



Manual - December 2022 v2



This User Manual update is prompted by the extensive visual and technical improvements created by Perpetual SOLer [Aaron James Gage](#) (1971-2012). The commitment, dedication and passion of “AGage” lives on in the spirit of the Sailonline experience and we invite you to become part of this unique community. Manual revised Dec. 2022, to meet the updated user interface in HTML5.

Welcome to Sailonline

In this guide we will try to explain all the elements you need to start sailing.

The guide will give a step-by-step procedure for registration and introduce you to many of the tools you will use when racing.

Introduction

Sailonline (SOL) is a strategy simulator for ocean sailing which challenges both novice and expert alike. It lets you sail your boat over the world's navigable waters easier than you can imagine. But as in real life, in order to sail fast and ultimately win races, full dedication, extensive practice, knowledge and working skills are required.

The simulator runs in real time which means that a race can be ongoing for days or even weeks. Luckily, there are autopilots installed in all boats so that you do not need to steer manually all the time, nor are sail changes required during the various transitions between up and downwind sailing. Small adjustments of your autopilot setting a couple of times per day is often sufficient.

To offer the most authentic virtual sailing experience possible, Sailonline.org *only* uses authentic data:

- ⤴ Real weather forecasts, usually sourced from the GFS and published 4 times daily by NOAA¹
- ⤴ Real high-resolution charts from the GSHHS database²
- ⤴ Real boat performance profiles, often sourced directly from the design specifications

Sailonline lets you race on boats and in locations you may have only dreamed of!

¹ [National Oceanic and Atmospheric Administration's Global Forecast System](#) – More information is provided later, and NOAA is not the only source of weather forecasts used by Sailonline.

² [Global Self-consistent, Hierarchical, High-resolution Shoreline](#) database

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1 Setting UP

1.1 Create your User Account

To create a user account and to register in race go to www.sailonline.org

Create a user account. Your user account will be used for all races in which you choose to participate. Press *create account* in the menu bar, and you are asked to provide an email address to continue. After filling in an email address you will receive a verification email to continue registration.

Check your mailbox and look up the verification mail and follow the link given. You will be taken to the next screen to finish setting up your user account. The username you choose will be that of your login *and* your boat, and the name that will appear in the chatrooms.

Note: You are only allowed to have one user account and one boat

Congratulations!! You are now ready to start sailing.

You will log in on the left side of the screen and you can set up up additional profile information by selecting Edit Profile and filling in the requested fields.

1.2 Register in a Race

Next step is to register in a race. On the right-hand side of the homepage (www.sailonline.org) you can find the races that are currently available. Look for races that have Registration Open!

All times for race starts are designated in Coordinated Universal Time ([UTC](#))



A short description of the race together with the start time is provided here. You can register only one boat in each race but you can simultaneously have your boat in multiple races currently being run.

Other race states can be:

- ^ **Registration will open soon** - for new races
- ^ **Registration Closed** - for races that are still running but closed to new boats

SOL tries to keep races open as long as possible to enable as many boats as possible to finish but not everyone will finish every time.

Press the Go to Race button of the race you want to enter and select the boat class offered. Most races have only one boat class available but multi-class races are run as well.

If this is your first race on SOL you will also be required to select your country.

Select your boat³ type and click the 'Register in race' button. This will open the Sailonline Client⁴, taking you directly to the race area where you can start to sail.

After this initial registration in a race, the same 'Go to Race' button takes you directly to your active boat. Use this to check up on your boat or make a bookmark of the race page to resume control. If needed, you will be prompted for your login information.

All commands for sailing the boats are handled on the SOL servers, only the client is downloaded on to your computer⁵ and this means your boat continues sailing when you are not logged in.

The client, which is embedded in a web page, is just a 'window' allowing you to:

- ⤴ Monitor your boat (and the competition!)
- ⤴ Check out the weather forecast
- ⤴ Perform some basic plotting, view boat performance and work out your strategy
- ⤴ Send commands to control your boat

The client also gives you access to all the SOL users who are active at that time in the chat.

All commands and the actual model of the simulation are entirely processed on the SOL servers.

The technical aspects of the game are explained in more depth further on in the manual.

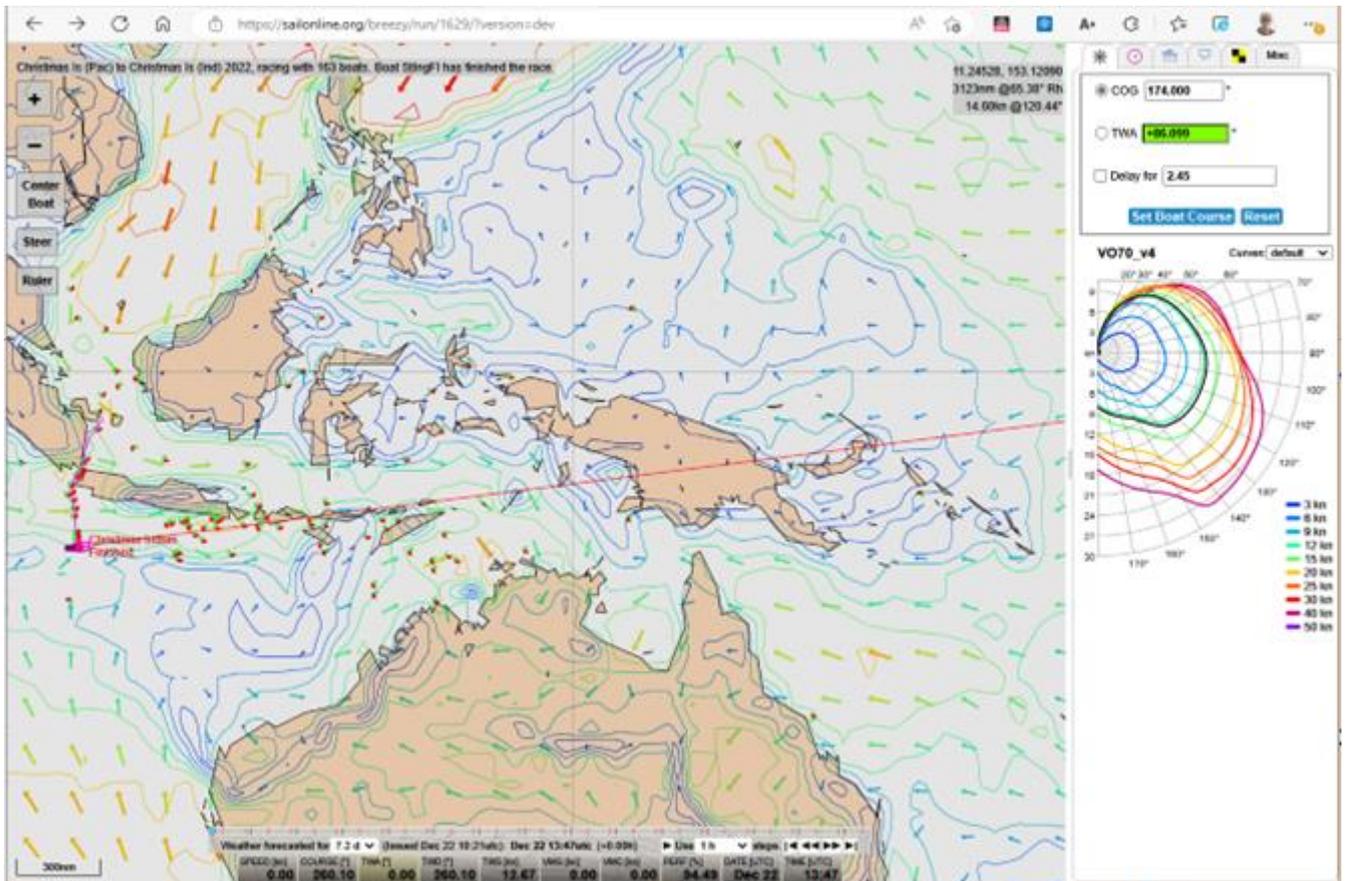
³ Often there is no choice of boat class in Sailonline races, but multi-boat races occasionally run.

