

OPTIMAL RUNLINES TOOL MANUAL

NAVIMODEL PRODUCER AND HELMSMAN

Last update: 01/03/2023
Version: 1.0

Contents

1	General description	3
2	Accessing the tool	4
3	Tool parameters	5
4	How to use the tool	7

1 General description

The tool is available for use in NaviPac Helmsman and NaviModel Producer. It requires a presurvey file to be loaded prior to using the tool.

The Optimal Runlines tool looks at the active model and calculates how close to one another the lines should be generated: as the water depth increases, the lines will be created further apart, while for shallow waters they will be closer together. Swath angle and survey heading can be adjusted, along with other parameters, to generate the best runlines for a fast completion of the bathymetric survey. The tool provides a statistic that includes the number of lines, their length and total time required to complete the survey.

2 Accessing the tool

In Helmsman, the tool can be accessed from the **Menu Bar** under **Tools > Design > Optimal runlines**.

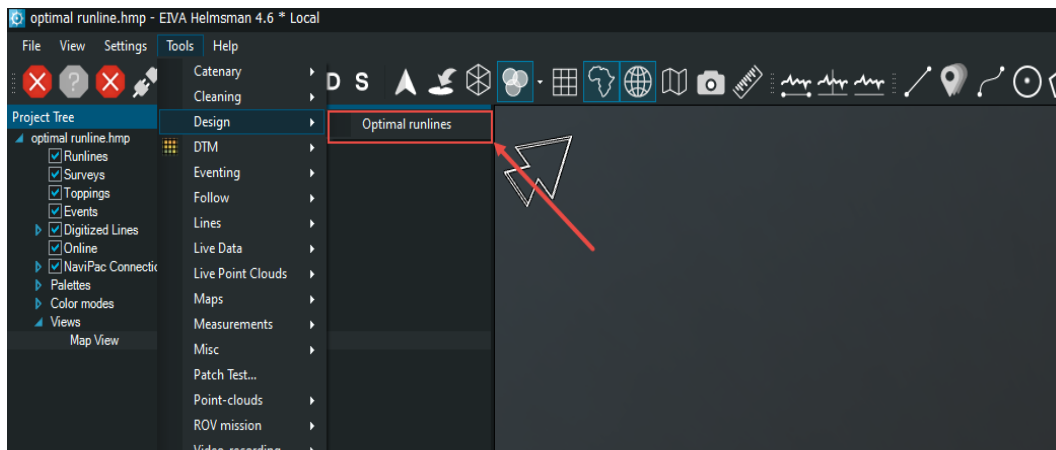


Figure 1 Location of the Optimal runlines tool in Helmsman

In NaviModel Producer, the tool can be accessed in the **Menu Bar** under **Tools > Design > Optimal runlines**.

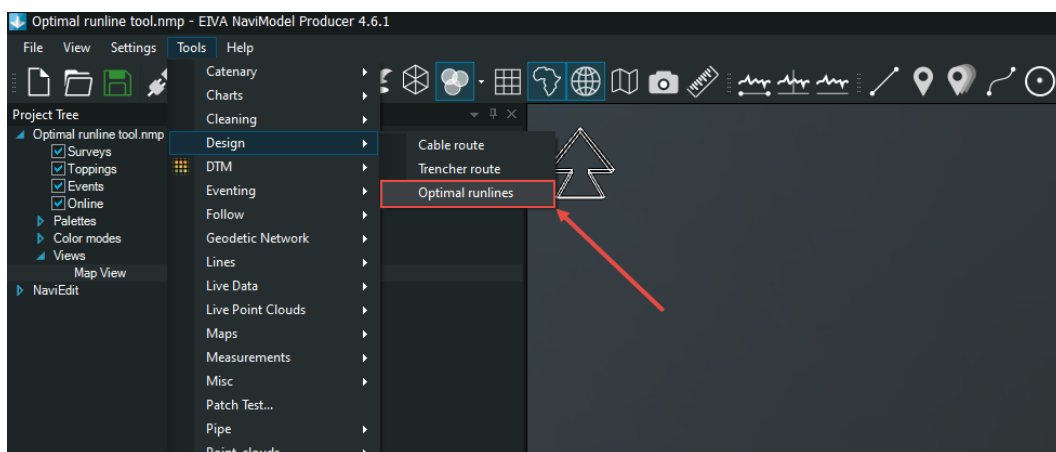


Figure 2 Location of the Optimal Runlines tool in NaviModel Producer

3 Tool parameters

Once the presurvey file is loaded into Helmsman or in the NaviModel Producer project, the tool can be selected from the **Menu** and the **Optimal Runlines** view appears on the screen:

