Selkie User Interface

The user interface is split-up into different panels:

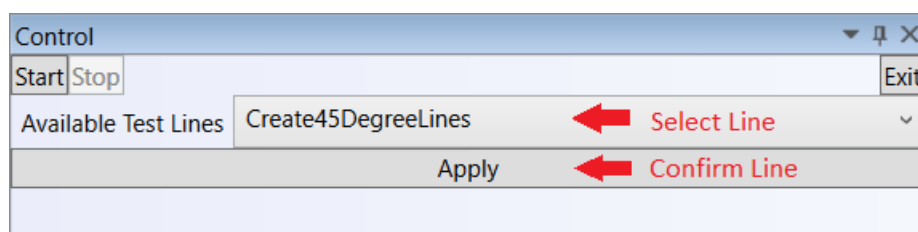| Panel Name	Description
Control	• Start calculation • Stop calculation • Select lines • Apply lines • Exit the application
Ant Settings	• Control the start point for the path creation
Settings	• Specify turn radius for port turns • Specify turn radius for starboard turns • Specify which turns are allowed
Pheromones	• Shows the pheromone distribution used to find the shortest path.
History	• Shows a history of discovered paths
Status	• Shows status and error messages
Preview	• Show selected lines • Show calculated shortest path • Indicate shortest path direction • Indicate start point of the shortest path • Indicate end point of the shortest path
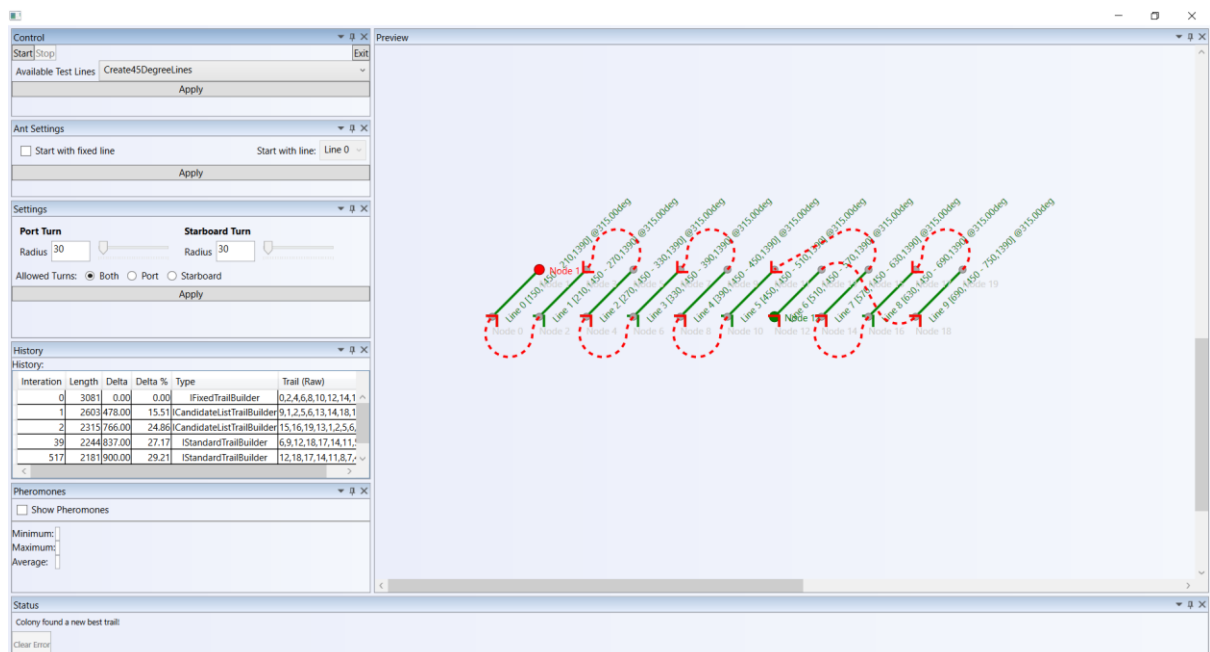
Quick Start

