Public Widgets for HDF-Java

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This document presents ideas of taking things out of nsa.hdf.view package and creating a set of public widgets. These public widgets can be used for other purpose and are more maintainable. Before we proceed, we would like to scope out the work and look for your inputs. Please send your concerns and suggestions to Peter Cao at xcao@hdfgroup.org.

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The HDF Group

1   Introduction

HDFView is a visual tool for browsing and editing HDF4 and HDF5 files. The HDFView package, ncsa.hdf.view, includes the main HDFView class and a set of replaceable GUI components. The replace GUI components are built on the following modular interfaces, which include:

- Image view

- Table view (a spreadsheet-like layout)

- Text view

- Metadata (metadata and attributes) view

- Tree view

- Palette view

The main purpose of the modular GUI components is to allow users implement their GUI components to replace the default implementation. For more information on modular design of HDFView, visit http://www.hdfgroup.org/hdf-java-html/hdfview/ModularGuide/index.html.

Some of the things in the GUI components can be taken out and used to create general-purpose widgets. For example, the code that creating image from raw data can be separated from its main class and used for other applications. Some advantages of the public widgets include:

- Reusable code – the general code can be used by other applications.

- Maintainable code – the code will be easier to maintain.

- Testable code – the code will be much easier to test.

The proposed work will investigate the classes in the view package, ncsa.hdf.view, and remove common code to create public widgets.

2   Classes in the view package

The follow four classes contain things that can be taken out to create public widgets.

- ncsa.hdf.view.Tools – The tools class contains various static methods that deal with data and image.

- ncsa.hdf.view.DefaultImageView -- ImageView displays an HDF dataset as an image..

- ncsa.hdf.view.DefaultTableView -- TableView displays an HDF dataset as a two-dimensional table.

- ncsa.hdf.view.HDFView – HDFView is the main class.

3   New widget classes

We propose two options to re-organize current code in the ncsa.hdf.view package and create the public widgets:

- A) Using the current Tools class – This option will move things from HDFView, ImageView, and TableView to the current Tools class.
  - o Pros: No change to the current applications that use the Tools class.
  - o Cons: Not well organize by putting all the things in one class.
- B) Creating a new package and classes – this option will create a new package, ncsa.hdf.util, and add widget classes to the package.
  - o ncsa.hdf.util.Image -- contains image related things moved from Tools class and DefaultImageView class.
  - o ncsa.hdf.util.Table -- includes table related things moved from Tools class and DefaultImageView class.
  - o ncsa.hdf.util.Data – move methods handling data from Tools class and DefaultImageView class to this class.
  - o Pros: better organized.
  - o Cons: the change will affect applications that use the current Tools class.

4 Estimation of the work

The amount of work for option A) and option B) should be about the same. The following estimation will apply to both options. The work will include

- Investigating the current code.
- Documenting the public widgets.
- Updating the current classes to use the widgets.
- Testing widgets and the changes to all related classes.

Task	Work (hours)
Data widgets	16
Image widgets	32
Table widgets	16
Other (things from object layer)	20
Total	84

Revision History

February 23, 2010:   Version 1 general issues and outline.