⁴ The Sailonline client is updated and written in HTML5

⁵ The client is only downloaded for the duration of your login session, although most browsers will cache the data to spare you downloading it again next time you login. Preferences that you have selected under the Options tab (explained below) will also be saved as part of the client information. These preferences will revert back to the default settings if the cache is cleared – NO other data is stored on your computer by the SOL client.

2 The Client Interface

Most of the graphical user interface (GUI) in the client software is intuitive even for novice sailors. Here is a brief introduction to the basic parts of the interface you need to use. You can run it on any system with a web browser. Notice the interface is made up of two 'panels' – the Map and various controls in the Tab Bar. Between them is a 'splitter' that you can use to resize the panels, or even hide the Tab Bar completely.



2.1 The Map

On the map, the brown areas represent land and the white represents water you can sail on.

During twilight hours and at night-time, the colour of the water changes to accurately reflect the local time at the location of your boat. During the night the fleet is also represented by a set of navigation lights, i.e., a red and green dot for each boat. Using a “customized fleet” view (see Section 3.3.1) will also change the selected boat indicators from navigation lights back to boat shapes.

Across the map is a grid showing latitude and longitude – move your mouse over the map and you will see that the coordinates of your mouse position are shown. The top right-hand corner of the map area displays information for the current mouse location relative to your boat (range and bearing), and when the mouse is over a section of map covered by the current weather data you will also see forecast information for the location.

You can pan the map by simply dragging it with your mouse, and zoom as outlined below.

2.2 Toolbar Icons

On the map are five icons forming a toolbar, in order from top to bottom they are:

	Zoom IN
	Zoom OUT
	Centre Boat on Map
	Steering Tool
	Line Drawing Tool

Both **Zoom IN** and **Zoom OUT** can be done by repeatedly clicking the appropriate button, or by holding it down. You may also use the mouse scroll-wheel for zooming. It will move in small increments in both directions. To increase the change or speed of zooming, hold the **SHIFT**-key while using the scroll wheel. Finally, you can go to max-zoom instantly by holding the **ALT**-key and simultaneously clicking either the **Zoom IN** or **Zoom OUT** buttons.

The **Centre Boat** button will place your boat in the centre of the viewable field. Double-clicking anywhere on the map will also centre the map to that spot. In addition, holding/pressing the **ALT**-key and simultaneously clicking anywhere on the map will open an info window with absolute and relative (to your boat) data. Coordinates will be shown in Lat/Lon format chosen from the 'Misc. Settings' tab, and can be copied to the clipboard and used to assist with navigation, e.g., routing software, or keeping track of performance.

These three tools provide all possible control of the map itself. In addition, there is a scale indicator in the bottom left of the map, calibrated to the latitude at the centre of the map.

The **Steer Tool** allows you to visually set a course for your boat. Click once to activate the tool, and your boat's current navigation data, at the mouse position on-screen, will be visible at cursor position. Please note that when using the **Steer Tool** to set a COG course, the **exact** value is sent as the command with accuracy to 3 decimal places as shown in the input text field. TWA courses are rounded as in the text field. If you wish to drag the map while using the **Steer Tool** you may do so and the **Steer Tool** will not fix the course in place until you click again. See 'Setting a Course on the Map' below for more details.

The **Ruler Tool** allows you to perform basic plotting by setting points on the map and it will show you the distance and direction between them. The ruler can be set for either Great Circle or Rhumbline/Loxodrome (See Glossary). This option is available in the 'Misc. Settings' tab (see below). Click once to set the point from which you wish to measure, move the mouse and click a second time to fix a second point. You may set as many points as you like (only the first 20 segments will be labelled with Dir/Dist.) and the total distance will be shown at the last point, and will also update as you go. When you have set the first point, a set of additional tools (buttons) will appear, to erase points or temporarily hide lines. To complete a ruler path, double click for the final point. The path will now stay fixed on the map if it is dragged or zoomed. Another way to complete the ruler path, is to click on the ruler tool once again.

You can also pan the map by dragging it while using either the Steer or Ruler tools, which is often useful for accurate measurements while zoomed in that span more than the visible map.

Tip: Distance and angle values change precision depending on zoom level, up to a maximum of 3 decimal places, and will adjust on an existing ruler path if you change the zoom level.

2.3 **Boat and Predictor Line**

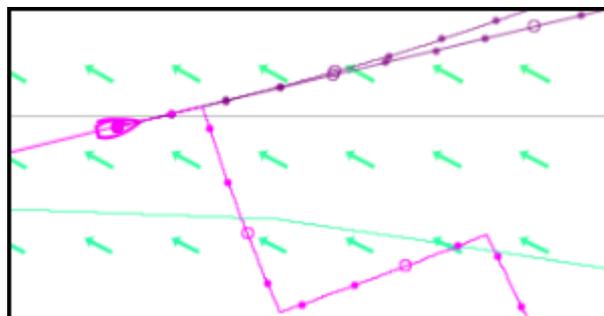
Your boat icon and track is by default drawn in pink. Stretching out in front of the boat is a "predictor" showing where your boat will be within the next 6 hours according to the *current forecast*. The colour of your boat and predictor line, as well as the length (up to 168h) of the predictor, can be changed in 'Misc. Settings'. This path (predictor) takes into account any changes in future weather conditions. If the weather update significantly changes conditions, the predictor will reflect the new meteorology. Each open circle represents one hour, each dot a 15-minute interval, and the first 15-min is divided into minutes.

If you are steering a COG Course (see below) the line will be straight.

If you are steering a TWA Course (see below) the line will bend in the direction of currently forecast wind changes.

There is also an option in Setting "Show DC-aware predictor". This will cause the predictor line to show your intended course changes, according to DC settings. This is a very useful feature.

If you have selected the double-predictor in the 'Misc. Settings' tab, you will see both lines simultaneously, and with the DC-aware setting active, there will be a third line visible, showing your intended routh.



2.4 **Other Boats**

All participants in a race are shown on the map. All boats will show as nav. lights (green/red) at night time, despite the choice of "daylight only". This can be changed in Settings "Boat icons at night".

If you hover the cursor over a competitor, the name of that boat, its current race rank, country flag and SYC member status will appear in the bottom left corner of the map and the track of the boat will appear on the screen. There is a setting, bringing this boat data next to the issued boat. You cannot see other boats' data (Speed, TWA, etc).

2.5 Measured Values

SPEED [kn]	COURSE [°]	TWA [°]	TWD [°]	TWS [kn]	VMG [kn]	VMC [kn]	PERF [%]	DATE [UTC]	TIME [UTC]
11.35	311.72	-54.75	256.97	10.77	6.55	8.02	100.00	Dec 22	15:36

This instrument bar⁶ gives you the required information about the current conditions of your boat:

SPEED - the speed your boat is doing in knots

COURSE - the heading your boat is sailing

TWA - True Wind Angle is the angle maintained to wind by your boat [this will be (+) for starboard and (-) for port tack]

TWD - True Wind Direction is the direction *from* which the wind is blowing as measured on a compass

TWS - True Wind Speed is the strength of the wind in knots

VMG - Velocity Made Good is boat speed directly toward or away from the wind (explained later)

VMC - Velocity Made good to Course In-depth can be displayed in the dashboard by Misc. / Settings. explanation [here](#) and [here](#)

PERF – Performance of your boat, expressed as a percentage. Your boat takes a performance hit each time you change course. The amount of performance loss and return depends on the specific polar in use and the degree/amount of course change.

