

User Manual: Flight Route Generator

Version: 1.0

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1 General Information

This document is a user manual for Flight Route Generator, a system that is developed as a project for Saab Kockums AB.

1.1 System Overview

The system's objective is to import data from data sources such as the waypoints around a given airport, as well as generating STAR and SID routes. It will then allow for data to be stored in an external database and be exported in XML-format through an interface.

1.2 System Configuration

Flight Route Generator is compatible with Windows 10. An internet connection is required to download the waypoints that are used to create routes.

2 Functionality

This section explains how to use the features in the system and shows the Route Creator form.

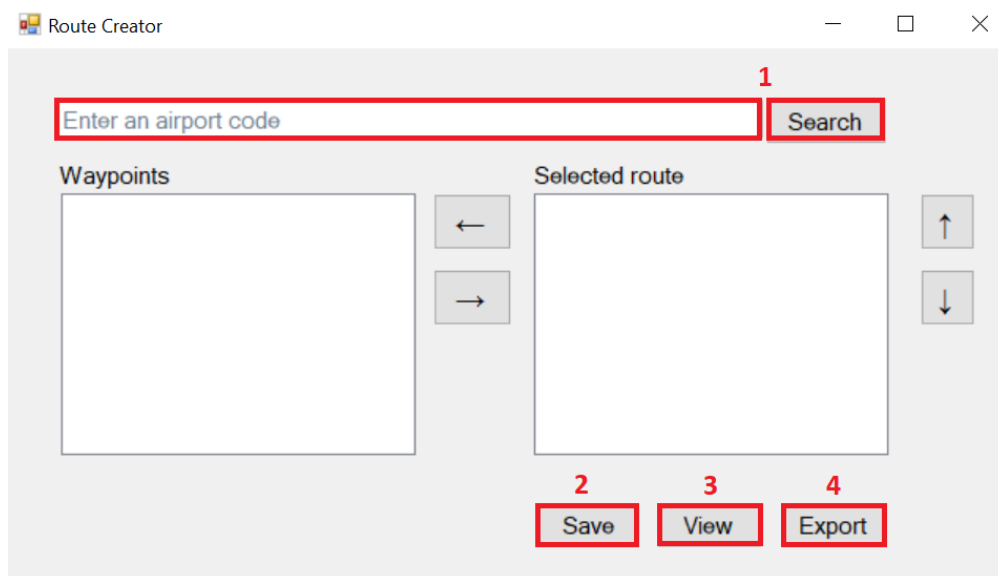


Figure 1: Route Creator

2.1 Generate Waypoints

To generate waypoints, enter an airport code, four characters, in the field marked 1 in Figure 1, then press the "Search" button.

2.2 Create Route

To create a route, waypoints must be selected and ordered in a list.

2.2.1 Select Waypoints

The waypoints that should be added to the route may be selected from the generated waypoints. To do this, select the desired waypoint then use the arrows marked in Figure 2. The right arrow button adds a waypoint to the selected route, whereas the left arrow button removes it from the route.

You can also select several waypoints by holding in SHIFT or CTRL.