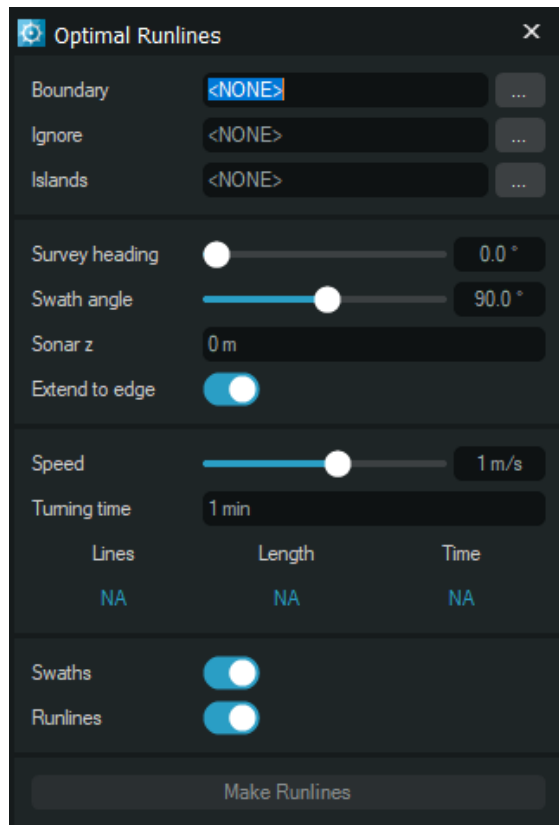


Figure 3 Optimal Runlines view

- **Boundary** – the user can select which boundary should be used for the automatic line creation
- **Ignore** – specify areas to ignore
- **Islands** – specify areas that represent islands to be avoided
- **Survey heading** and **Swath angle** can be adjusted by the user to better design the lines according to its needs
- **Sonar Z** value can be set to be considered in the line calculation
- **Extend to edge** can be enabled or disabled if the user wishes to extend the lines outside the boundary or not
- The **Speed** value and the **Turning Time** can be set to display an estimated total time of completion of the survey area

- The toggles for the **Swaths** and **Runlines** can be enabled or disabled if the user wishes to see them in the **Map View** over the survey area or not

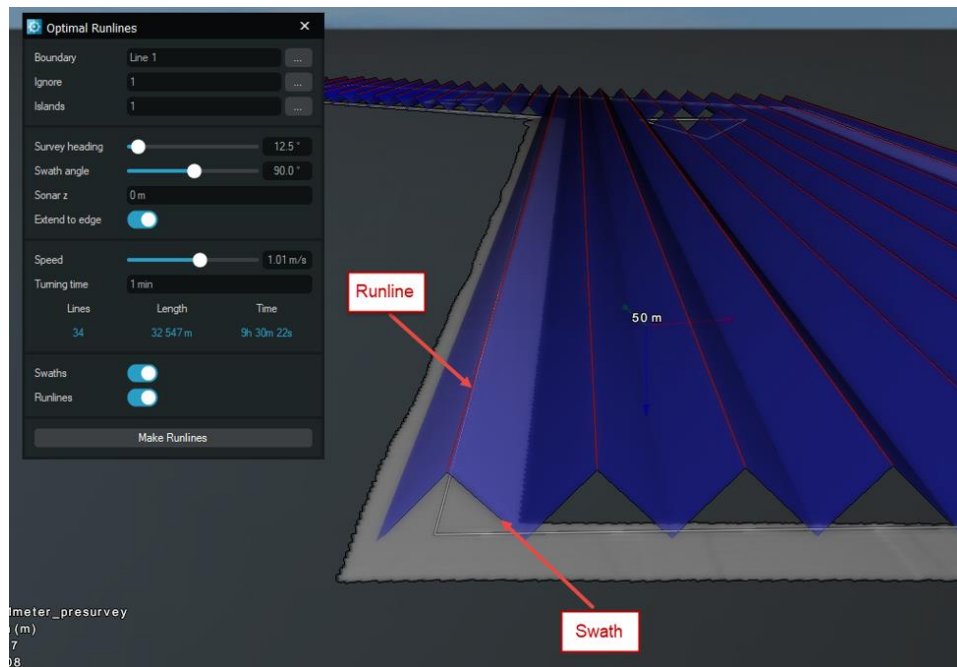


Figure 4 Visual display of the swath and runline in the Map view

4 How to use the tool

First, load a DTM model of the area and a presurvey model, then start the tool from the **Menu**. From the **Project Tree**, select the **Survey boundary** and define any areas to ignore (**Ignore area**) and/or any islands (**Island**), if present. The tool automatically creates lines and sets the **Survey heading** and **Swath angle**, which can be adjusted by the user if needed, along with the rest of the parameters.