TIME – displays the current time in UTC 24hr format– the time source is your computer.

LAT/LON- the latitude/longitude of your boat. Can be displayed in the dashboard by Misc. / Settings.

Regarding time displayed. Client has a built-in logic to correct time discrepancies between your computer and real time.

The time instrument (digits) turns red if one minute or more has elapsed since the client reached the SOL server (typically, this is caused by a local network problem. The SOL server keeps your boat in motion, but the client cannot show its current position/data).

2.6 Weather

Looking at the weather forecasts is done by sliding the forecast-slider in the semi-transparent window above the dashboard.



You can drag it with the mouse or use the arrow keys after you have selected it. Try the slider and notice how the weather changes.

Clicking on the “|<” symbol moves the weather slider fully back to the beginning. The “<<” and “>>” moves the slider in defined increments, (which is 3h in this example/picture). You can also click directly on the slider and advance/rewind the weather using the arrow keys on your keyboard or click the ”play/stop” button.

The red tick marks indicate the approximate time of the next weather update. It will gradually approach the +0.0h as the time interval decreases. It then resets after the new weather has arrived. Be sure to check the slider position when planning and setting up Delayed Commands (see below).

⁶ This is also commonly referred to as 'The Dashboard'. To change the amount/combination of data displayed, Go to Misc. Settings and tick or untick as desired.

The text below the slider gives you information on the date of the forecast and the position the weather slider is in. The example above tells us: the forecast is issued December 22 10:24 UTC. The slider is showing the weather as it is occurring at the present time (Dec. 22 15:36 UTC). The “Tick marks” on the slider are located at consistent intervals and will differ depending on the selected weather interval.

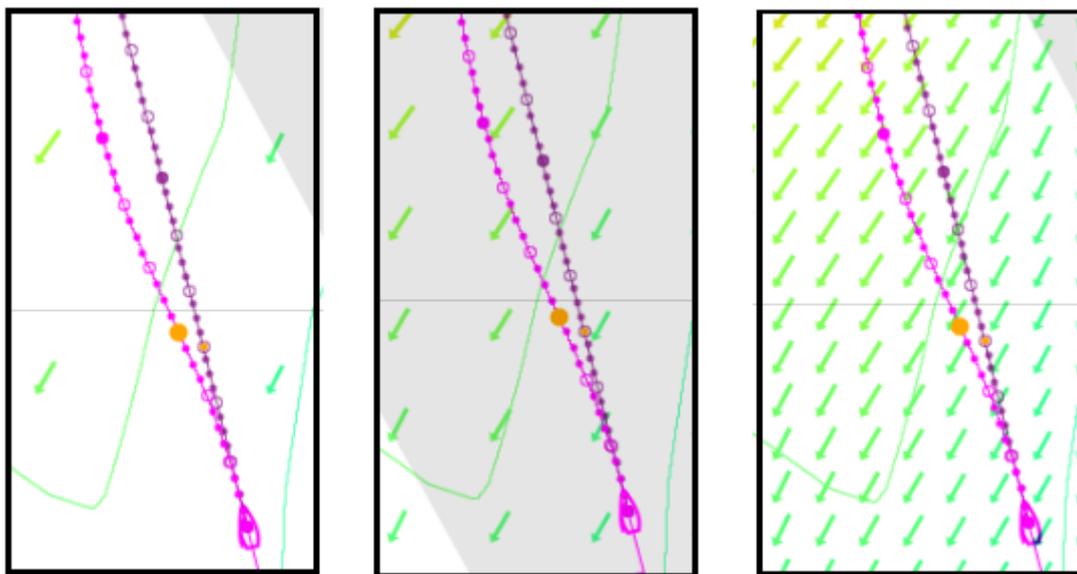
There are 10 ‘clickable’ areas in this window. Additional to those obvious white areas and the slider itself, you can click date/time or offset (+x.xxh) text, to pick which is kept constant by the client. If the requested time either falls past the current time or is beyond the forecast, the time is limited to the current time or the maximum available in the forecast, respectively – i.e., the client will not show weather data from past time.

When new forecasts are available the new weather automatically appears in the window.

Multiple forecast intervals are available by selecting from the forecast dropdown menu. The default interval is the full available forecast length, usually around 7 days. The options tab (see below) allows the 24h interval to be selected as the default if desired.



Arrows show wind direction and the colour shows wind speed. The coloured iso-lines connect the areas with equal wind speed on the map. The colour used for the wind speed in the main screen corresponds with the colours of the speed curves on the boat performance diagram known as the [Polar](#) diagram, on the right of the screen. More on this later. The density of the arrow display can also be selected in the Misc. Tab. (wind grid density) Wind barbs can also be chosen in place of arrows if desired.



The times of weather updates are shown on the Notice of Race on the SOL Homepage. The updates can have a big effect on the race and, while there is a slight transition period between the two. The new weather, as it is obtained from NOAA, is manipulated by the SOL server. There are ways to get this SOL weather, e.g., [brainaid.de](#), for use in routing software, if you wish. Be sure to check your plans after an update or leave some extra margin.

When the new weather arrives in the client, an Alert will appear on-screen, accompanied by a wind sound (optional in settings), thereby alerting you to the arrival of a weather update.

Tip: Increased arrow density or weather contour detail may slow map function in older computers.

3 Boat Control

3.1 Steer Tab

There are two ways of steering (1) Course over Ground (COG) which once set means that the boat will follow a straight course or (2) True Wind Angle (TWA) which means the boat will maintain a constant angle to the wind, however it changes direction. You can set any TWA in the range from ± 0 to ± 180 degrees where $TWA = \pm 0$ means that the wind comes from straight ahead, $TWA = \pm 180$ means that the wind comes from directly behind and $TWA = +90$ means the wind is from the starboard side (starboard=right). Negative TWA means wind is from the port side (port=left).

The screenshot shows a control panel with a top navigation bar containing icons for settings, a clock, a bar chart with '213', a warning triangle, a black and yellow hazard symbol, and a 'Misc' tab. The main panel has three radio buttons: 'COG' (selected), 'TWA', and 'Delay for'. The COG field contains '204.802' and the TWA field contains '+55.297'. The Delay for field contains '2.45'. At the bottom are two buttons: 'Set Boat Course' and 'Reset'.

Setting a course manually: Select COG or TWA by selecting the button in front of the text. Type your desired heading or angle in the text box and click on the Set Boat Course button to issue the command. A positive TWA value requires the '+' sign to be accepted. Notice that the SOL client fills in the other text box as you change the value. Your command will take effect once it has reached the SOL server.

In addition, your command will also indicate if you are making a course change on the same tack or if you are going to the opposite wind angle (tack or gybe). The TWA field will also highlight to display the colour of your anticipated course alteration (**Green** = starboard, **Red** = port)

