CSE 219, Stony Brook University

Software Design Document

for CIA Factbook Mapper Java Application

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4/12/2011

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1. Design overview

1.1. Purpose

This document aims to describe the software design of a Java application named CIA Factbook Mapper for displaying and generating maps. It provides background information of the design phase, a list of necessary tools to develop the application, as well as detailed diagrams of the application's framework that will be useful for software developers.

1.2. Overview

The Design Overview contains the utilities and other related information that will be encountered in further development of the application. It lists the technology, libraries, and related file formats necessary to build the application. The Class Diagrams section contains fully-detailed figures describing the framework of the application, while the Sequence Diagrams section contains figures describing the step-by-step function calls between classes. The design of these diagrams was made using a top-down approach, such as in the case of distinct handling of the two different file formats (i.e. .dbf and .shp) utilized by the program. Furthermore, due to the nature of the application, certain parts of the program will employ the singleton pattern.

1.3. Tools

The diagrams were made with the object-oriented programming capability of Java in mind. As such, it is imperative to use Java and a corresponding IDE such as Eclipse to develop the application.

1.4. Libraries

Most of the class diagrams include components from the Java Class Library.

1.5. File formats

- **.dbf**. Contains database-type of information where world data facts and figures are stored which will be read by the program and displayed to the user.
- **.shp**. Contains each country's shape through vertices that will be read by the program to render an image of the world map.
- **.obj**. This file format will be used by the program to store user-specified map rendering settings outside the application.
- **.png**. All images including button icons and program-generated map images will be in this image format.

1.6. Target platform

The application will work in any platform with Java SE 6.0 Runtime Environment.

