E — Configure the Events

1. In the *Events Configuration* dialog, make the required events for the survey active, by selecting the *Event Name* check box.
2. For each active event, highlight it and click **Configure**.
3. The tabs available for each event type depend on what has been configured in the project and the event type itself. The most commonly-available tabs are:

   • *General* – If required, change the *Next event code* and *Increment by* fields.

   • *Interval* – Set when the time/distance logging is to start and what the interval is to be.

   • *Log Data* – Set how often data is to be logged and what offsets to record data for (Trimble recommends that you record the echo sounder offset.)

   • *Annot ES* – Define how often the echo sounder is to be annotated and with what data. Different events can send different annotation strings to the echo sounder.

   • *Report* – Select which real-time reports are generated by this event.

F — Set up the Survey Text Real-Time Display

1. Open a *Survey Text* real-time display (the first time you open a *Survey Text* display, the *Survey Text Properties* dialog appears) and press Alt+Enter.

   TIP – Trimble recommends that you configure the system *before* you open this display.

2. For basic surveys, click **Defaults** to add the standard fields to the display.

3. For specialized information, select the relevant tabs, expand the tree items, highlight the required item, and click **Insert**. Repeat for each piece of information, as required.

   NOTE – Click **Separator** to insert vertical gaps into the display. You can edit the labels and separators.

Glossary

AST

Accurate System Time. The Navigation software initially uses the system time of your PC (based on GMT) and then starts a counter to accurately determine time from that point on. Used for all timing operations.

Decoded Data

When data is received from a sensor, the Navigation software verifies that it is correct, calibrates it, and puts the data into a standard format. It is then referred to as decoded data.

Events

A unique occurrence at which data (including time, event name, and positions) may be recorded. Actions may result. For example, an annotation could be sent to an echo sounder, decoded data could start being logged, or the echo sounder offset position could be recorded every five seconds.

GOs

Guidance objects. Stationary objects that vessels can obtain guidance to and along. Typically, targets, lines, and routes.

Logging

There are two main types of logging that occur:
• Decoded data logging
• Event logging

Origin

The origin of a vessel is the 0,0 location. The vessel shape and all offsets are defined relative to this point. The relative positions of the offsets *must* match those in the real world. The 0 height value is assumed to be the water level.

RLs

Reduced Levels. A positive elevation above a certain height datum. A negative elevation below the datum.
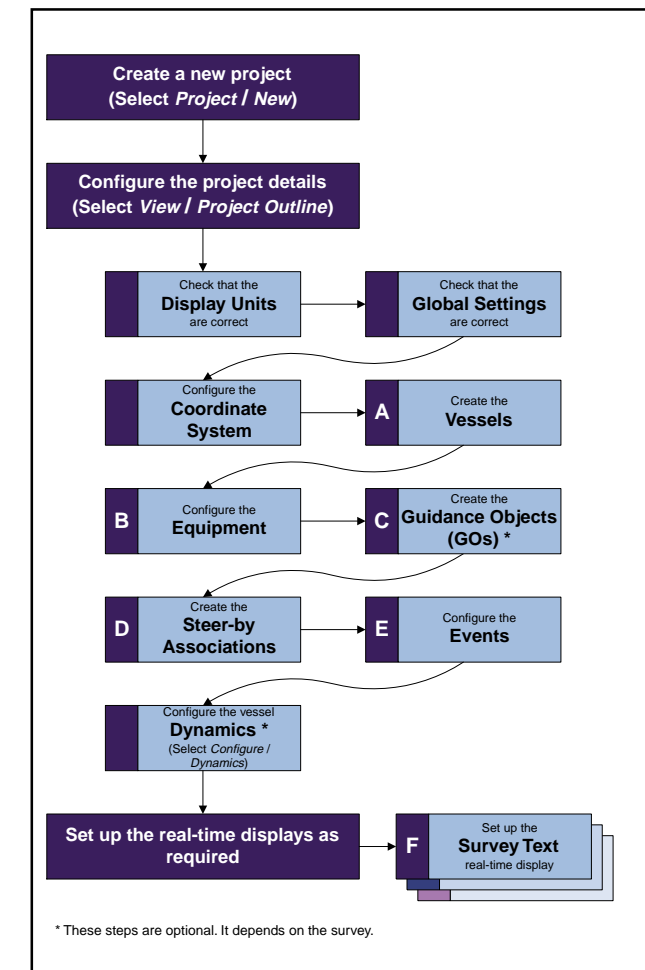
Steer-by Association

The linkage of a vessel offset to a GO. Once a steer-by association is created, the Navigation software generates guidance information to and along the GO.

Trimble

HYDRO*pro* Navigation
Quick Reference Guide

Creating a Navigation project

Follow the steps in the flowchart below and the details overleaf to create a Navigation project. If you need more information on how to use the software, in a dialog click **Help**, or from the *Help* menu choose *Help Topics*.