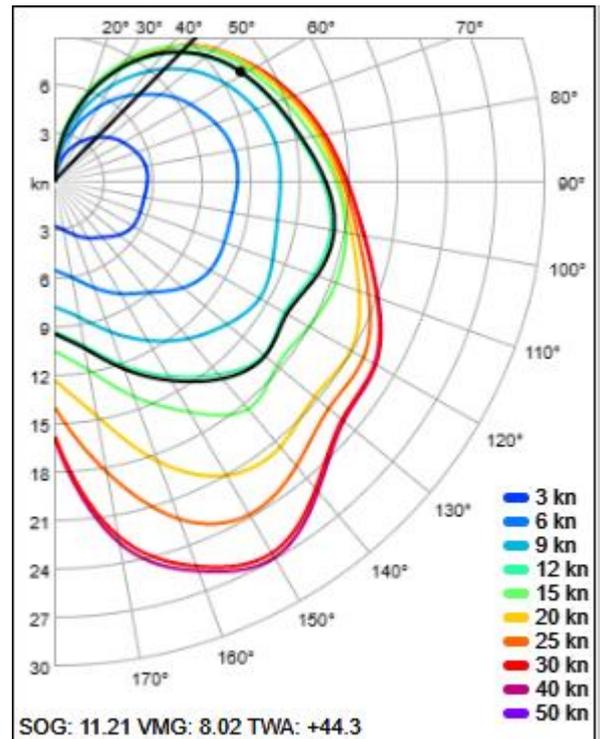
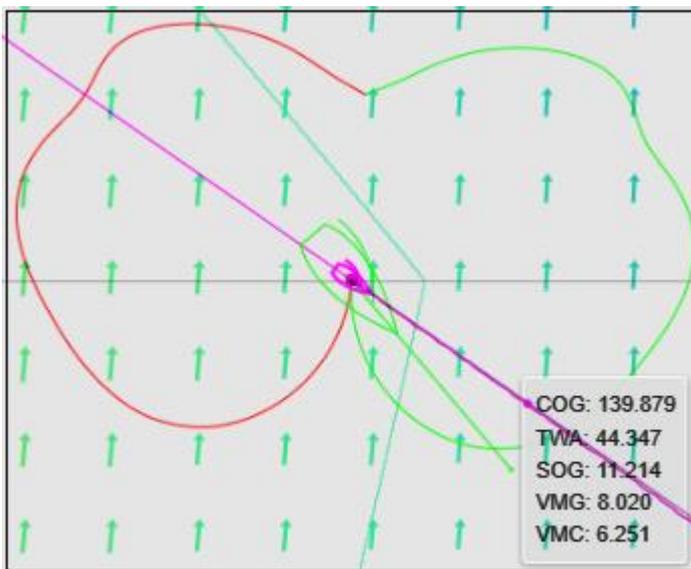
This screenshot shows the Steer Tab interface with the 'COG' radio button selected and the 'TWA' field highlighted in green. The COG field contains '192' and the TWA field contains '+68.10'. The Delay for field contains '2.45'. The buttons 'Set Boat Course' and 'Reset' are visible at the bottom.

This screenshot shows the Steer Tab interface with the 'TWA' radio button selected and the 'TWA' field highlighted in green. The COG field contains '213.571' and the TWA field contains '+40.290'. The Delay for field is empty. The buttons 'Tack' and 'Reset' are visible at the bottom.

This screenshot shows the Steer Tab interface with the 'COG' radio button selected and the 'TWA' field highlighted in green. The COG field contains '108.095' and the TWA field contains '+145.704'. The Delay for field is empty. The buttons 'Gybe' and 'Reset' are visible at the bottom.

Setting a course on the map: Click once on the steer tool. Place the cursor on the map, as you move the cursor around you see that “Course over Ground” and “True Wind Angle” in the steer window changes. When desired “COG” or “TWA” are displayed, left click to lock the values. A line in the polar diagram (see picture on the right) shows the angle the boat will be sailing on the new course. Predicted boat speed (SOG) and Velocity Made Good (VMG=a value for up and downwind sailing) is shown.

One can choose (Misc. Settings) to show boats polar (aka ”butterfly”), when the steering tool is active. The colour of the Butterfly also indicates starboard/port tack. Click again to set the chosen course and the course will be kept in the steer tab. To issue this command to the boat click on “Set Boat Course”.

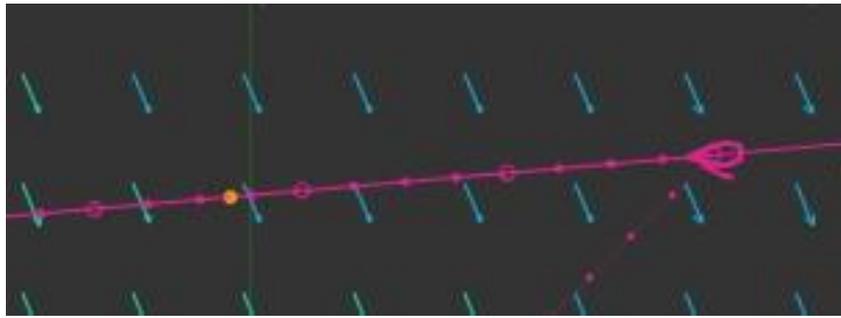


3.2 Delayed Commands

If you want a course correction command to be delayed for some time, you can set a Delayed Command (DC). To set DC, check the box to the left of the text "Delay for" and enter the desired time delay before pressing "Send Command". The delay time can be set in two formats: A) As decimal hours; i.e., entering 2.35 will set a delay of 2hrs21min. B) A specific Hour/Minute/Second delay can also be used and is entered as 2h21m00s. The clock time of the delay will be set once the command is received by the server after clicking the Send Command button. The exact time of the delay can then be checked in the Delayed Commands Tab.

For the delay to be processed within the one-hour pre-start interval, simply type “Start” (not case-specific) in the delay box and the server will fire the command appropriately for your selected heading at the time of the official race start.

<input checked="" type="radio"/> COG <input type="text" value="269.012"/> ° <input type="radio"/> TWA <input type="text" value="-16.569"/> ° <input checked="" type="checkbox"/> Delay for <input type="text" value="3h39m"/> <input type="button" value="Send Command"/> <input type="button" value="Reset"/>	<input checked="" type="radio"/> COG <input type="text" value="269.012"/> ° <input type="radio"/> TWA <input type="text" value="-16.509"/> ° <input checked="" type="checkbox"/> Delay for <input type="text" value="3.65"/> <input type="button" value="Send Command"/> <input type="button" value="Reset"/>	<input checked="" type="radio"/> COG <input type="text" value="269.012"/> ° <input type="radio"/> TWA <input type="text" value="-16.450"/> ° <input checked="" type="checkbox"/> Delay for <input type="text" value="start"/> <input type="button" value="Send Command"/> <input type="button" value="Reset"/>
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To help determine when your delay will fire, a DC dot will appear on both your COG and TWA predictor lines as an orange dot. The DC dot will remain *at the fixed time interval* from your boat specified in the DC command field. It will *NOT* count down to the firing location.

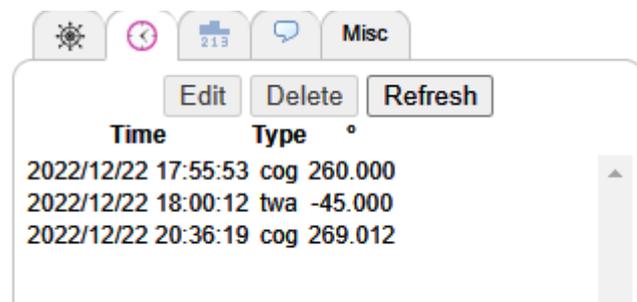
Once a DC is set, a countdown timer will appear on the top right border of the race screen to indicate an active DC is present and when it will fire. If multiple DCs have been set, the timer will count down to the earliest DC. Once DC has been executed, the timer will reset. And count down to the next one, until no further Delayed Commands are present. You can set as many DCs as you need.