2. Class diagrams

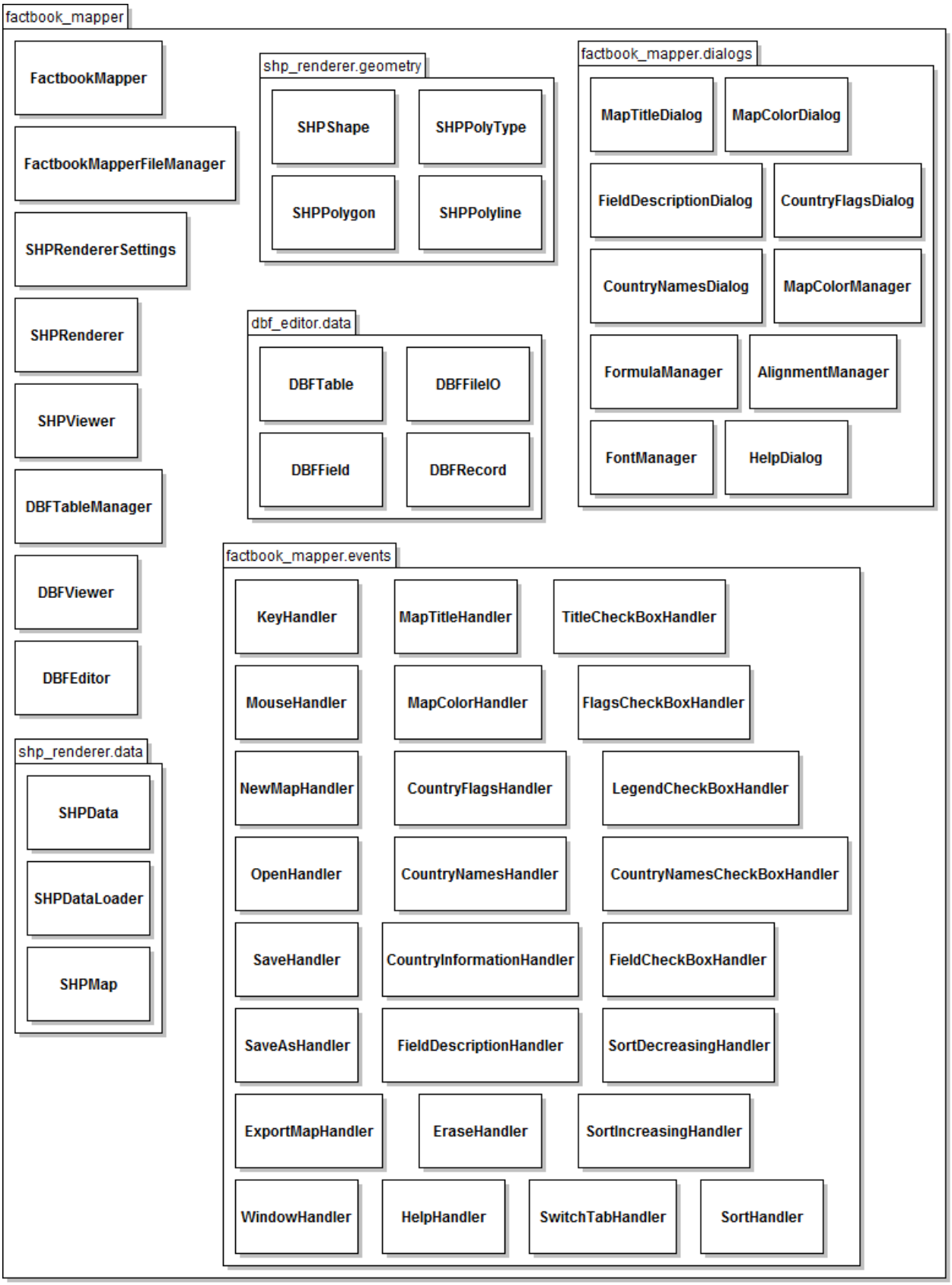

Figure 1. Overview

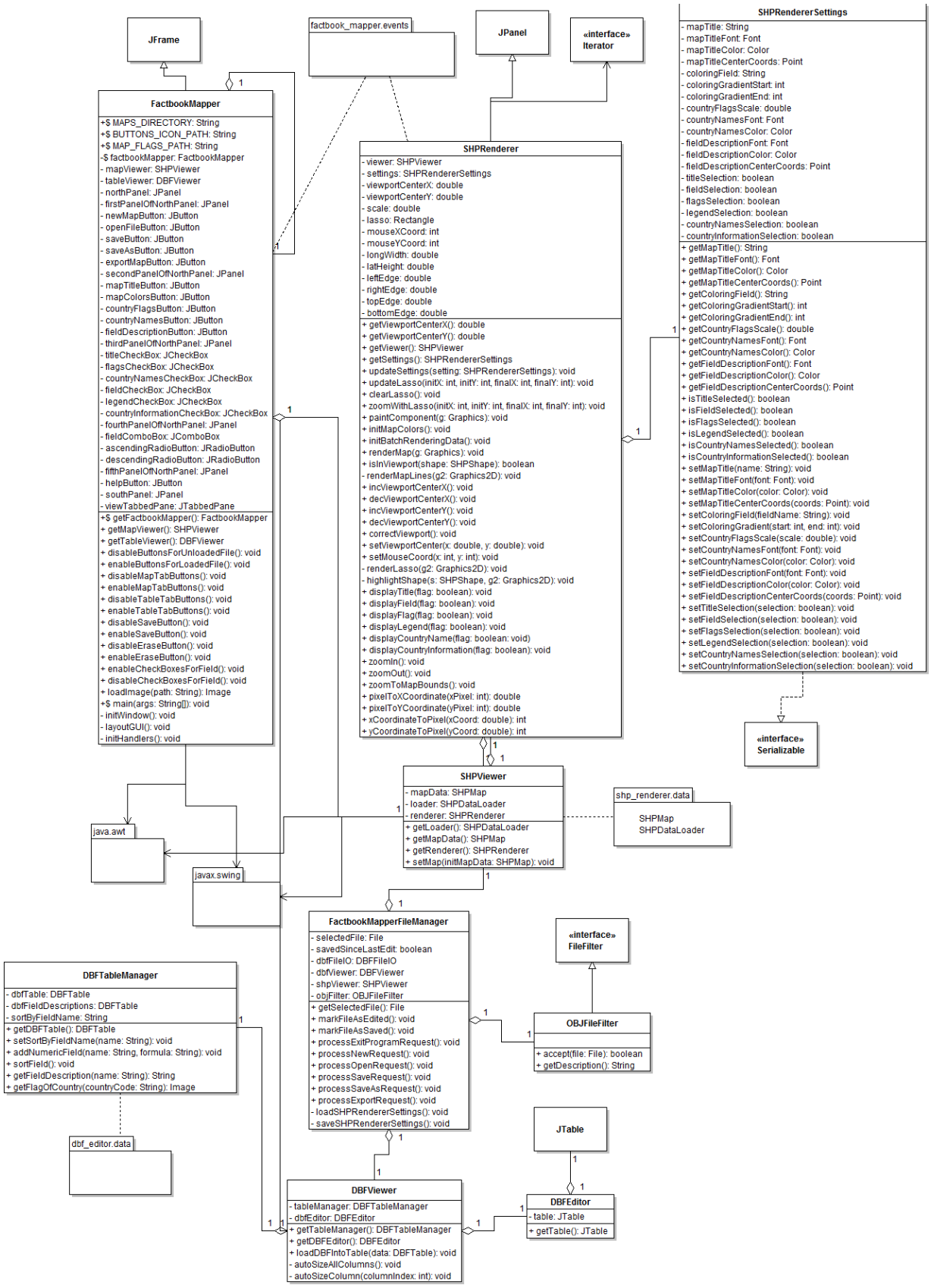

Figure 2. Factbook mapper package

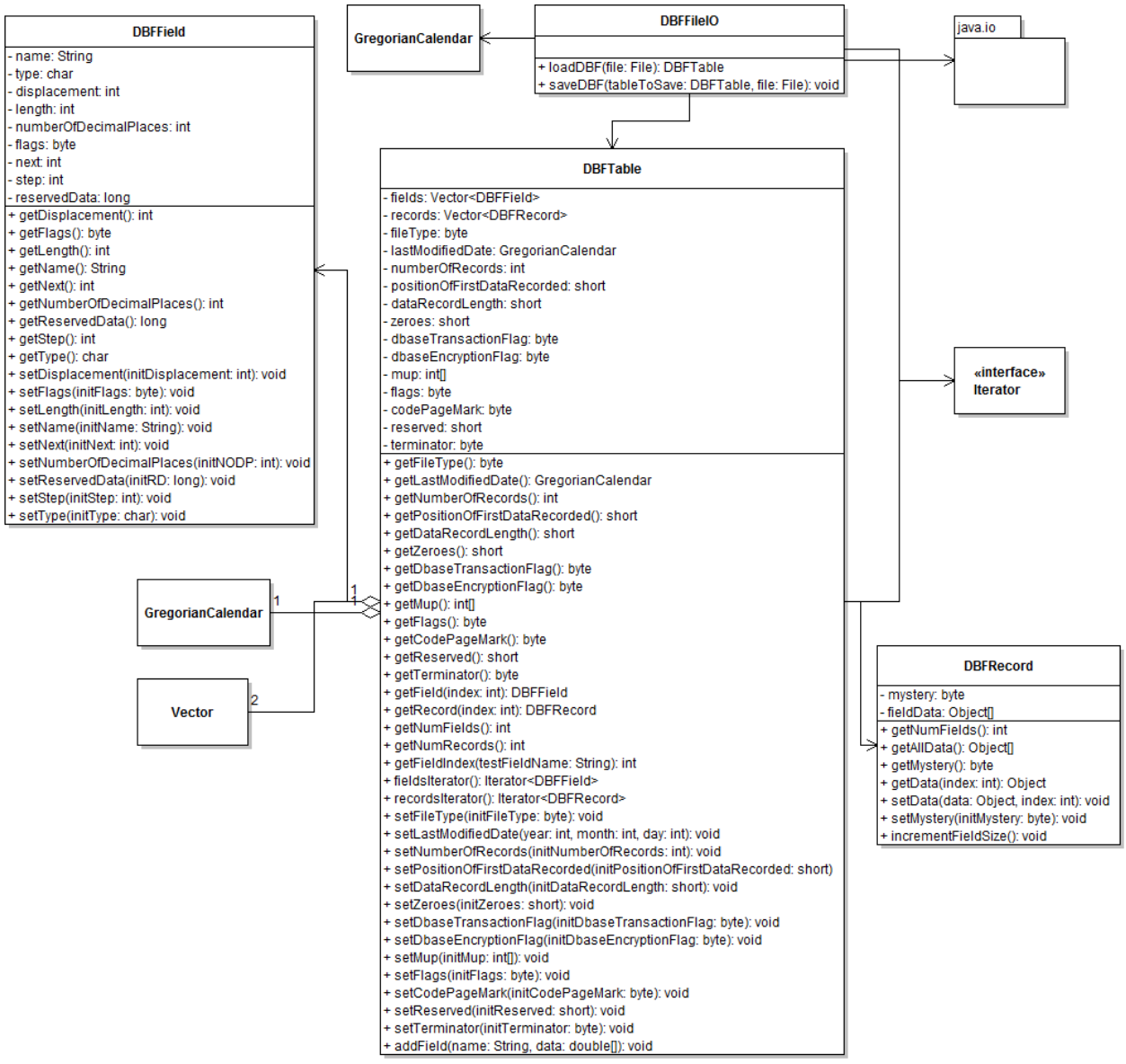

Figure 3. DBF editor data package

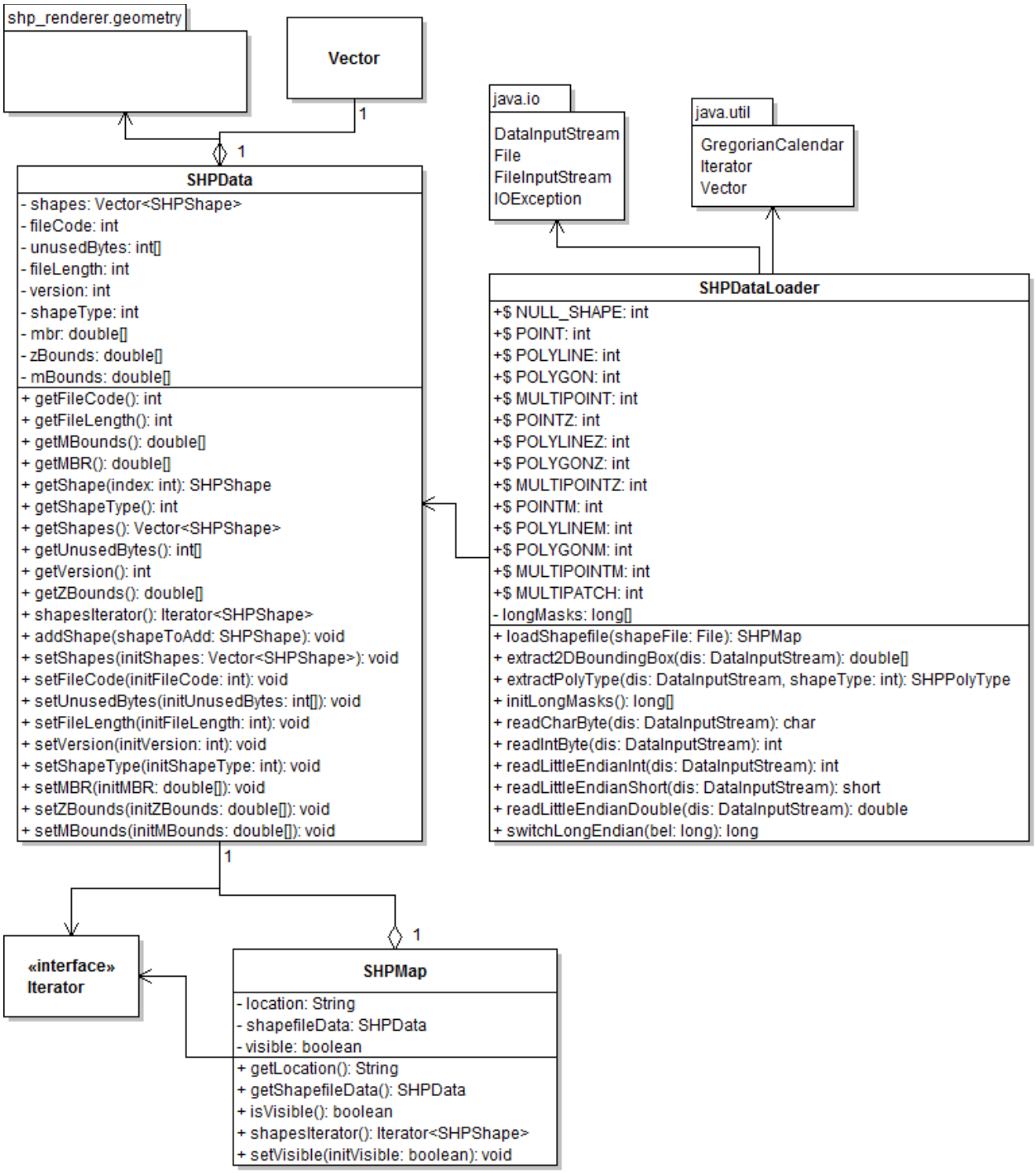

Figure 4. SHP renderer data package

