report email could take longer to be received. Contact us ([see section 4](#)) if you have issues.

4. Getting help

If you require any technical assistance, please visit the following webpage to access the SHIPMOOR help centre:

<http://support.shipmoor.com>

The help centre contains a selection of FAQs, 'How To' guides and troubleshooting tips and is fully searchable. The ticket system is the recommended way to request technical help if you can't find the answer online. To submit a query, click on the 'Need to raise a request? Contact us.' button, found on the main page of the help centre, and follow the instructions:

Need to raise a request? Contact us.



5. Glossary and notes

5.1. Glossary of terms

Admin portal – this is the main page of the SHIPMOOR website where a company's SHIPMOOR administrator can manage terminal, ship, and user data. It can be accessed directly from shipmoor.com by clicking the 'admin' button at the top of the screen:

Change request – if a user thinks that a piece of data is incorrect for a ship or terminal that they do not own/manage in the SHIPMOOR database, they may submit a change request to the data owner. This is a message sent through SHIPMOOR with details of what change the user thinks is needed and can be accepted or rejected by the data owner. Comments can be made by either party through the system to provide further information on why the change is being requested and why it has been accepted/refused.

Data owner – this is the company responsible for maintaining a particular ship or terminal's data, usually the owner or operator of that ship/terminal. All changes requested by users will be sent to them for approval. In the case of LNG terminals, Witherbys will act as the data owner.

Fender support buckling distance – the distance corresponding to the first compression percentage that results in 100% reaction force.

Fender maximum compression distance – the distance corresponding to 100% compression on the fender curve.

Fender support depth – the total physical depth of the fender panel support.

Master data – the master data are the source details for a particular ship or terminal. These are managed by the data owner and cannot be updated by other users without authorisation from the data owner (using a change request).

MBF – minimum breaking force. A measure of mooring line strength used in OCIMF's Mooring Equipment Guidelines up to and including the 3rd Edition (MEG3). Defined in MEG3 as "the minimum breaking load of a new dry mooring line or chain as declared by the manufacturer". Replaced by line design break force (LDBF), ship design MBL and working load limit (WLL) for greater specificity but still in widespread use.

MEG3/MEG4 – Mooring Equipment Guidelines 3rd Edition/4th Edition, published by Oil Companies International Marine Forum (OCIMF).

LDBF – line design break force. A measure of mooring line strength used in OCIMF's Mooring Equipment Guidelines 4th Edition (MEG4). Defined in MEG4 as "the minimum force at which a new, dry, spliced mooring line will break when tested according to appendix B".

Session – each time a new 3D mooring analysis is set up, the parameters used (including ship, berth, and environmental conditions) are stored as a session that can be saved and accessed later using the specific session ID tag. Session reports can be accessed from the admin portal.

Session ID tag – a unique identifier for each session, made up of 8 letters (e.g., AYTWHLBN). This tag can be used to access saved sessions.

SHIPMOOR administrator – the user responsible for administering their company's user accounts, terminals and ships. Each company must designate a user to act as their SHIPMOOR administrator.

5.2. A note on conventions

5.2.1. Units

All values will be expressed in metric units (metres, m³ etc.) unless explicitly stated otherwise.

5.2.2. Positional data

All positional data (e.g., distance of mooring dolphins from spotting line) will be measured from left to right as viewed from the ship. Positions to the left, below and in front of the spotting line will be negative, while positions to the right, above and behind the spotting line will be shown as positive values.

5.2.3. Dolphin measurements

Distances from dolphins to fender and jetty face are measured from the centre point of the dolphin and not from the position of the hooks. The position of the hooks is recorded relative to the centre point using the hook offset fields.

5.3. Standard ship types available for use

The following ship types have been made available as standard templates for users:

- 145,000 m³ Moss LNG carrier (TP56499)
- 160,000 m³ Membrane LNGC (TP20725)

- 175,000 m3 Moss LNGC (TP01100)
- 85,000 m3 LPG tanker, fully refrigerated (TP01316)
- Atlantic Max template LNGC, Membrane, Mark III (TP67969)
- Qflex template LNGC, Membrane, Mark III (TP43707)
- Qmax template LNGC, Membrane, Mark III (TP51092)

These ship types can be used directly in mooring analyses or can be modified to create your own ship using the 'copy an existing vessel' function. Further information about these ships may be found in the separate document [Template ship specifications](#).