Next DC: TWA=143.1 in 02h 16m 57s

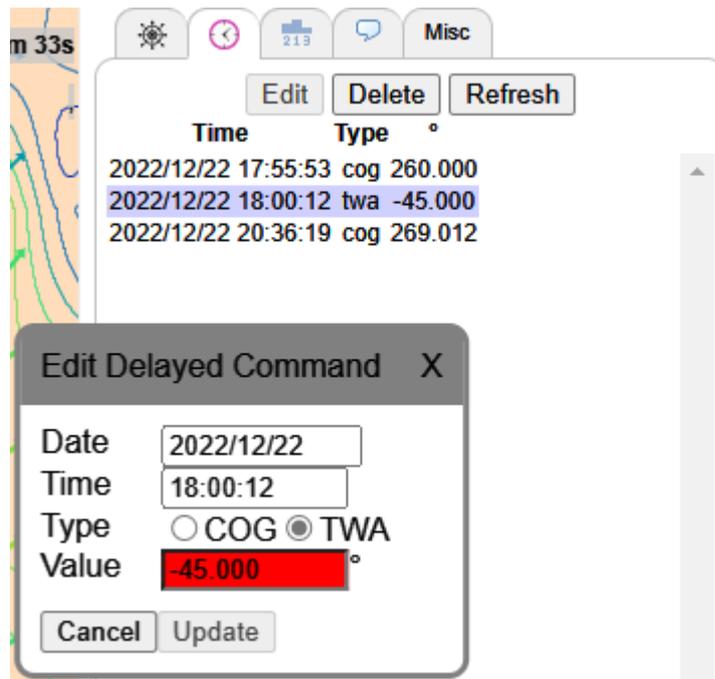
Tip: When setting a delayed command, ALWAYS, ALWAYS, ALWAYS be sure the delay box is selected.

3.2.1 Editing Delayed Commands

Click on the command to be edited⁷ and it will show in blue highlight, select the edit button and a small window will open. The selection can then be manipulated and will become active after hitting the **Update** button.



⁷ If You have edited / set DCs with a third party tool, it is essential to first <Refresh> DCs before editing.



To delete a command, select the entry you want to remove and press the  button. Delayed commands are a useful feature that lets you attend business meetings and wedding dinners while helping a 60-foot single handed catamaran in a full gale!!

3.3 Boats Tab

For each boat in the fleet, this tab displays rank in current race, country flag, SYC membership status, boat name and Distance to Finish (DTF), Distance behind leader (DBL) and distance sailed (LOG). The Main Fleet tab is the default setting. Custom Lists (see below) can also be constructed and will remain in place from race to race. They will, however, be removed if the “Clear Local Storage” button is selected under the Options Tab.

You can look up and track your friends and fellow sailors. With nothing in the search field, it will display the current leader board. You can sort the different columns by clicking their labels, to show the same country or boat names alphabetically. It is important to note that the rankings are NOT reporting true standings due to the way the server calculates boat position (i.e., a straight line to the next waypoint). This is particularly true in the early stages of most races and becomes more accurate as you approach the finish.

When you start to type in the search field you get a list of boats matching the search.

Clicking a boat listed in the boat tab will centre the map on that boat and display its track. If you hold the 'Alt' key while clicking the boat (in the list) it will highlight the boat, but it will not be centred on the display.

# ▲	Name	DTF	DBL	LOG
1	Pit8008	0.00	0.00	7926.36
2	SKOVSER	0.00	0.00	7976.29
3	SlideRule	0.00	0.00	7986.89
4	AL53_SStta	0.00	0.00	8048.14
5	Olev	0.00	0.00	8136.56
6	bonknhoot	0.00	0.00	7945.31
7	Dingo	0.00	0.00	7894.56
8	Mediterranean	0.00	0.00	7956.15
9	aner59	0.00	0.00	7926.25
10	FreyjaUSA	0.00	0.00	7961.44
11	Kipper1258	0.00	0.00	7948.64
12	TarassBoulba	0.00	0.00	7928.01
13	StIngFI	0.00	0.00	7947.33
14	dtayls	0.00	0.00	8118.91
15	robert1	0.00	0.00	8031.51
16	HappyHour	0.00	0.00	7950.18
17	nordee	0.00	0.00	7920.53
18	Go4iT	0.00	0.00	8003.62
19	FR_ILNOKI	0.00	0.00	7921.25

Tip: A great way to learn is to study how those who usually finish high on the ranking have sailed a certain part of the race course, or through a certain wind pattern.

3.3.1 Custom Boat Lists

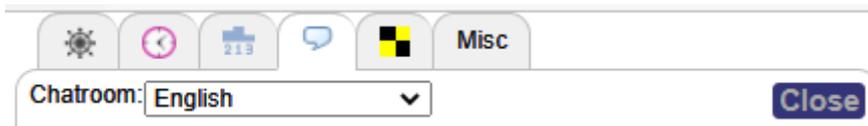
At the bottom of the Boats Tab is a function to create "custom lists", Multiple lists can be created and will appear by the title you assign to them. This is a very useful way to keep track of your competition or select a smaller fleet and remove the clutter of the entire fleet.

To create custom lists by boat, click the "Boat" button at the bottom of the tab and a new window will open (shown above). Name the list and then click as many boats as you wish to include. You can select more than one boat simultaneously by using the CTRL+click function or use Shift+click to select continuous grouping. The search box works the same as the Main fleet tab. After selecting one or more boats, hit the Add button and they will populate your custom list. Selected boats within your custom list can be removed with the 'Del' button. When your list is completed, select the 'Create list' and the new list will appear beneath the main Fleet,

A custom list can also be created by distance. Selecting this Option will open a new window. Enter name of list and distance desired and hit 'Create list'. This will automatically select boats within that distance from your boat. The list will also automatically update as long as the main race window remains open. This list will NOT remain active between sessions or between races.

#	Name	DTF	DBL	LOG
1	Pit8008	0.00	0.00	7926.36
2	SKOVSER	0.00	0.00	7976.29
3	SlideRule	0.00	0.00	7986.89
6	bonknhoot	0.00	0.00	7945.31
7	Dingo	0.00	0.00	7894.56
8	Mediterranean	0.00	0.00	7956.15
9	aner59	0.00	0.00	7926.25
11	Kipper1258	0.00	0.00	7948.64
12	TarassBoulba	0.00	0.00	7928.01
13	StingFI	0.00	0.00	7947.33
15	robert1	0.00	0.00	8031.51
16	HappyHour	0.00	0.00	7950.18
22	DIKKEHENK	0.00	0.00	8006.98
27	brandystrega	0.00	0.00	7842.60
41	Sax747	0.00	0.00	7919.38
44	wsguerin	0.00	0.00	8235.77
55	batatabh	0.00	0.00	8009.62
61	ITA210	88.52	89.14	7685.56
72	Vida_Maldita	231.02	231.40	7736.29
78	WRmirekd	312.10	312.26	7154.34
79	Garagiste	322.78	322.94	7244.03
85	sailj29	363.23	363.54	7158.84
97	Smo	467.31	467.60	6754.40
101	BadgerOne	590.33	590.33	7488.16
112	LittleSurprise	783.42	783.68	6592.84

3.4 Chat tab



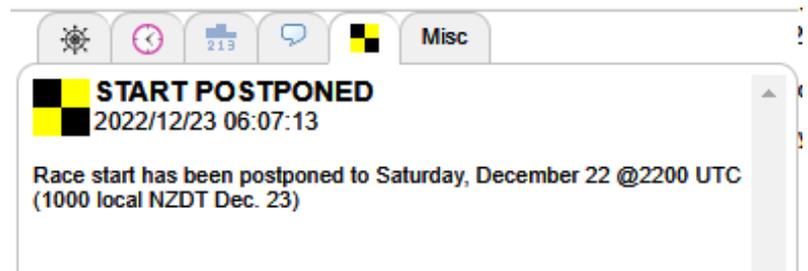
Here you can contact your fellow sailors and discuss tactics, ask for help or general chit chat. Keep the chat clean and take into account the large age differences. The main/default chat is English, but you can choose different chat rooms for the appropriate language and there is a special Sail Talk Only room for more in depth or technical discussions.

Participants in chat are identified by boat name, nationality and SYC Membership status.