Control Panel

Line Selection

The Selkie application comes with a selection of test lines to demonstrate the path finding algorithm. You can select a line from the drop-down and confirm the selection by clicking the *Apply* button.
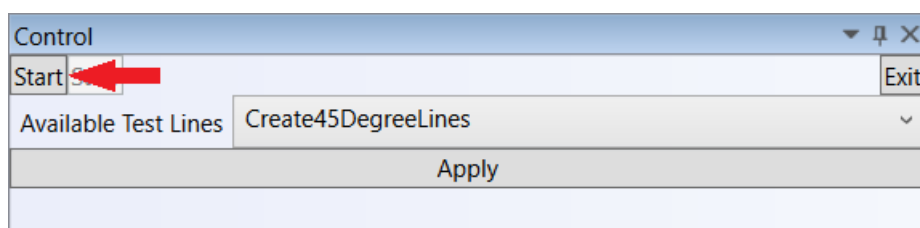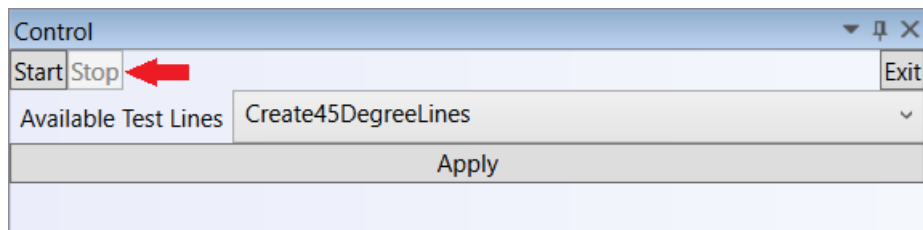
Start Calculation

Click the *Start* button to start the calculation of the shortest path. The calculated shortest path will be shown in the *Preview* panel.
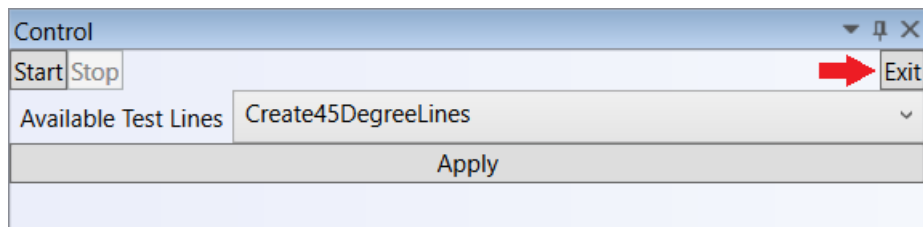
Stop Calculation

Click the *Stop* button to stop the calculation of the shortest path.
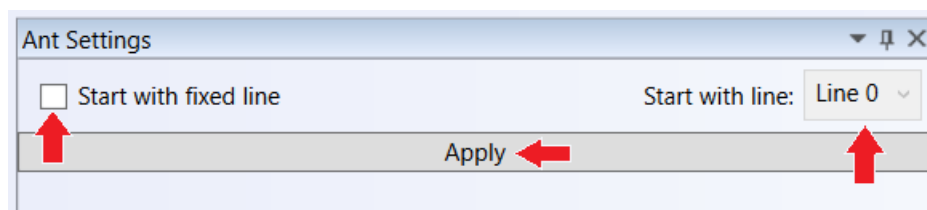

Exit Calculation

Click the *Exit* button to exit the application.

Ant Settings

Random or Fixed

The *Ant Settings* panel controls if the calculated shortest path can start with any line in any direction or with a selected line and direction.
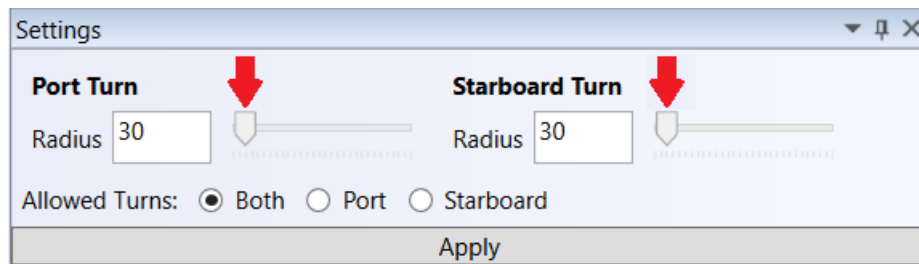

Fixed starting line selection

Locate the *Ant Settings* panel on the right of the application and do the following steps:

1. Click the checkbox *Start with fixed line*
2. Select a line from the drop-down *Start with line*
3. Click *Apply* to confirm selection