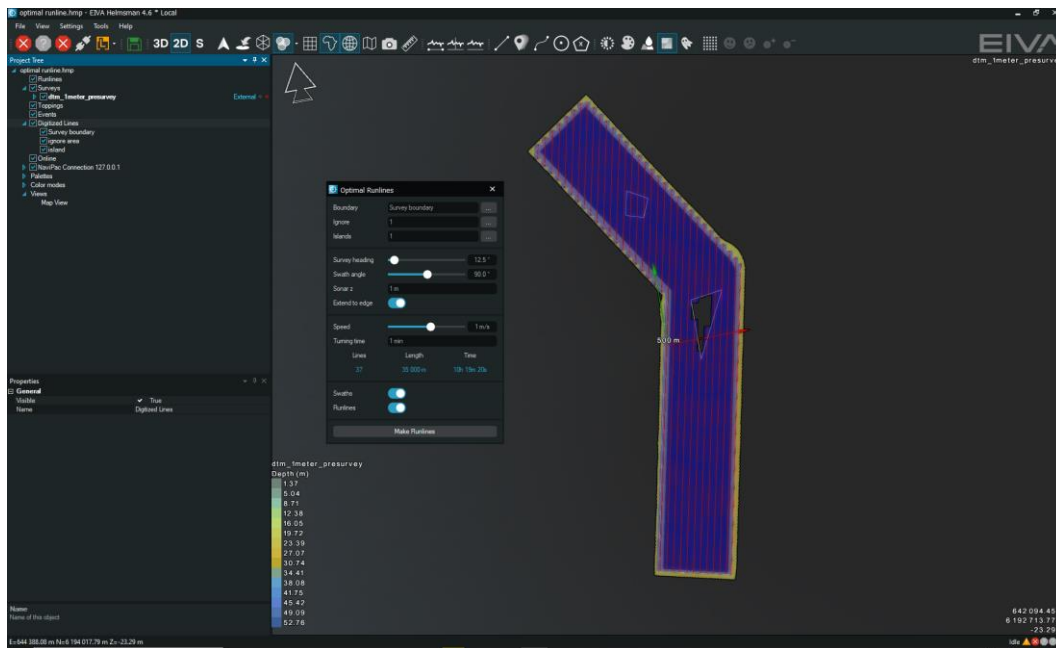


Figure 5 Optimal Runlines tool – automatic runline design based on the presurvey model and the survey boundary

The number of lines created is displayed under **Lines**, the total length in meters is displayed under **Length**, and **Time** displays the total time required to complete the survey when following the generated lines. If the user is satisfied with the computed results, they can proceed to generate the runlines by clicking the **Make Runlines** button.

The runlines will be automatically created and placed in the **Project Tree** under the **Runlines** node, as shown below.

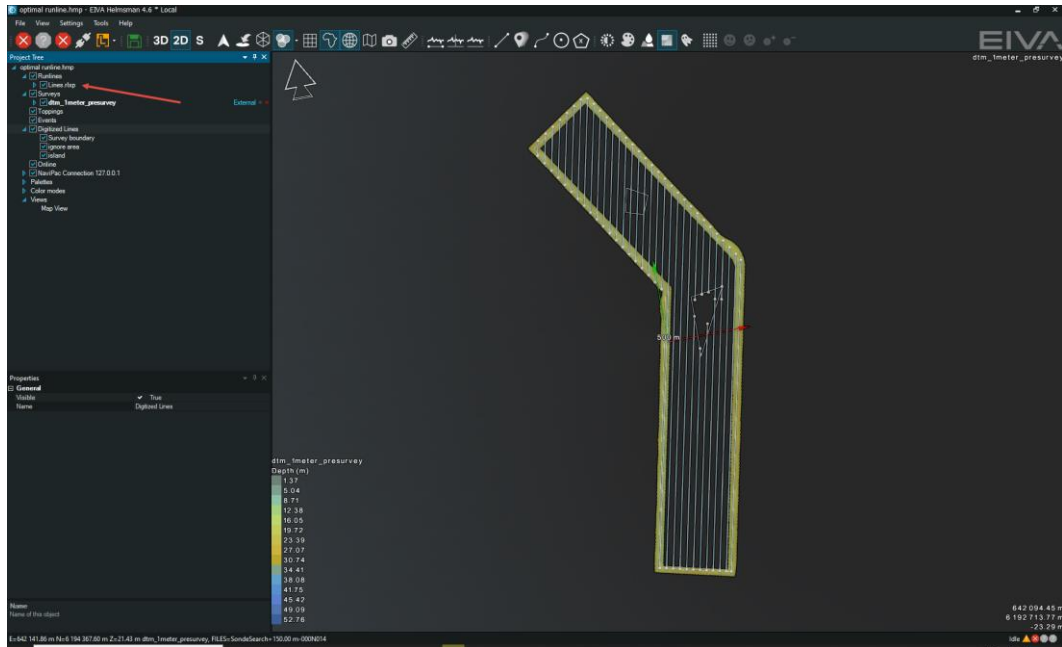


Figure 6 Generated runlines in the Project Tree (red arrow) and displayed in the main view – from the Optimal Runlines tool