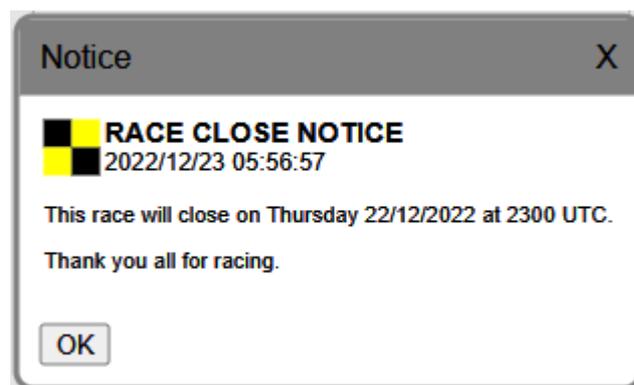
Tip: If there has not been much chat activity (which sometimes happens in the longer races) and you say or ask something and get no response, make sure to check back frequently as someone could well have answered you!

3.5 Race Notification Tab

This is a special tab that will appear only when the SOL Race Committee /Administration needs to announce urgent news regarding the current race. The tab will remain in effect for the entirety of the race and updates may be added during the course of competition.



The initial announcement and any subsequent new notifications will also appear on the main race screen until you acknowledge reading it and click to close the window (similar to new weather notification).



3.6 Misc./Settings Tab

This tab provides a number of frequently accessed links you will find useful during individual races and general SOL information. The Sailonline Manual, Leaderboard and Ranking are all available on the Homepage. The Boat Polar is provided here in numeric format and can be copied to other applications for additional, in-depth evaluation.

Quick Help

Map
You can pan the map by dragging it with the mouse, and zoom using the toolbar to the left. Hold the button to continuously zoom. You can 'Center Boat' button in the toolbar will center the map on your boat. Boat and other information. Moving the mouse over the map changes the coordinates, the middle line is the wind data at that location, the t

Steering
Click the 'Steer' button in the toolbar, and the steer tab becomes active you want to sail to (the line extending from your boat). The heading a steering target as you move the mouse. When you are happy with the steer tab input. You can choose to sail on a constant heading (CC the corresponding option on the steer tab. Click 'Set Boat Course' to you would like the course change to occur in the future, check 'Delay before making the course change. You can set as many 'Delayed Co command. These delayed (or future) commands can be viewed and i

Weather
There is a grid of arrows on the map, colour coded as on the Polar di that location. You can also use the slider to look ahead in time to see slider will go and specify the used time step when sliding ahead in tin animation on how the weather develops.

Ruler
The 'Ruler' button in the toolbar allows you to draw or mark lines on t You can also draw a 'path' containing more than one segment. Click i would like to start the path, and then each point to make a new segm using the 'Delete Last' and 'Delete All' buttons. To end a path, double

Chat
You can chat with other players online by switching to the chat tab, w input box at the bottom, and hit Enter or click Send to send the mess the Chat list. If you want to have more than one Chatroom open at th

The Quick Help button opens a separate window with brief descriptions of many of the basic items covered here in this manual. Tools Button opens a dialog providing essential information about performance, calculated from the boat polar. Such as VMG upwind and downwind, for current wind conditions. If you uncheck the "From instruments" box, you can click on the race area, to get the wind speed and direction at that spot and time determined by the weather slider, or type in your desired values.

Misc

Helpful Links
[Sailonline Manual](#)
[Race Leaderboard](#)
[SYC Official Ranking](#)
[Boat Polar](#)
[Google Earth Feed](#)

Settings Tools Quick Help

Race Information
[Race GPX file](#)
 Tile set: intermediate
 Weather grid: 1° x 1°
 Weather update times: 04:30 10:30 16:30 22:30 UTC



Main Frameworks and Libraries Used

- Leaflet (license: BSD-2-Clause)
- Leaflet.Terminator (license: MIT)
- pako (license: MIT)
- rbush (license: MIT)
- Vue.js (license: MIT)
- Vue2Leaflet (license: MIT)
- Vuex (license: MIT)
- xml2js (license: MIT)

About
Version identifier 6c7594f (GPL v2) ij 2018-2021.

Tools X

Isochrone calculator
 Length: 24 h Step: 1 h
COG TWA Clear

Max calculator
 From instruments:

TWS: 12.665
 TWD: 260.099
 Bearing: 172.702 GC Rh

Max VMC: TWA=+94.41° COG=165.69° 15.84 kn

Tack: Starboard Port
Max VMG
 ↑: TWA=+40.38° COG=219.72° 8.36 kn
 ↓: TWA=+140.00° COG=120.10° -10.86 kn
 Max BS: TWA=+103.00° COG=157.10° 16.09 kn

Close

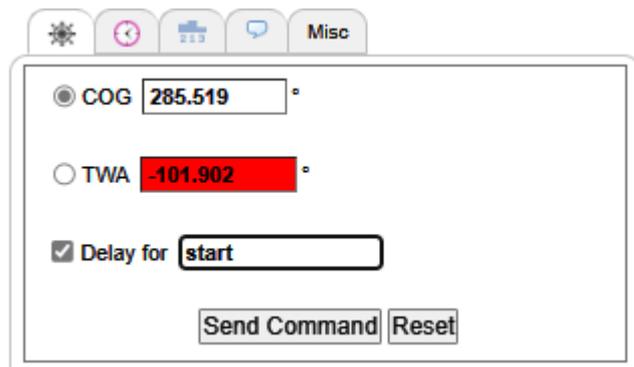
The Settings button opens up the window for managing your preferences within the SOL graphic interface. This has been mentioned a few times already in this manual, but there are many more for you to explore. The effect of the settings will appear instantly, but will remain in effect only after you push the **Save** button, and the window will close. To reset all of the values back to the default settings, push the **Reset to defaults** button. “Clear Local Storage” in your browser will have the same effect.

4 Racing

4.1 Starting procedure

All boats are towed back to the starting line 1 hour before the race start. From 1 hour before the start, until the start, the boats are held at the starting line. Active courses of the boats are reset. A new command executed during this period can be used to start “at the gun” as soon as the server allows the boats to start. This can be a manual steering command as well as a delayed command.

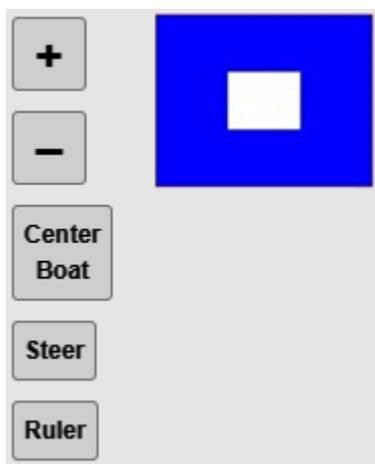
Example: Race starts 18:00 UTC. If a player sends a command, TWA 55 degrees at 17:32 UTC, the boat will sail TWA 55 degrees at 18:00 UTC when the boats are released.



The screenshot shows a control panel with a top bar containing icons for a sun, a clock, a boat, a speech bubble, and a 'Misc' button. Below this, there are three radio buttons: 'COG' (selected), 'TWA', and 'Delay for'. The 'COG' value is 285.519 degrees. The 'TWA' value is -101.902 degrees, which is highlighted in red. The 'Delay for' checkbox is checked, and the value 'start' is entered in the adjacent text box. At the bottom, there are two buttons: 'Send Command' and 'Reset'.

(The graphic does not show the Example data of TWA +55 degrees.)

An easy and reliable way to ensure you have an on-time start is to simply type “Start” in the delay box. This will calculate a DC to be set during the 1-hour pre-start interval. Remember to consider the variability of the weather forecast when setting a start DC for many hours (or possibly days) in advance.