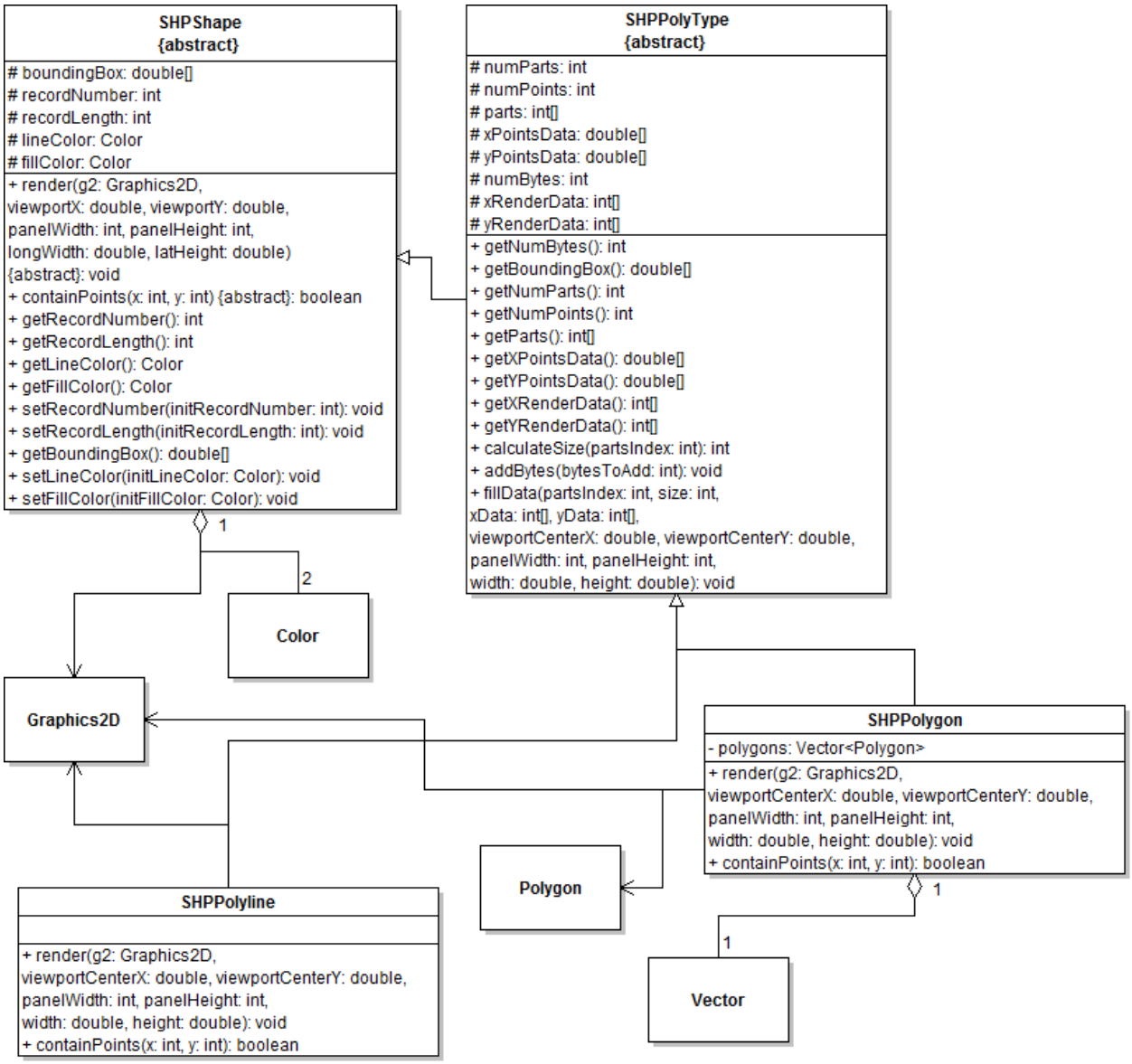

Figure 5. SHP renderer geometry package

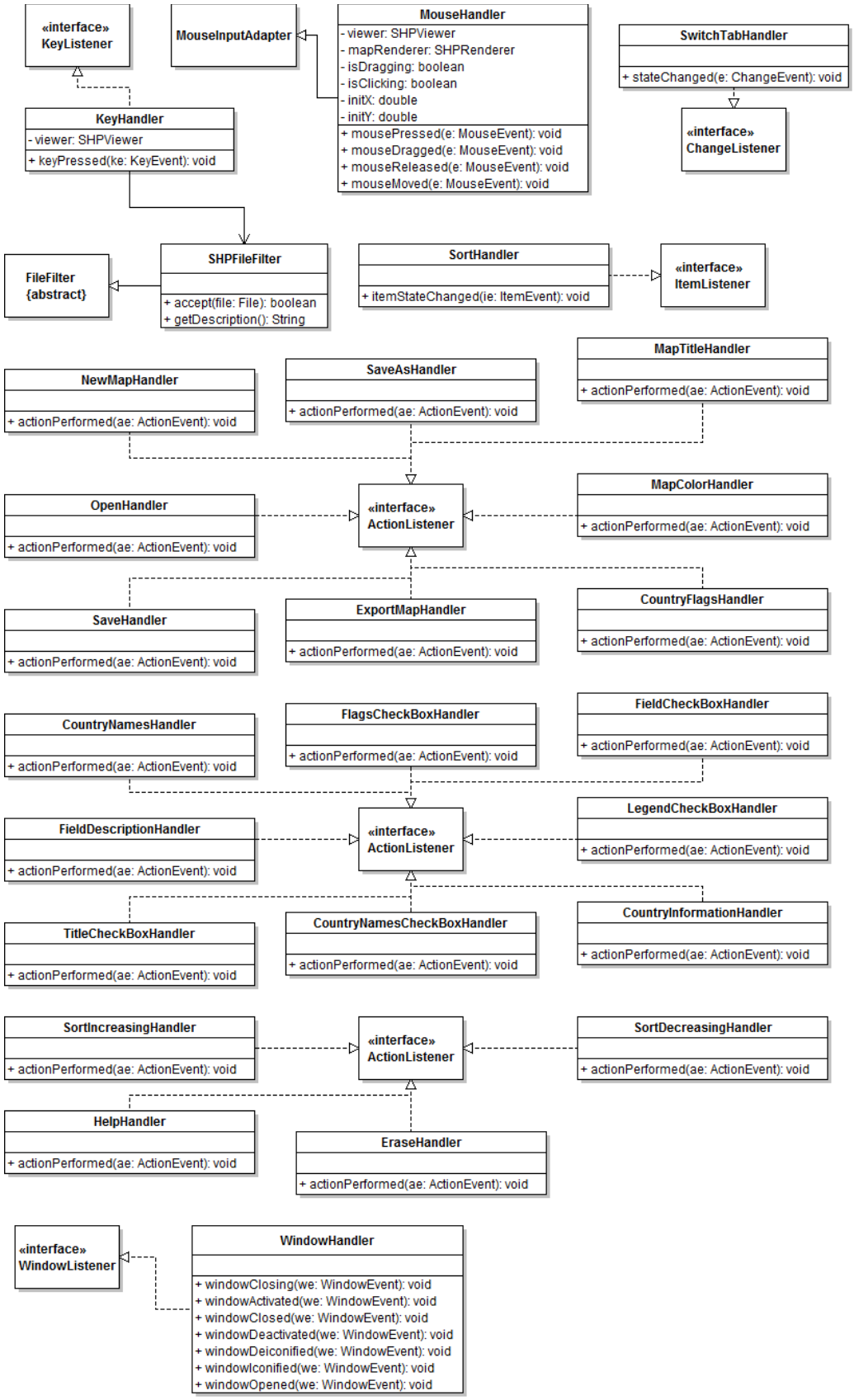

Figure 6. Factbook mapper events package

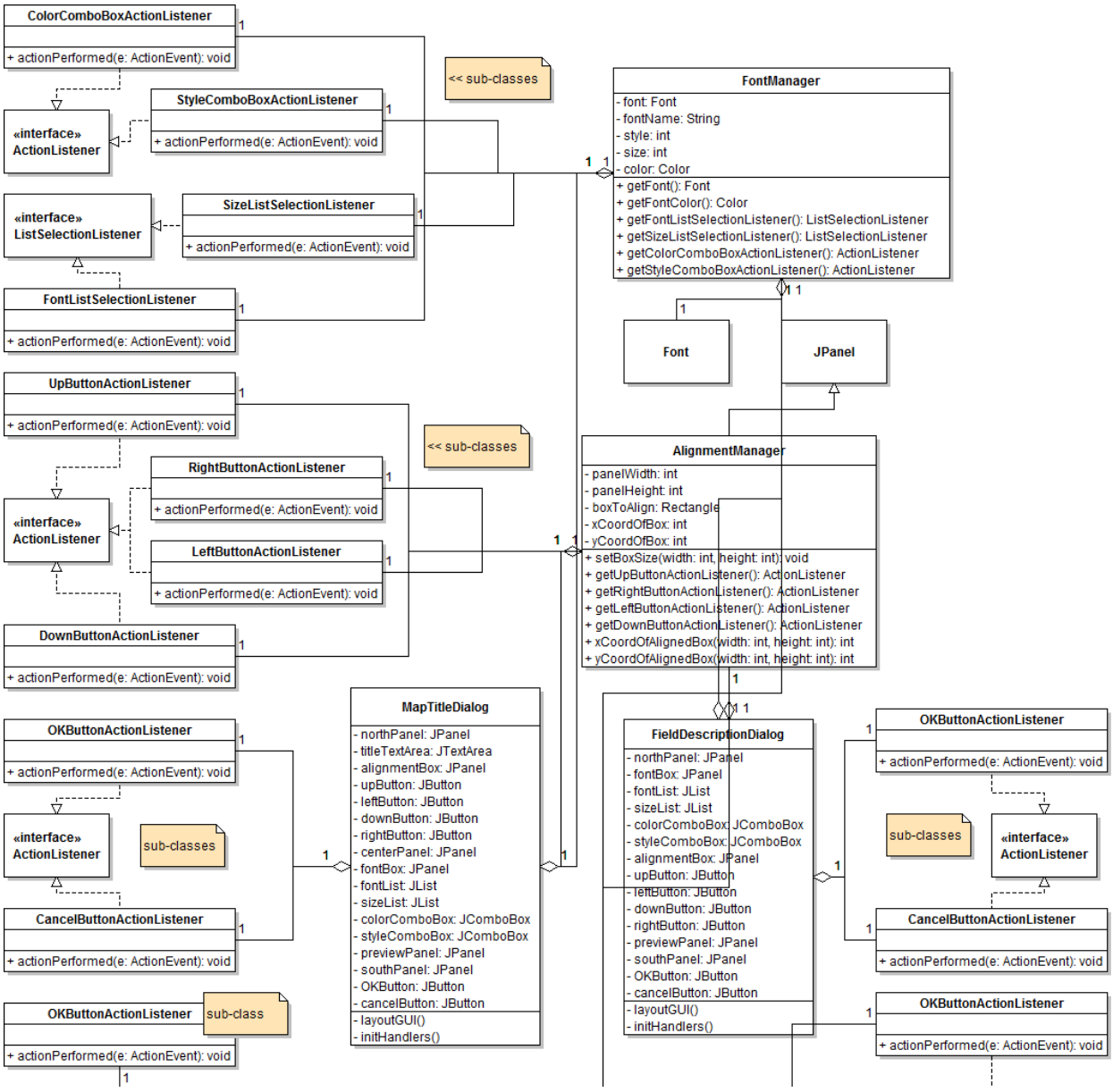

Figure 7a. Factbook mapper dialogs package

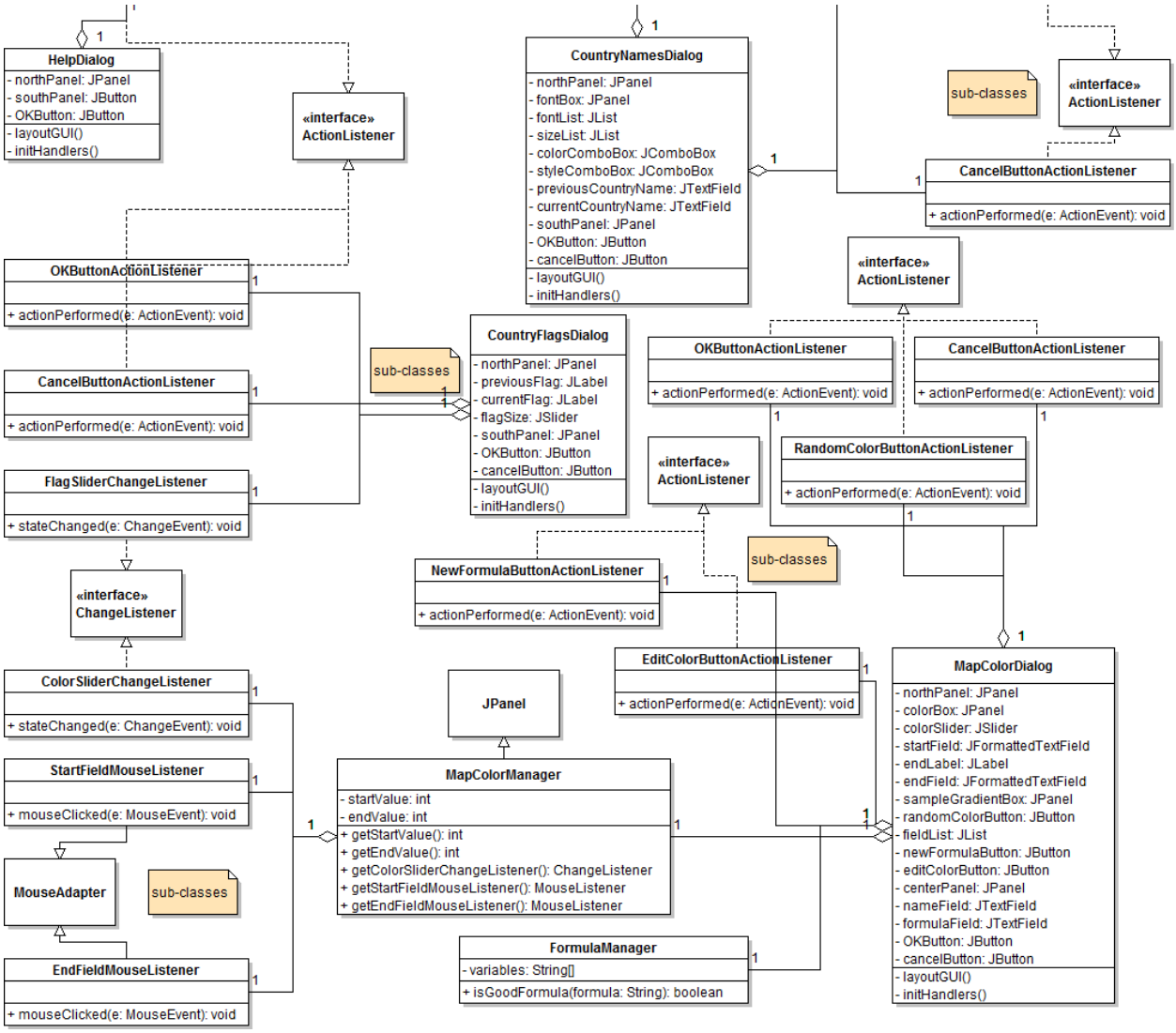