Create a new project (Select *Project* / *New*) → Configure the project details (Select *View* / *Project Outline*) → Check that the **Display Units** are correct → Check that the **Global Settings** are correct → Configure the **Coordinate System** → A Create the **Vessels** → B Configure the **Equipment** → C Create the **Guidance Objects (GOs)** * → D Create the **Steer-by Associations** → E Configure the **Events** → Configure the vessel **Dynamics** * (Select *Configure* / *Dynamics*) → Set up the real-time displays as required → F Set up the **Survey Text** real-time display

* These steps are optional. It depends on the survey.

A — Create the Vessels

1. In the *Vessel Configuration* dialog, click **Add**.
2. In the *Add Vessel* dialog, enter a name for the vessel and click **Editor**.
3. In the *Vessel Editor* dialog:
   a. Define the vessel shape.

   Click ◥ (click at line start location and again for end location). Alternatively, manually enter the values.
   b. Define the vessel offsets.

   Click ⊕ or manually enter the values:
   - Offset heights must be entered ***manually***.
   - Offset positions must be entered ***accurately***.
   - Trimble recommends that you enter a sensible name for each offset.

   TIP – Click ◥ to select a line or offset.
   c. Edit the properties of the vessel as required (e.g., shape, offset, and fill colors).

   NOTE – Default properties are set to 'Metres' and 1.0 m intervals.

   TIP – Adding lines and offsets graphically "snaps" them to the nearest 1 m grid values. For more accuracy, change the properties (click **Properties** and set the parameters in the *Design* tab) or manually change the values using the *Vessel Shape* or *Vessel Offset* tabs.

B — Configure the Equipment

The example used is an NMEA GPS service:

Service	NMEA strings
GPSTime	ZDA or UTC time tags
GPSPosition	GGA or GGK or GLL
GPSVelocity	VTG
GPSStatus	GSA
GPSDiffStatus	GGA, GSA
GPSErrorEllipse	GST
GPSSatelliteInfo	GSV
Tide	GGK

To add equipment

1. In the *Equipment Configuration dialog*, click **Add**.
2. Select the equipment type required, e.g., <GPS>.
3. Select the equipment name (e.g., NMEA) and click **Next>**.
4. From the *Services* list, select the required services if the defaults are not suitable.

   For example, you may need to select the Tide service to obtain tide values from RTK heights.
5. Click **Finish**.

Depending on the services selected, the *Configure Equipment* or *Configure Advanced Equipment* dialog opens.

To configure equipment using the *Configure Equipment* dialog

1. In the *Configure Equipment* dialog, select the correct vessel and offset for the equipment location.
2. Click **Ports** to edit the COM port parameters:
   - Click **Test** to view incoming data (if a device is connected).
3. Click **Properties** to edit the *Timing* and *Logging* options:
   - *Timing* – If required, change the constant latency and timeout settings.
   - *Logging* – If required, change the logging settings. This determines what decoded data logging is done.
4. Click **Custom** to edit the device custom settings (not available for all equipment types).

   For NMEA <GPS>:
   - *GPS Time* – Select the GPS time source to be entered into the Navigation software, e.g., ZDA time/date string.
   - *GPS Position* – Select the type of GPS position string to be decoded, and set the minimum GPS solution type to be decoded, e.g., Differential.
   - *RTK Tide* – If a Tide service is included in this configuration, set how the tide data is to be generated from the GPS height data, e.g., average the data over 300 seconds and only use RTK Fixed-Integer GPS quality.
   - *Heading* and *Echo Sounder* – Generally does not apply to <GPS>.

C — Configure Guidance Objects

1. In the *Guidance Object (GO) Editor* dialog, click **Group / New**. The *New Group* dialog appears.
2. Enter a name for the GO group and select whether the coordinates are to be entered as local grid, local datum, or WGS-84 datum.
3. In the *New Guidance Object* dialog, select the GO type to be entered (most commonly lines) and enter a GO name.

   TIP – End the name with a number so that you can easily identify it.
4. In the *New Point* dialog, enter the point coordinates of the GO. Optionally, enter reduced level and overdredge values (required for the *Profile* real-time display).

   Select how the line is drawn between the current point and the next point. For curved sections, select the *Arc* (<180°) or *Big arc* (>180°) item and enter a radius.
6. Click **Next>** to move to the next point in the GO, or click **Finish** to complete the GO.
7. In the *Next New GO* dialog, select the method to create the next GO, otherwise click **Cancel** to exit.

D — Create the Steer-by Associations

1. In the *Steer-by Association Configuration* dialog, click **Add**.
2. In the *Add Steer-by Association – Configuration* tab select:
   - the required vessel and offset
   - the required GO

   Guidance information is calculated for this relationship.
3. In the *Options* tab set how:
   - the next GO is to be selected
   - the direction of the GO is determined
   - the selected GO is displayed on the *Plan View Map* real-time display