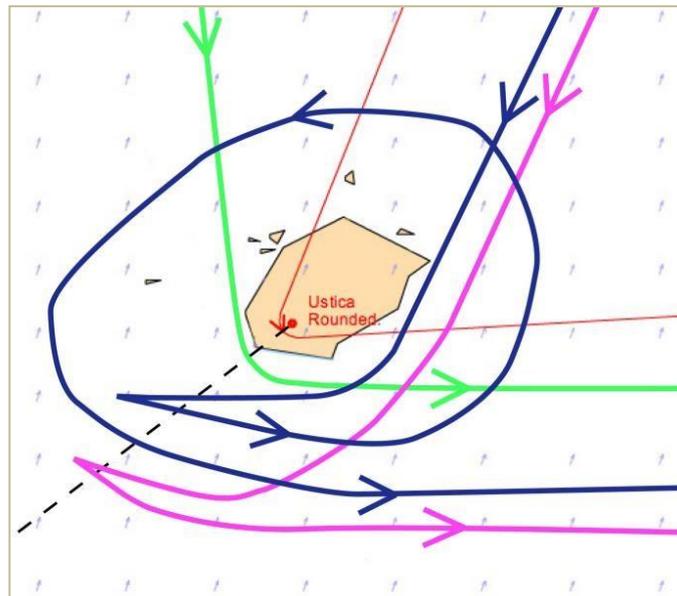


After tow-back to the starting line, a preparatory [flag](#) (Blue Peter) will be displayed in the race window indicating the pre-start phase is in effect.

4.2 The course, rounding buoys and the finish

The course is defined by a starting point, a number of rounding marks (buoys) and a finish line. All boats start at the starting point. Then, simply sail around the buoys in the correct order, leaving them to the correct side and cross the finish-line as soon as possible. Rounding of the buoys *correctly* is registered automatically by the server and the text at the mark will change from “Leave to port/starboard” to “Rounded”. The rounding is also reflected in your ranking (a failure to round means your boat will drop down the ranking and the distance to go to the finish will increase). The diagram

below shows how to properly round a mark, or to correctly re-round if you happen to miss it the first time. The thin, red line is the actual course line with the rounding direction arrow.



The **Green path** shows a normal, legal mark rounding, the **pink line** shows an illegal rounding. Should you miss a mark and be required to re-round it, the **blue path** is an example of how to do so.

At the finish, you may cross the finish line from any direction.

Upon finishing, your boat will be "glued" to the position where you crossed the line. Your finish time will also be announced in the leaderboard.

4.3 The chart and the race bounds

Each race area is shown on a chart which, when zoomed out, shows a sizeable area of the globe. The chart is, however, endless and allows you to drag the chart to view other areas. The race bounds are delineated by a pink line. If your boat reaches this line, it will stop until you set a course to steer it away. At different levels of zoom, however, different geographic features will become visible.

If you do collide with land, you can restart simply by setting a course that will safely navigate your boat away from land. As in real life, your boat will incur a performance hit for striking land!!

Tip: At close zoom, many islands, capes and rocks will be visible that cannot be seen when zoomed further out. Therefore, it is important to zoom in on your proposed course to avoid collisions.

4.4 Race types

There are three formats of races: Fleet, Timed and Multi-class

Fleet race: In a fleet race you typically register a boat during the registration phase in which practice sailing is allowed. During the practice-sailing period, you may sail anywhere within the race boundary. This is a good time to get a feel for the boat polar, tack/gybe characteristics and performance loss with

manoeuvring. Short, informal practice races are also frequently arranged and take place in the general area of the start. Look for announcements in both the chat rooms and Forum. There are no official SYC rankings for practice races... just bragging rights!

The starting procedure for fleet races is described in the section above (4.1).

Timed race: A timed race is ready to be run as soon as you arrive on course by registering for the race. You may, therefore, start whenever you like (within limits). The time of your first command is your start time so you may register and review the course, weather pattern and strategies of other racers before actually starting. A start using a Delayed Command is possible. Complete the course and your total sailed time will be compared with others in the leaderboard. Once you have finished the course you may return to the Homepage, re-register and go for another try. The winner is the boat that completes the course in the fastest time. Looking at the weather forecast and judging when to start a run should therefore form part of your strategy.

There is no practice racing for timed races. However, there are frequent “group starts” that are informally arranged through Chat for those SOLers who want to match race within the timed event.

Multi-class race: These races can be either Fleet or Timed events and are usually not officially ranked SOL races. They do, however, offer an opportunity to sail vessel types that few sailors would otherwise be able to experience. Popular events include a Tall Ships series and another long-distance race with boats designed by a naval architecture class in Sweden.

Practice Races (PRs): As mentioned previously, PRs are informal competitions that usually run at 1800 UTC on most days between the opening of race registration and the formal race start. The courses are designed on a daily basis and will be described in the SailTalk chat room as well as Forum. A course description and picture is provided in chat and all are welcome to join in. This is a great opportunity to practise with the polar of a particular race and hone skills for mark rounding and strategy. Marks are indicated as pink dots as shown with starting and finish lines moved daily to account for changing weather conditions.



4.5 Boat performance

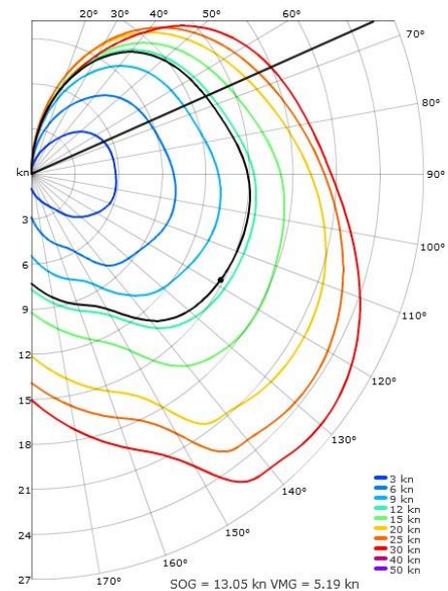
One of the most important pieces of information besides the weather can be found by understanding the polar graph. This graphic shows how your boat will perform under different conditions. The polar curves display boat speed (Speed Over Ground) as a function of wind speed and angle.

Take time to study the Polar and learn how to sail efficiently.

Different wind speeds are shown with different coloured curves. For a certain wind speed follow the corresponding-coloured curve for all various angles you can sail your boat. Notice how the polar diagram shows different values for each of those angles at a given wind speed.

Important points of sailing: (wind speed in polar diagram on right is shown at approximately 11.5 knot TWS)

- ⤴ In Irons (into the wind) — 0° 0 knots
- ⤴ Close Hauled — 35-50° ~ 11 knots
- ⤴ Beam Reach — 80-100° ~ 15 knots
- ⤴ Broad Reach — ~135° ~ 14 knots
- ⤴ Running — 180° ~ 7.5 knots



For a certain wind speed and TWA, you can read the corresponding boat speed as represented by the distance from the origin to the coloured curve.

There is a choice of scale at the top right corner of the polar diagram. I.e. "Low", "0..30kn", "default" and "auto". The plot does not differentiate between negative and positive TWAs (port/starboard tack) since our boats are symmetric.

The current True Wind Speed (TWS) will be displayed on the polar graph as a black curve. A dot is located on this line to indicate your current true wind angle (TWA). (Example above shows a TWS of approximately 11.5kn and a TWA of 118°) When using the steering tool to pick a course on the map, you will see a black line showing the angle of your new heading. Additional information is displayed below the graph showing the predicted boat speed (SOG) and the velocity made good (VMG). This information is also available by hovering the mouse over the polar graphic.