Figure 7b. Factbook mapper dialogs package

3. Sequence diagrams

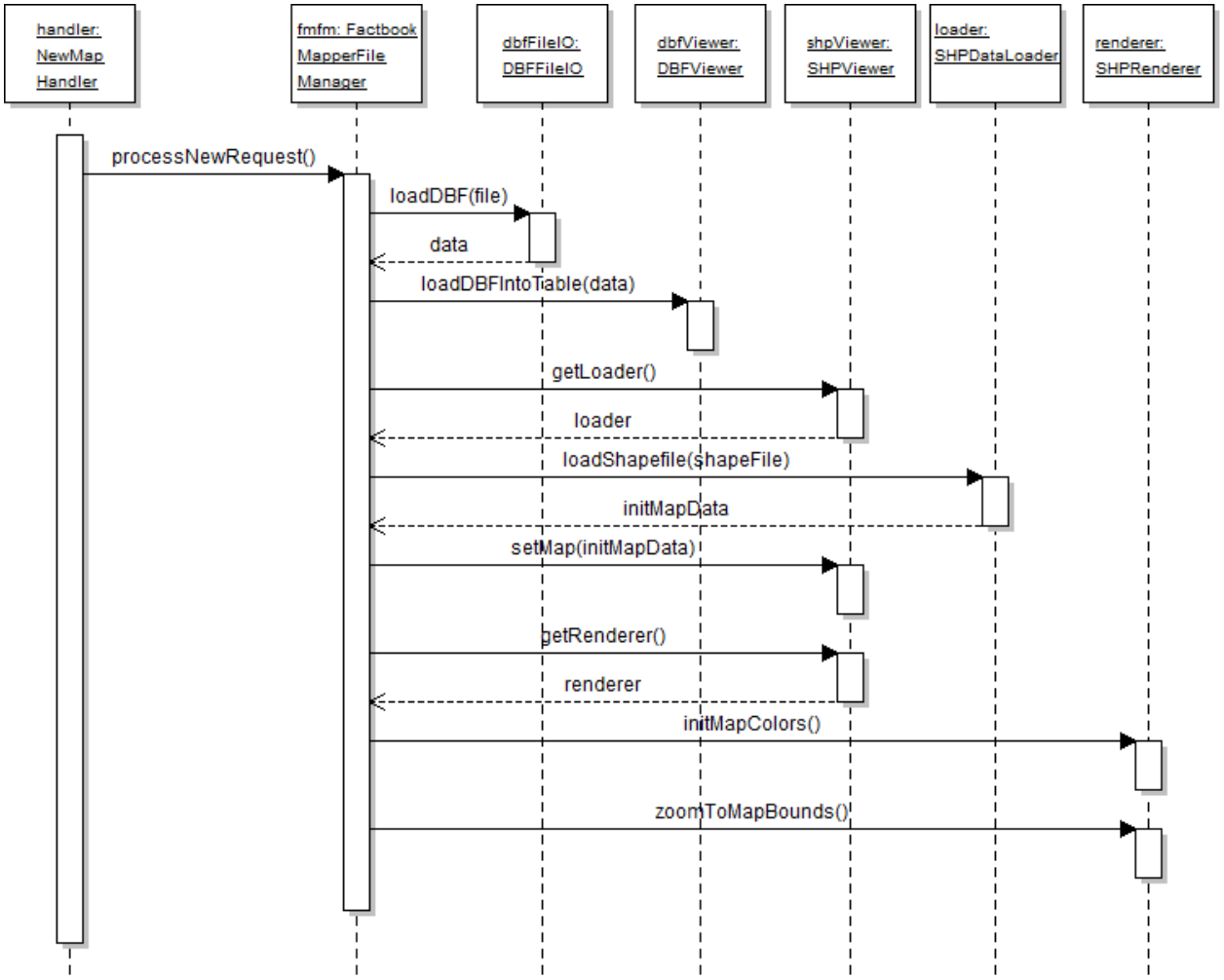

Figure 8. New map

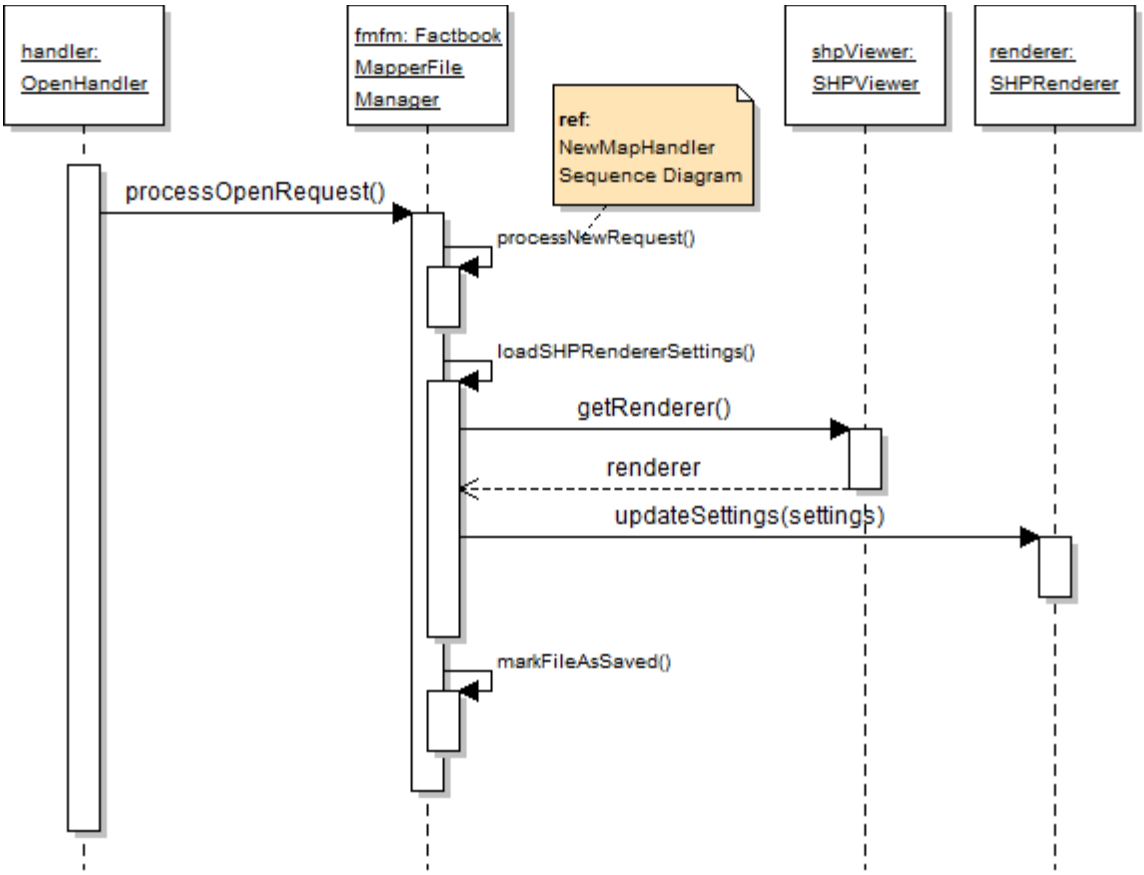

Figure 9. Open file

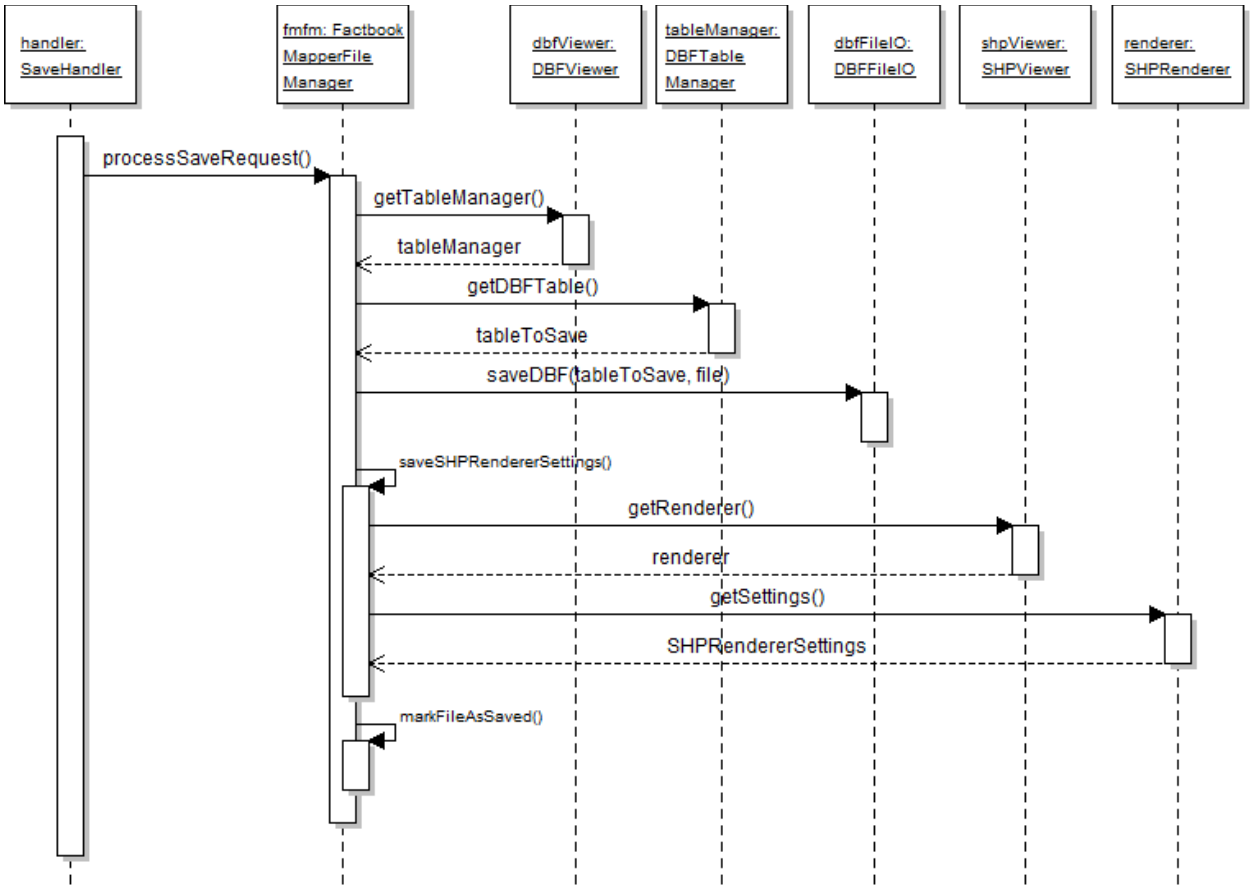

Figure 10. Save map

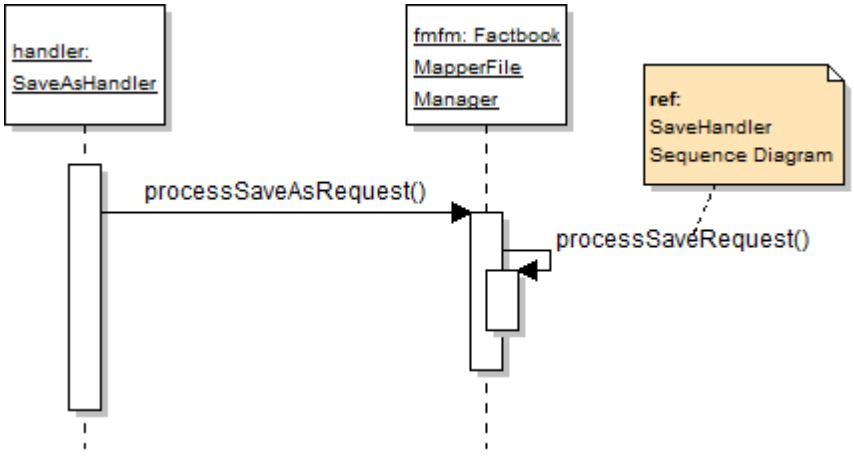