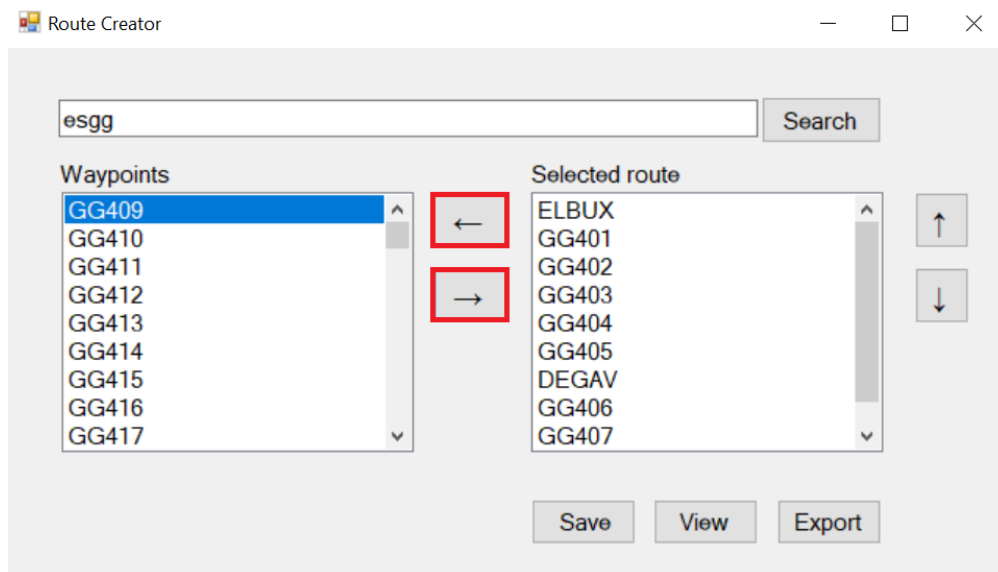


Figure 2: Select Waypoints

2.2.2 Order Waypoints

When all desired waypoints have been added to the route, they can be re-ordered, using the arrows marked in Figure 3. To do this, select a waypoint in the selected route list, then press the up or down arrow buttons to put them in the right order. The route is sorted in descending order.

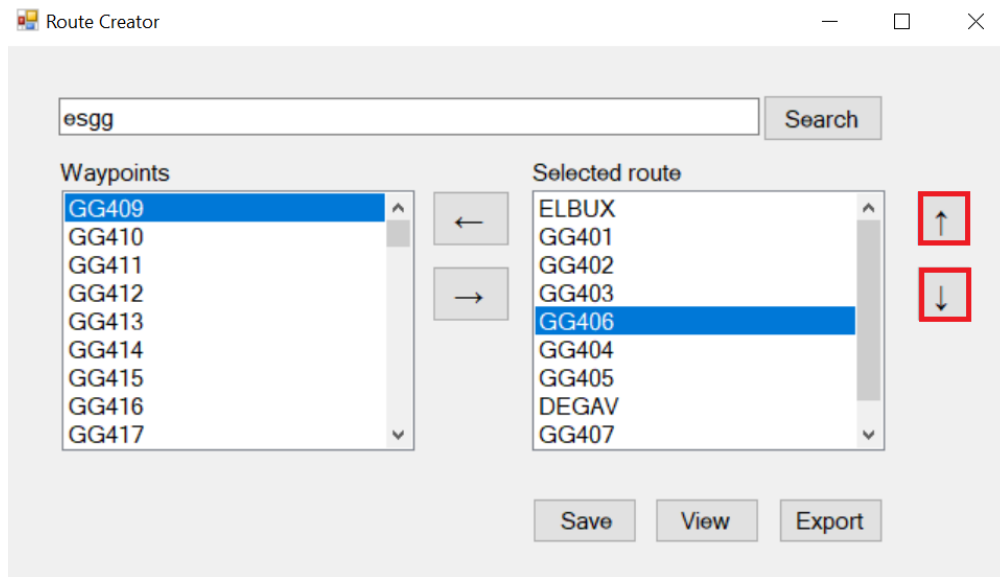


Figure 3: Order Waypoints

2.3 Save Route

To save the route, press the "Save" button, marked with 2 in Figure 1. The Save Route form will appear, as shown in Figure 4. Enter a route-name, then specify if it is a STAR or SID route, this is done by clicking respective radio button.

Press the "Confirm" button to save the route. If the route was saved correctly, a message box that says "Route created!" will appear. Press the "OK" button to go back to the Route Creator form. If the route name already exist a message box that says "A route with the name "route-name" already exists. The old route will be overwritten. Do you wish to proceed?" choose "Yes" or "No".

Press the "Cancel" button to go back to the Route Creator form.

