# Mapping Explorer Design Document

This document aims at describing the design of the Mapping explorer

The mapping explorer consists of the following -

### Perspective -

1. Mapping Explorer Perspective - uk.ac.diamond.scisoft.mappingexplorer.perspective.MappingExplorerPerspective

### Views -

1. TwoD Mapping View - uk.ac.diamond.scisoft.mappingexplorer.views.twod.TwoDMappingView

2. OneD Mapping View - uk.ac.diamond.scisoft.mappingexplorer.views.oned.OneDMappingView

3. Histogram View - for selected area in the TwoD View - uk.ac.diamond.scisoft.mappingexplorer.views.histogram.HistogramMappingView
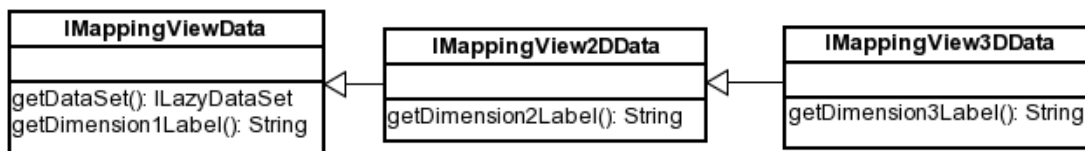
### Editors -

The Editor hasn't been developed yet, however, the aim is to provide an editor to contain links to open the relevant views and also to save calibration data for excalibur

The mapping mode explorer views also work with the HDF5TreeEditor selection.
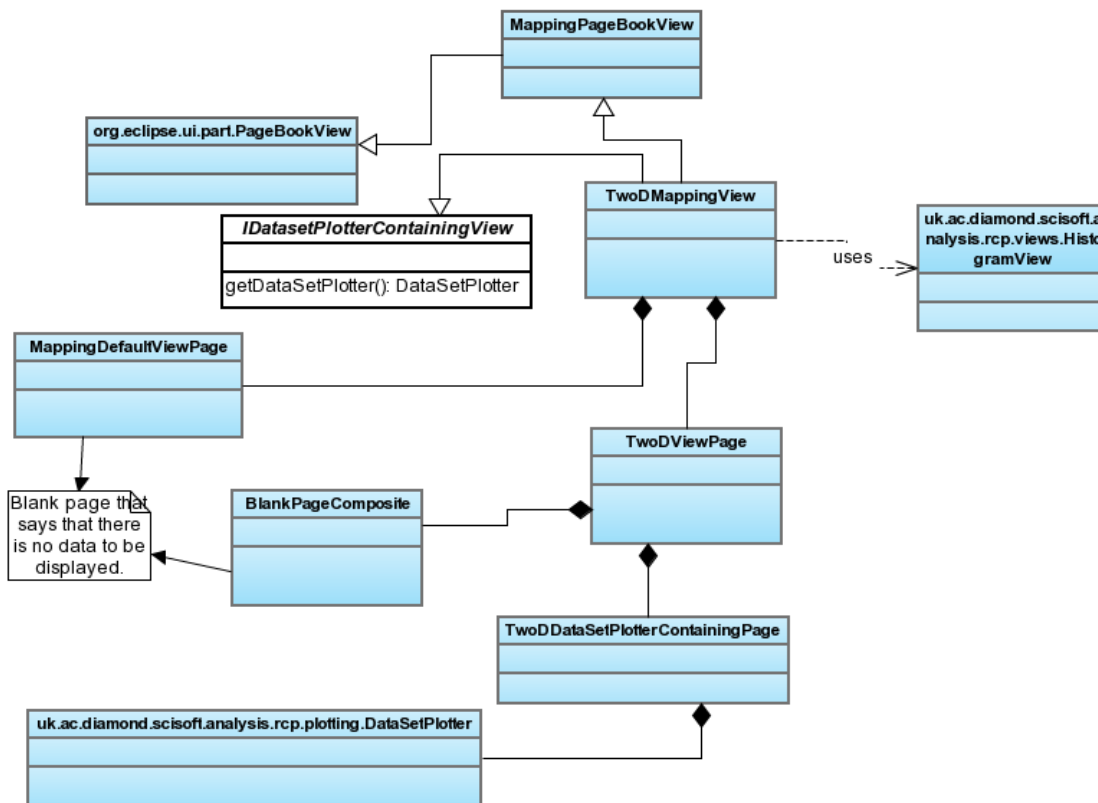
### Design