Figure 11. Save As map

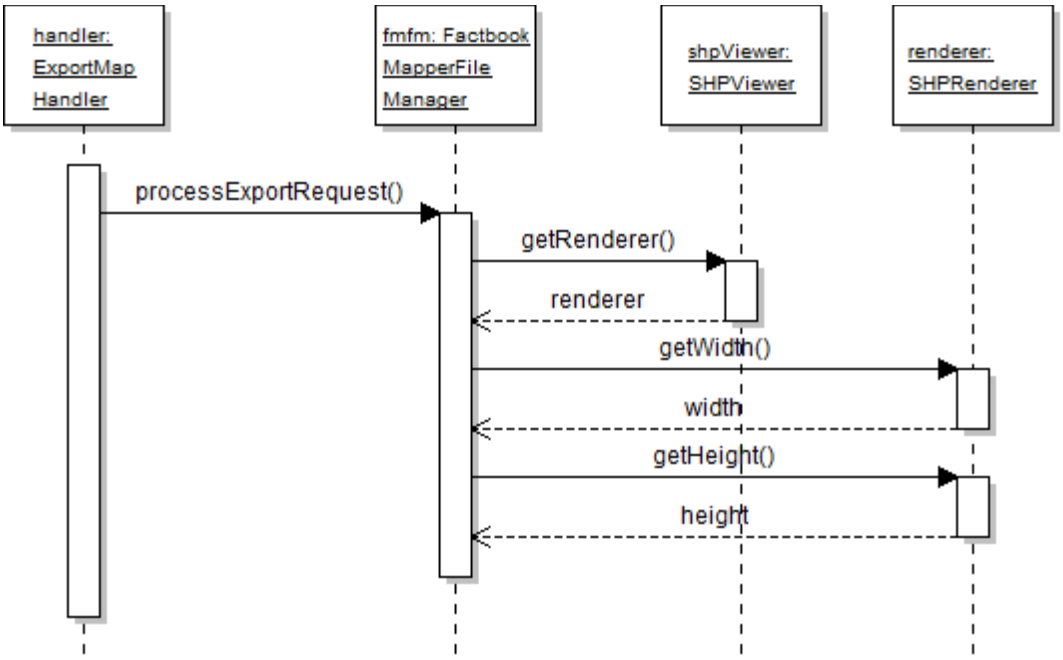

Figure 12. Export map

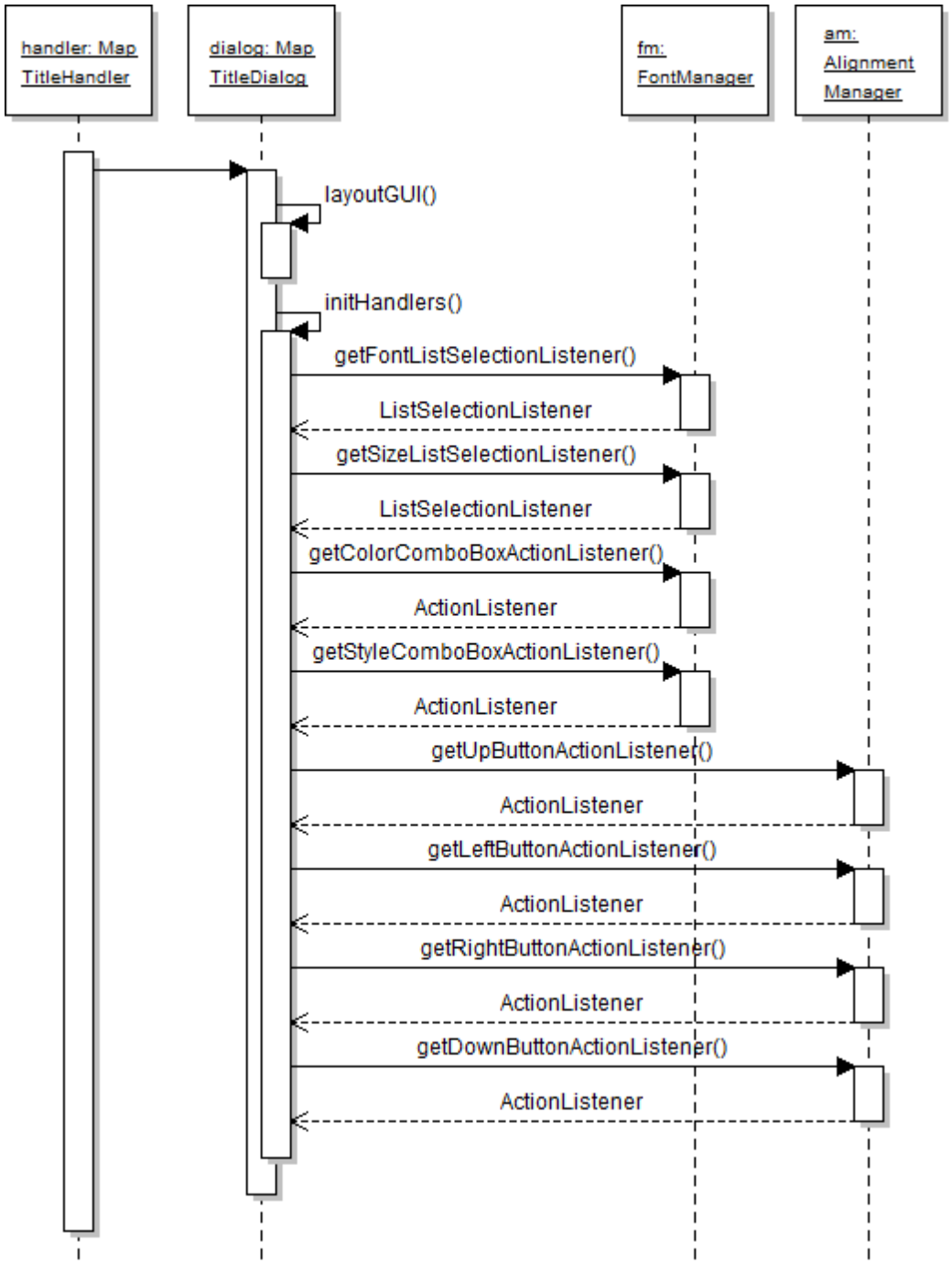

Figure 13. Clicking the map title button

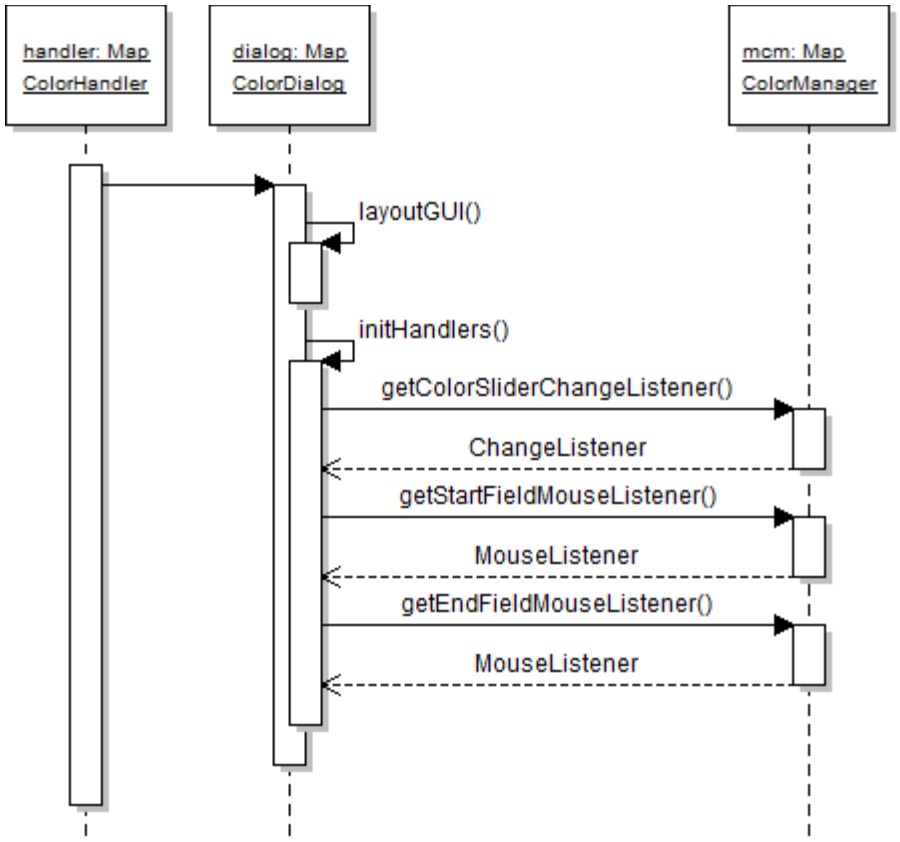

Figure 14. Clicking the map color button

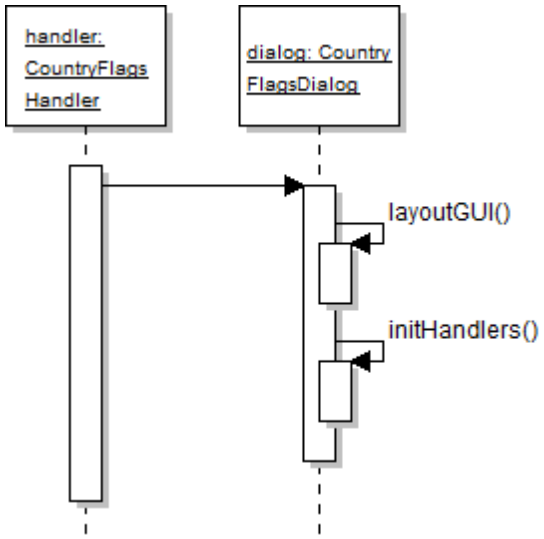