To read a polar diagram, take a look at the two scales. The vertical line on the left-hand side from the centre of the curve are boat speeds/velocity. Around the edge of the polar curve are degrees from 0 to 180 representing the angle of the boat in relation to the true wind direction. As you move the mouse over the graphic you can read off the boat speed applicable to that wind angle. For a certain wind speed, follow the corresponding-coloured curve for all various wind angles around the boat. (Note. The plot does not differentiate negative/port tack from positive/starboard tack TWAs as our boats are symmetrical). Your boat will generally perform at the polar curve boat speed (=100% performance in the polar window) but there are two ways of losing performance (1) If you hit land, you lose quite a lot of performance, and (2) After changing course you also lose some percent of performance (see PERF above). When you are not at 100% Performance, the black dot will be slightly *inside* the black wind speed line and will gradually approach the line as your perf% improves.

4.6 Weather

State-of-the-art wind forecasts are used as the sailing environment. The resolution in both time and space varies depending on the race. The forecasts are true in the sense that we are in a simulator sailing in authentic forecasts valid for the forecast period for the selected region. All boats sail in the wind as forecast at the 10-metre level. The forecasts are typically updated 4 times in a 24-hour period but you

should check each race NOR as there are a number of sources of wind data. The transition between updates is smoothed out in the first hour to make the change gradual.

4.7 The Actual Sailing

The boat's actual sailing is done in the central server and NOT in a user's computer. The client is only used for viewing and manipulating your boat; hence, you can disconnect and shut down your computer and your boat will continue to sail according to the set commands. The boats are moved forward (integrated) stepwise. The length in time between the steps varies dependent on the server workload but is usually kept under 30 seconds.

4.8 Routing

Races are often won or lost before the start and careful route planning is often the key to success. The tools you need for some basic manual routing are provided to you:

- (1) The weather forecast slider at the bottom of the "Steer" window.
- (2) The arrows and the wind overlay in the map
- (3) The polar diagram
- (4) The dashboard.
- (5) The predictor line.
- (6) The ruler tool.

Tip: Use the forecast slider to see how the weather will develop in the coming hours. Relate wind changes (speed and direction) to the polar diagram to see how your course will develop.

4.9 Disqualification / Banning

A boat can be disqualified from a specific race and/or a user can be banned from SOL if improper use is detected or if inappropriate and offensive comments are made in the chat.

5. Nautical Dictionary

Bearing Away: Also known as “falling off”. This means heading further away from the wind direction and *increasing* the TWA.

Bow: The front of the boat.

Course: The direction of boat travel (0 to 360 degrees) which, in this simulation, is equal to the boat heading since no water currents are present.

Distance: As this is a nautical simulation, distance is measured in nautical miles (One nautical mile equals 1852 metres or approximately 6,076 feet.)

Great Circle: A great circle constitutes the shortest route between two locations on the globe. In the map projection, a great circle route may appear to have a curvature depending on the distance and latitude, however on the globe the path will appear straight. For more information, see [Great Circle](#)

Performance: The percentage of boat speed you have in relation to the performance polar. You will have 100% unless you have hit land or just made a course change. Tacking or gybing results in larger performance loss than simply pointing up or bearing away.

Pointing up: Also known as “luffing up”. This means heading closer to the wind direction and *decreasing* the TWA

Port: Left side of the boat.

Rhumblines/Loxodromes: A route between two locations on the globe with the feature of having a constant true compass course. All course lines in SOL are shown in [rhumbline/loxodrome](#) format and WILL NOT be the shortest route. See Great Circle above.

SOG: Also known as “boat speed”, the Speed Over Ground measured in knots. One knot equals one nautical mile per hour.

Starboard: Right side of the boat.

Stern: The back of the boat.

TWA: True Wind Angle (ranging from 0 to 180 degrees), i.e. the angle between a boat’s course and the true wind direction. TWA=0 means that the wind comes in straight from over the bow and SOG will be zero, the equivalent of being anchored. Negative (-) TWAs indicate wind from the port side; positive (+) from the starboard side.

TWD: True Wind Direction (ranging from 0 to 360 degrees) is the angle *from* where the wind blows. TWD=0 means wind from the north, TWD=90 means wind from the east, etc.

TWS: True Wind Speed as measured in knots (kn).

VMG: Velocity Made Good is the velocity component parallel to the TWD. By convention, positive (+) value indicates that you are progressing towards the wind; negative (-) away from the wind.

Time: All references to time in the simulation are to [Universal Time Coordinated](#) (UTC).

6. Glossary

As in any active community, a number of terms and abbreviations evolve to have their own meaning specific to that community and environment. A form of *slang* is developed and can be quite confusing for the newcomer, especially in a global community such as SOL. Here are a few helpful hints to understand SOL-ese:

BBQ- abbreviation for Bar-B-Que and indicates someone has hit land, beached, run-aground, etc. It only seems fitting that they set up some food and beverages in the hopes of enticing others to join them!

SLI- Sneaky Little Island. These are small islands that only appear when you are zoomed in on the race screen to nearly maximum. They are a frequent cause of BBQ (see above). SLI-Jumping is an associated term and indicates the ability of a boat to leap over a sliver of an SLI due to the process in which the server updates a boat's position. This action, however, is not without risk as the "jump" must occur at the exact time and distance to exceed the land area you plan to jump. Overall, it is best to plan a route to avoid SLIs, but they do add some excitement to the competition.

DC- Delayed Commands (explained above). Have also been referred to as Devil Controls or Decisive Confusion

SOTP- Seat-of-the-Pants. This describes sailing without sophisticated routing software; just sailing with sophisticated knowledge and experience. SOL is very similar to chess; easy to learn the basic moves but extremely challenging to understand and apply the techniques to be in the top-tier of racers.

Router- a variety of sailing software programs that can be used to help optimise sailing performance.

GE- Google Earth™. All SOL races can be viewed in the Google Earth window. Go to the Races tab on the homepage and select Google Earth. This will download a .kml file to your computer for viewing. You must have GE installed on your computer to use this function. GE will allow you to view the race and participants in a different format. This is view-only. No sailing instructions can be entered and no boat tracks are shown.

Forum- this is a tab on the homepage that links to the SOL Forum. There is a constant stream of useful information (and entertaining commentary) flowing through the forum on a daily basis. You can request new postings to go directly to your e-mail from all or specifically-selected discussion threads. This is also a good place to have questions answered that may require more detail than can be provided in the small chat-windows within each race **Wx**- weather.

Boink- chat entry from a SOLer (or variation thereof) that signifies crossing the finish in a practice race.

IRL- In Real Life. Indicates the opposite of our "virtual" sailing on SOL. Example: "I was sailing IRL this weekend and had my SOL start on DC. Ran into an SLI and BBQ'd for the last 4 hours!"

7. FAQs

Q: Can I ask a friend to "share" a boat although we do not share the same computer, or even live in the same country?

A: *Yes, no problem. Just share your login details and you are all set to share the boat. "Boatsharing" has been a frequently discussed topic. Please review the most [recent update](#) related to this activity.*

Q: Why is it not allowed to have more than one boat?

A: *We like to give all players a fair chance, multiple boats is considered cheating and therefore not allowed. More than one boat per user is also an inappropriate use of server capacity.*

Q: Can my boat collide with other boats or the buoys?

A: *No, the only thing you can collide with is land or the race boundary.*

Q: Is "my wind" affected by the presence of nearby boats?

A: *No, such effects are not included in the simulator.*

Q: If I lose my internet connection while playing, can I still steer my boat and wait for the connection to reconnect?

A: *No, you cannot manipulate your boat while you are offline, your boat will keep sailing in your current direction.*

Q: Do currents, tides, leeway or wave action affect boat performance?

A: *No, these variables are not currently calculated in SOL.*

Q: Do I have to pay to play?

A: *No. SOL is completely free to play and no performance advantage can be bought.*

Q: What is the Sailonline Yacht Club?

A: *The SYC is a way in which SOLers who sail more than a few times can choose to make a contribution towards the running costs of SOL. In exchange for this, SYC Members have their race statistics recorded, gain a bit more viewable map space, can design and submit new race courses, and are eligible to win prizes for selected races.*