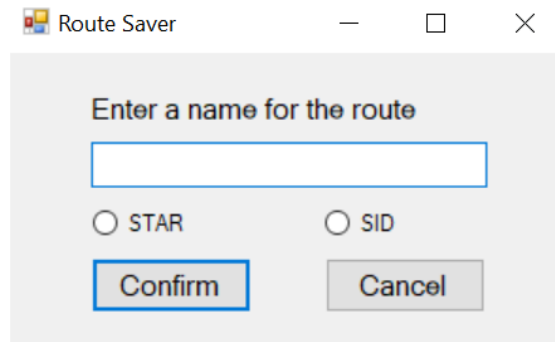


Figure 4: Route Saver

2.4 View Routes

To view all existing routes, press the "View" button, marked with 3 in Figure 1. A View Routes form will appear, as shown in Figure 5, containing a list of all existing routes. Select a route to see which waypoints are included.

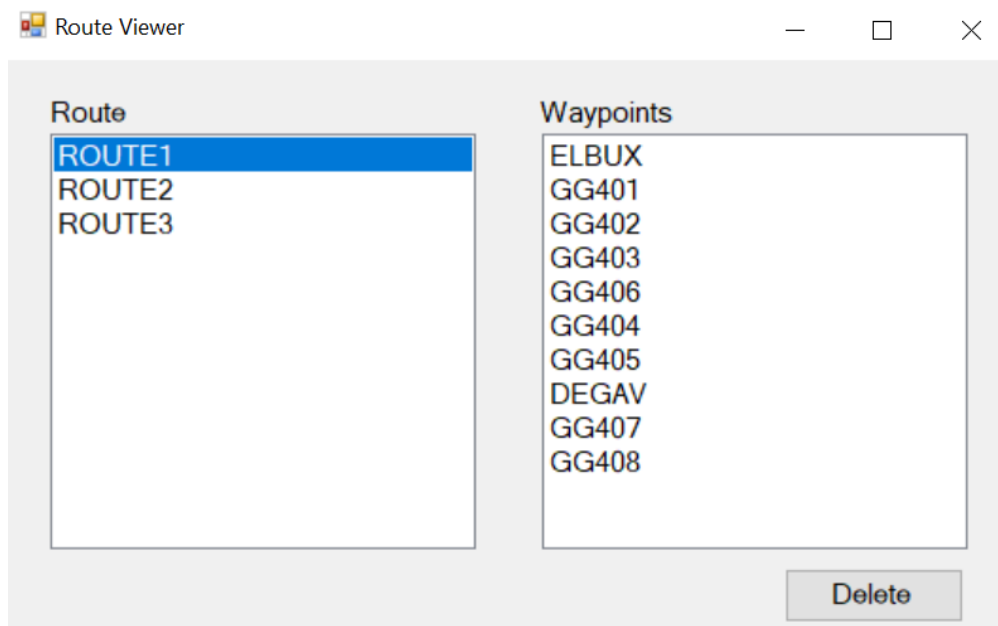


Figure 5: Route Viewer

2.5 Delete Route

To delete a route, view all existing routes as described in §2.4. Select the desired route in the list, and then press the "Delete" button displayed in Figure 5.

2.6 Export Route

To export existing routes to XML files, press the "Export" button, marked with 4 in Figure 1. When pressed, a message box will appear with the text "Routes have been exported!". The routes will be exported to a folder. To access this folder, start from the main project folder and then go to bin → Debug → ExportFolder.

In the ExportFolder, the XML files will be sorted by airport code in separate folders with the same name as the respective airport code. These folders contain one XML file per route. The XML files will have the same structure as displayed in Figure 6.

If the export was not successful, a message box saying "The export failed!" will appear instead.

```
<?xml version="1.0"?>
- <routeData>
  <startEvents/>
  - <breakpoints>
    - <breakpoint fix="" lat="1.0338957182086" lon="0.298255437402647" distance="0" angle="0" section="0" type="0">
      <events/>
    </breakpoint>
    - <breakpoint fix="" lat="1.02575472695298" lon="0.292205932309155" distance="0" angle="0" section="1" type="0">
      <events/>
    </breakpoint>
    - <breakpoint fix="" lat="1.02674811006922" lon="0.306780401093707" distance="0" angle="0" section="2" type="0">
      <events/>
    </breakpoint>
  </breakpoints>
</routeData>
```

Figure 6: XML skeleton