Figure 15. Clicking the country flags button

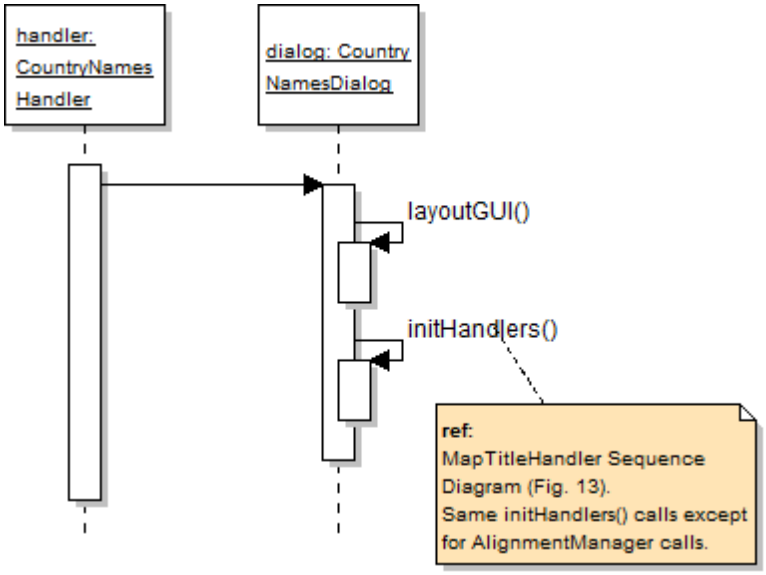

Figure 16. Clicking the country names button

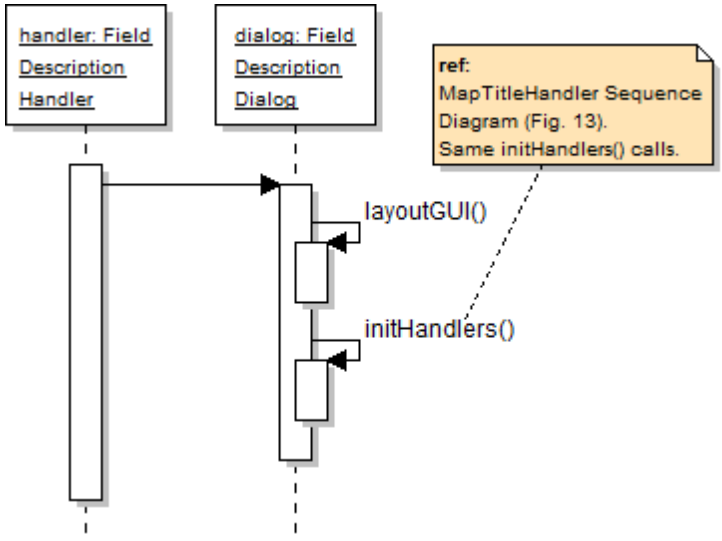

Figure 17. Clicking the field (f) description button

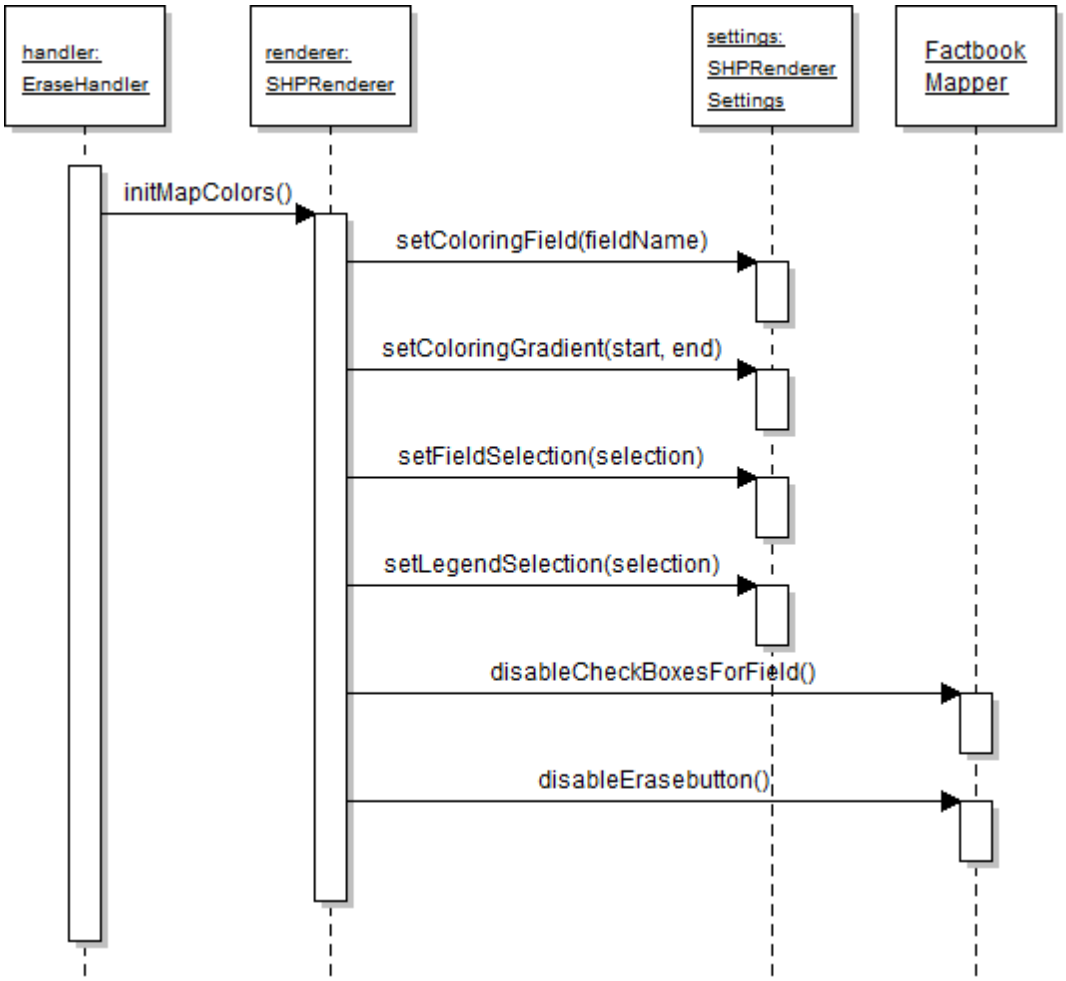