The TwoD View and the OneD View developed are in congruence with the Eclipses' "Outline View". The TwoD view displays the data as a 2D image. "uk.ac.diamond.scisoft.mappingexplorer.views.IMappingViewData" is used as a Data object that translates the dataset and the dimension labels.

```
IMappingViewData                    IMappingView2DData                 IMappingView3DData
----------------                    ------------------                 ------------------
getDataSet(): ILazyDataSet    <--   getDimension2Label(): String  <--  getDimension3Label(): String
getDimension1Label(): String
```

### 1. TwoDMappingView - uk.ac.diamond.scisoft.mappingexplorer.views.twod.TwoDMappingView

The TwoDMappingView is designed such that it shows the 2D image of the data supplied to it. The data could be supplied by the editor or in the case of the HDF5Editor, the data is picked up from the HDF5Tree selection. Selection listeners listen to the tree selection and adapt accordingly to show the 2D image.

## Two D Mapping View

MappingPageBookView

org.eclipse.ui.part.PageBookView

IDatasetPlotterContainingView

getDataSetPlotter(): DataSetPlotter

TwoDMappingView

uses

uk.ac.diamond.scisoft.analysis.rcp.views.HistogramView

MappingDefaultViewPage

Blank page that says that there is no data to be displayed.

BlankPageComposite

TwoDViewPage

TwoDDataSetPlotterContainingPage

uk.ac.diamond.scisoft.analysis.rcp.plotting.DataSetPlotter

The view is a pagebook view and stacks composites for each given editor/input. Whenever an editor or selection is activated the relevant composite on the view is displayed. However, the TwoD view has a menu item on the tool bar to open the dataset plotter in a separate view. This is mainly used to compare the given plot with another plot.

Depending on the data provided the controls are displayed. If the data provided to the view is a 3D dataset, radio buttons are displayed, to select the third dimension and a stepper is displayed below to traverse through the selected dimension. On stepping through the selected dimension, an appropriate slice is displayed on the plotter. When the data provided is a 2D dataset, the radio button controls and the stepper controls are made invisible and only the data set plotter is displayed.

The selection of the controls is propogated through the selection service. The composite containing the controls is a selection provider and notifies all the listeners whenever a selection changes.

The dataset plotter has a overlay consumer which enables the user to select points or rectangular area.

This view acts on the selection changes provided by the OneDMappingView. Whenever the stepper value is changed in the OneDMappingView - the point on the plotter is redrawn in the right co-ordinate representing the appropriate pixel.

## 2. OneDMappingView - uk.ac.diamond.scisoft.mappingexplorer.views.oned.OneDMappingView

The design for the OneDMappingView is very similar to that of the TwoDMappingView. This show only the OneD data for a given 3D dataset. For any other datasets that contain any other shapes, the view displays a message stating that it cannot display the appropriate plot. This view acts on the selection changes provided by the TwoDMappingView.

The OneDMappingView listens to changes from the TwoDMappingView, using the *TwoDSelection;* This selection class informs the OneDView that the stepper control values need to be updated and do so in the User interface. As is the case with the TwoDMappingView, an independent OneD View can be opened.

## 3. HistogramMappingView - uk.ac.diamond.scisoft.mappingexplorer.views.histogram.HistogramMappingView

The HistogramMappingView displays a plot of the histogram. This view listens to the selection on the TwoDView and acts accordingly. For a given area selected it displays the histogram in bins of 200. If there is no area selected it uses the entire image as the area to be histogrammed.