Settings

Turn radius

The turn radius for port and starboard turns can be set by moving the slider to the left and right.
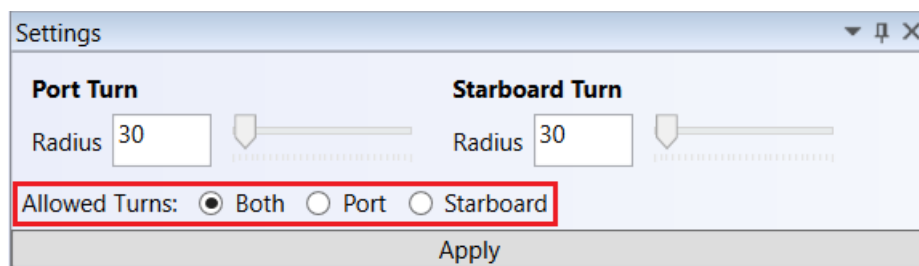

Selecting the turn radius
Locate the *Settings* panel on the right of the application and do the following steps:

1. Locate the slider control for the port or starboard turn
2. Move the slider to the left or right to adjust the radius
3. Click *Apply* to confirm selection

Allowed Turns

By default, the shortest path calculation includes both turn direction: port and starboard. Here the user can restrict the turns to port, starboard or both.

Selecting the allowed turns
Locate the *Settings* panel on the right of the application and do the following steps:

1. Select one of the possible options: *Both*, *Port* or *Starboard*
2. Click *Apply* to confirm selection

History

The *History* panel shows all the best shortest path found during the calculation.

The deltas are calculated against the first valid path found or given. Usually the first row in the *History* table is the order of the lines given to the shortest path algorithm.

- If the given order of lines is valid it will show up in the *History* table as Iteration 0.
- If the given order of lines is invalid because there is no possible, path the *History* starts with the first calculate shortest path. The Iteration will show 1.

Or

The column *Trail (Raw)* shows the calculated shortest path represented as the selected line nodes. Each line has a start and end point which is represented by a start and end node each. The nodes are numbered sequentially, e.g.:

| Line Name	Start Point (x, y)	End Point (x, y)	Start Node	End Node
Line 1	0, 0	10,10	0	1
Line 2	0,100	100,100	2	3

...				

The trail '0,2'means that the shortest path:

- starts at *Line 1* at the start point
- follows the *Line 1* to the end point
- follows the calculated racetrack from *Line 1* to the start point of *Line 2*
- follows *Line 2* to the end point
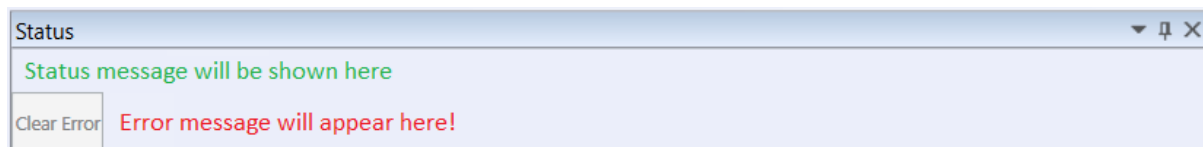- and finishes at the end point of *Line 2*

Pheromones

The *Pheromones* panel allows to show the pheromones distribution used to calculate the shortest path. This is just a visual add-on and was useful during development.
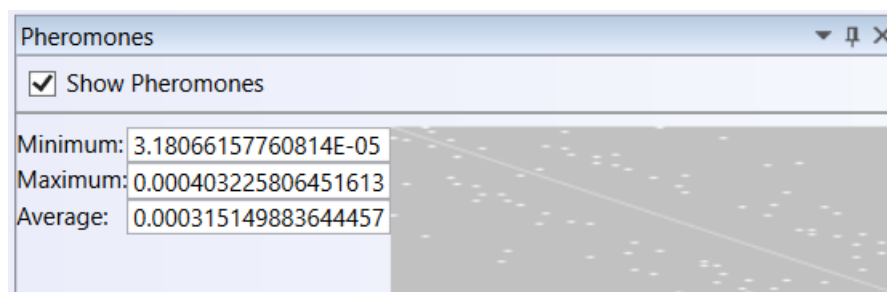
Status and Errors

Status and error messages will be shown in the *Status* panel. Error can be clear by clicking the *Clear Error* button.

Preview

The *Preview* panel shows all the important details of the calculated shortest path:

- The selected test lines
  - The line direction
  - Start and End Node of each line
- The shortest path
  - The track from one line to the next
  - The shortest path direction
  - Start Node of the shortest path in green
  - End Node of the shortest path in read

Every time a new shortest path is found the *Preview* panel is updated. When the calculation is finished the final shortest path is displayed.