Figure 18. Clicking the erase button

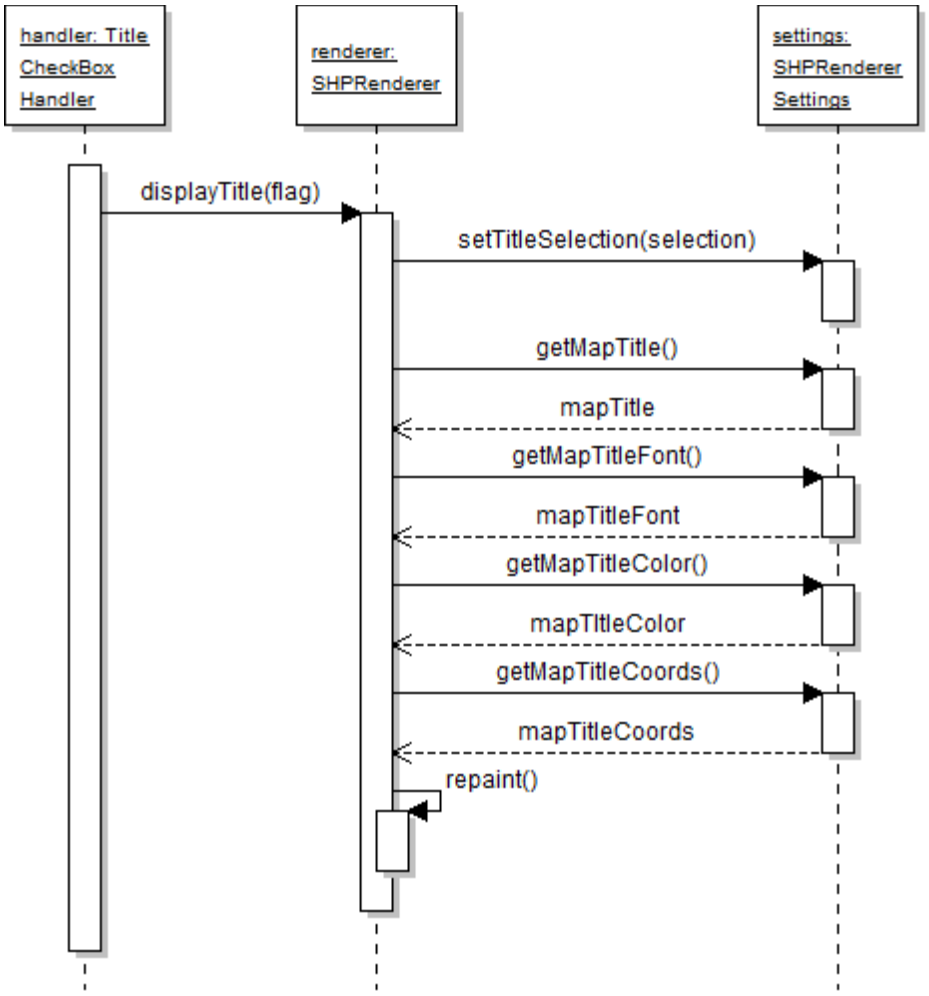

Figure 19. Selecting/Deselecting title check box

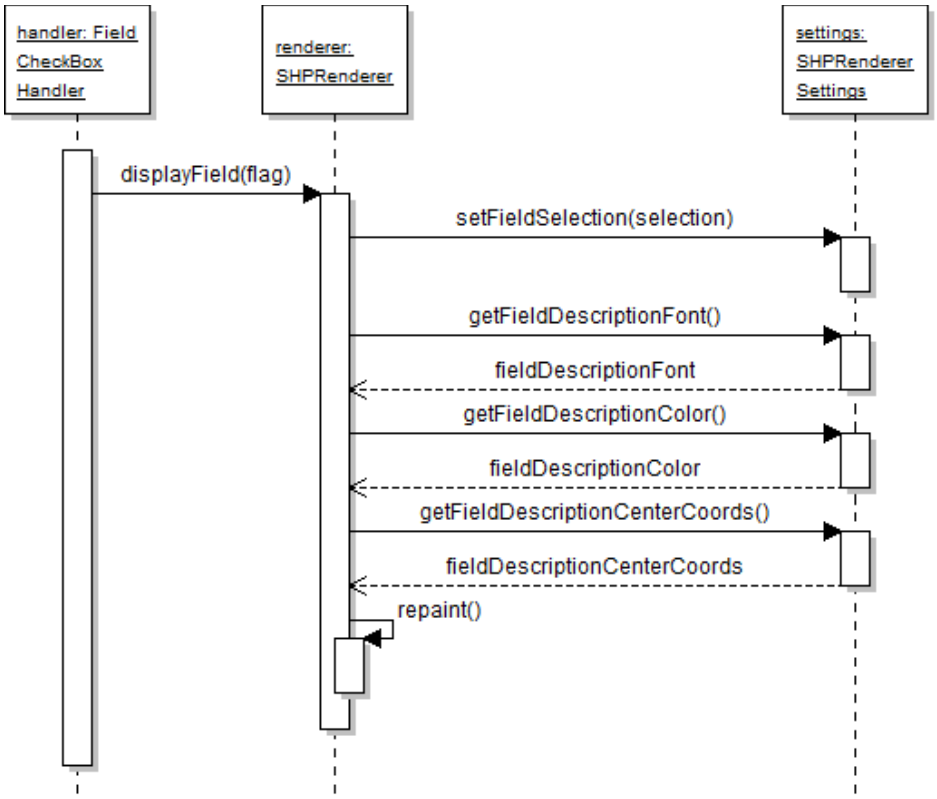

Figure 20. Selecting/Deselecting field check box

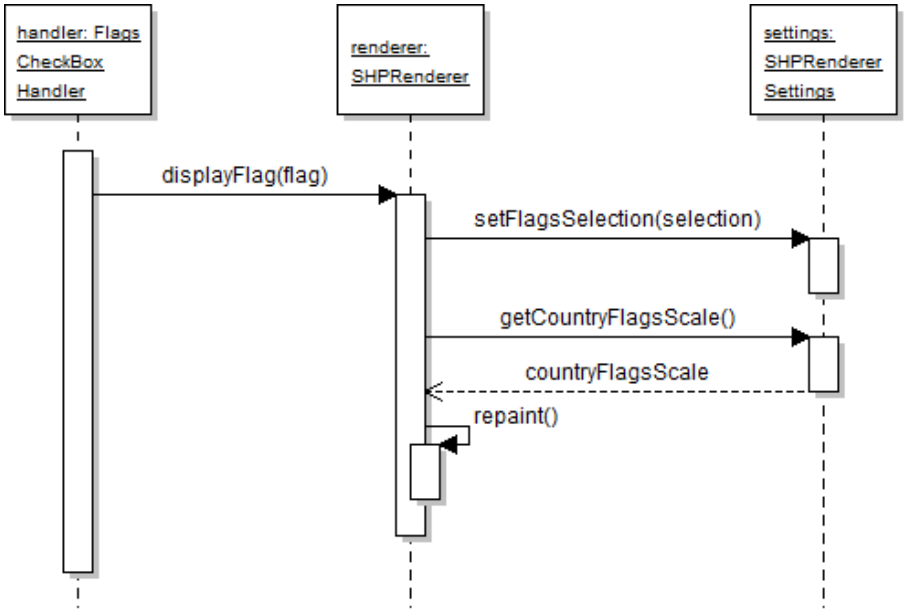

Figure 21. Selecting/Deselecting flags check box

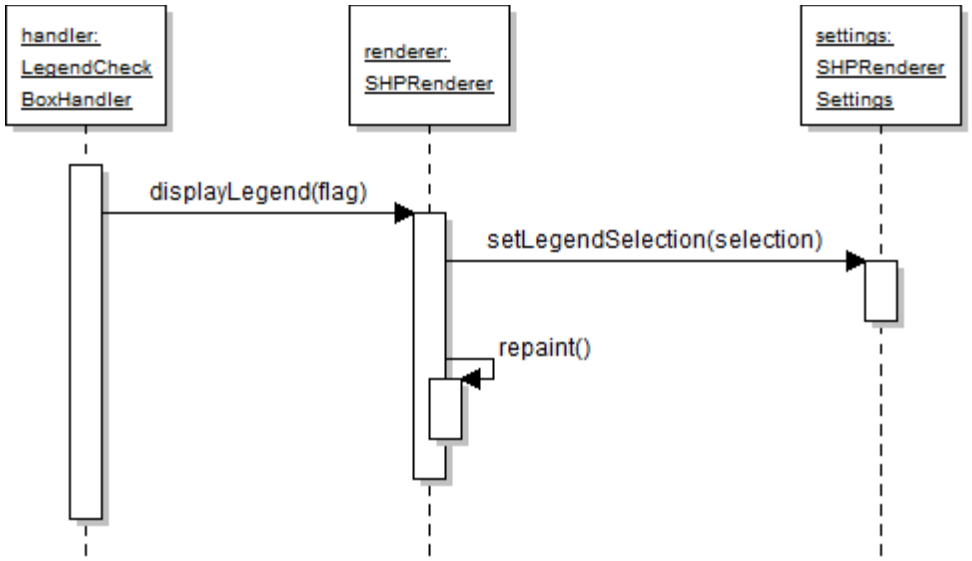

Figure 22. Selecting/Deselecting legend check box

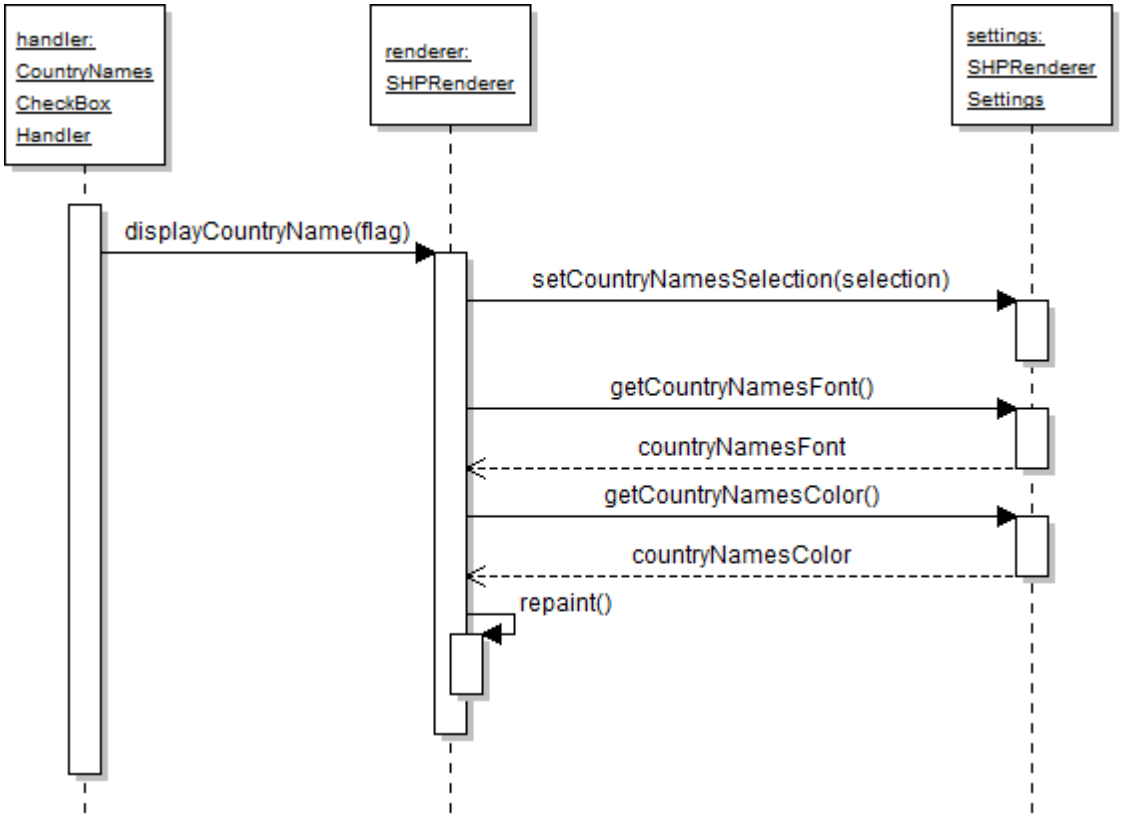

Figure 23. Selecting/Deselecting country names check box

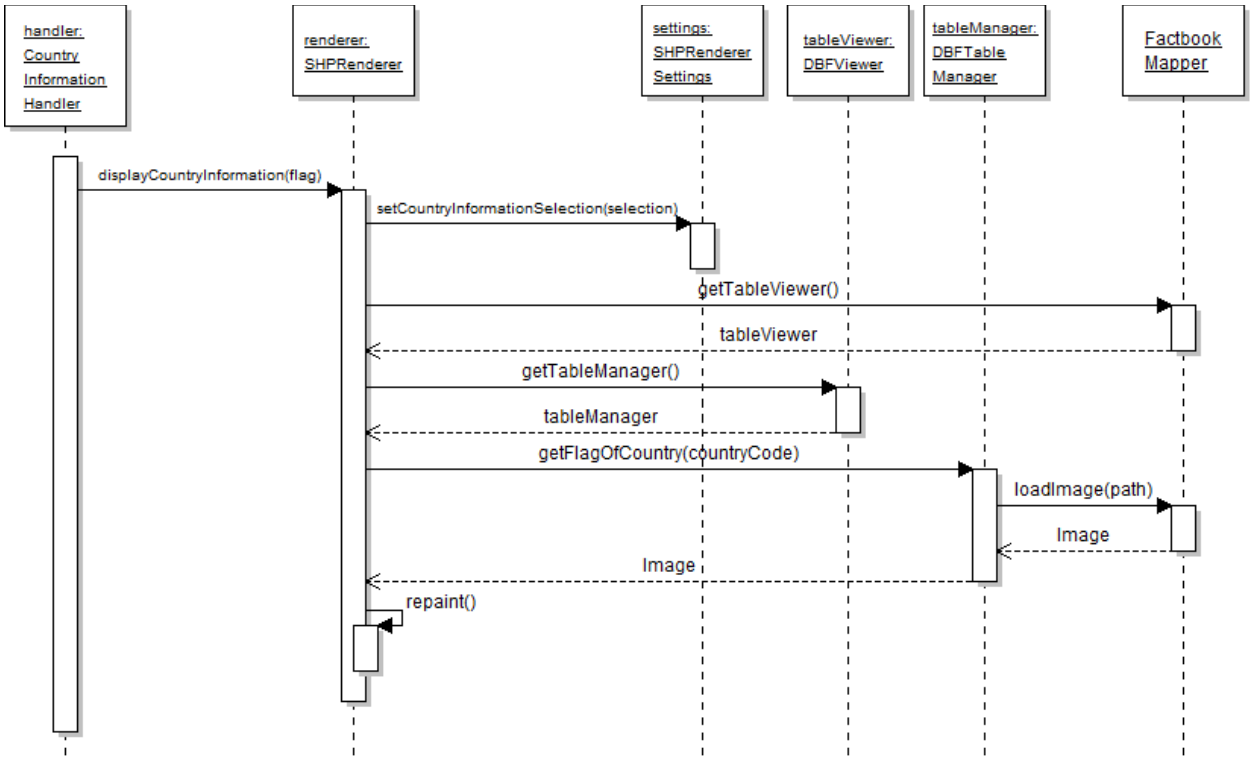

Figure 24. Selecting/Deselecting country information check box