

HDFView User Survey Report

January 9, 2013

1 Executive Summary

Users were asked to participate in an anonymous survey to help The HDF Group (the company) evaluate HDFView and better understand users' needs. The survey included questions about the user's experience with HDFView. It asked 48 questions in 7 different areas. The survey also asked respondents to give other suggestions and comments that are not covered by the survey questions. The survey was conducted at SurveyMonkey (<http://www.surveymonkey.com/s/PLGRLJY>). A total of 222 responses were received.

Answers to the survey questions were simple choices of check boxes. Questions included the following topics:

- 1) Use of HDFView
- 2) File format support
- 3) General questions on GUI
- 4) Work with file structure
- 5) Data handling features
- 6) Image handling features
- 7) New features/enhancements
- 8) Other suggestions and comments

2 Methodology

The survey forms were developed based on the inputs from the whole company (staff, managers, and executives). All the questions except the last one used simple check-boxes for users to reply easily and quickly. The survey link was posted at or sent to the following list on September 9, 2011.

- HDFView web page
- HDF user forum
- Paying customers
- ESIP mailing list
- HDF/HDF-EOS workshop
- HDF newsletters

A total of 222 responses were received. The analysis of the results was completed at SurveyMonkey.



The survey is anonymous. We could do it better in the future to allow participants to give us their contact information voluntarily. The contact information can help us inquire additional information about their comments and requests.

3 Survey Analysis

Survey analysis is divided into three parts:

- Current features
- New features/enhancements
- Other comments and suggestions

3.1 Current features

Use of HDFView and file format: Over 60% of respondents used HDFView on weekly or daily bases. Majority (78%) used HDFView for HDF5. There are still 46% people who use HDFView for HDF4.



We do not have a test suite for HDF4 JNI and HDF4 Java objects. The current HDF-Java support (testing, features, and product quality) is mainly focused on HDF5. Since there is still a large community for HDF4, we should increase the HDF-Java support for HDF4, such as completing the Java unit tests for HDF4.

Installation and overall GUI: 60% of respondents thought that HDFView was easy to install. However, only 37% thought that the HDFView GUI is easy to use. We must improve the GUI components in HDFView.



Easy installation is very important but can be easily ignored. Our current installation uses InstallAnywhere. We are going to use CMAKE for our future releases. We must make sure that the new installation should be at least as good as the current one.

Response #136:

HDFView is easy to install on Windows. That is good because then I can send links to colleagues and know that they can easily install HDFView without help. Most important for me is that the installers remain at their present high quality. 4/3/2012 4:57 AM

Working with file structure (the file tree view): Finding a group or dataset in a file is easy. However, the GUI components for viewing, editing, and adding attributes need a lot of improvement.

Handling data values or images: Only 10% of the respondents are not satisfied with how HDFView show data (in table view or image view). As for editing features, majority of the

respondents gave no opinion. The reason could be that many people just use HDFView to view data instead of modifying data content.



We should make sure that the capabilities for viewing data in HDFView are robust and reliable.

3.2 New features or improvements

We listed 24 new features and improvements that could be added to HDFView and asked users how useful would the new features be to them. The questions were selected based on what HDF users asked us before and what we would like to have (our own wish-list).

Improving the current GUI is the main thing that users asked. Besides, over 40% of the users think the following features are very useful to them:

- Viewing datasets larger than machine memory
- Searching and querying data content
- Finding objects by names
- Searching objects by attributes (names and values)



Over 50% of users would like us to improve the GUI components for better appearance and ease of use. We will need to study this issue more thoughtfully and make a project plan. Viewing large data and searching content are the next most useful items.

3.3 User comments and suggestions

62 people gave us additional comments and suggestions. We put the suggestions into 4 categories: bug/failure, improvement, new feature, and new tool. Table 1 is the summary of the users' comments.

After carefully examining the details of the comments, we have added 15 tasks (total of 635 hours of estimated work) to our work list (JIRA database).



Some of the user's suggestions are not clear. It would be very useful if we have their contact information.

Better GUI components to handling data and attributes have been requested the most based on the additional comments and suggestions. The result from the comments is consistent with the results from the survey questions. Other highlights of users' comments include:

- Better features for importing/exporting data
- Supporting dimension scales
- Better documentation (user's guide and webpage)
- Better ways to plot data
- Converting GeoTIFF

A few users gave us very interesting (and important) comments.

Response #17:

The rather crude interfaces that most users see, HDFView but also IDL's hdf viewer and some of the other tools that support HDF enforce the common feeling that hdf is too geeky. There is a big group of users who have never moved beyond csv data and only grudgingly accept that some data sets come in hdf/nc formats (the ones who say, just show me how to load the data in a spreadsheet so I can do my plots. I think cleaner interfaces could make a big change in the acceptance of hdf, but I'm not sure HDFView is a suitable foundation, and perhaps we will only have good interfaces for particular categories of data that share some common structure (e.g., Brockmann's visat). 11/4/2011 5:53 AM



Easily importing/exporting data from/to other format, especially text, could be a huge thing for users who do not know HDF much. Our current h5import is too complicated to use for this purpose. We need to study more on this issue. If possible, we have to develop a new tool.

Response #15:

Sluggishness of Java/SWING interface was a problem when using remote X displays. Don't know if it is still a problem? What about a CLI (shell like) interface to largely the same functionality. I mean, HDFView is kinda-sorta like a windows explorer to browse a windows computer filesystem except for an HDF5 file. But, I often use Linux systems and sh for same and having CLI (and scripting) option would be powerful and useful. 11/3/2011 11:53 AM



We could support the HDF5 command-line utilities in HDFView, i.e. using HDFView as a tool container. The HDF5 PowerShell tool developed by Gerd can be used to serve for this purpose too.

Response #5:

I have a very strong opinion that the current Java Implementation be replaced by a C++ native implementation using native features of each platform such as open and save dialogs, standard window environment instead of "All in one window". For a proof of concept based on the Qt frameworks (qt.nokia.com) please see <http://mxa.web.cmu.edu/Binaries/MXADDataModelSDK-2010.08.23-OSX.tar.gz>. There is an application called QHDFViewer which is what I use for read only access to HDF5 files. Thanks Mike Jackson - BlueQuartz Software 11/3/2011 9:35 AM



I tried QHDFViewer at tejeda (our 32-bit mac machine). The tool works fine. Although it has very limited features, the tool proves that Qt can be used to develop GUI tools for HDF5. Our ERDC tool was also built in Qt.

Table 1 -- Summary of Users' Comments

Response #	Issue type	Components	Usage	Short notes
4	Bug/Failure	File/File tree	Isolated	Unable to open file from command-line
33	Bug/Failure	File/File tree	Common	Unwanted date modification on files
5, 10	Bug/Failure	File/File tree	Isolated	Unable to open file
11	Bug/Failure	File/File tree	Isolated	Cannot modify file (need more information)
38	Bug/Failure	General GUI	Common	Java/Swing GUI sluggishness on X display
8	Bug/Failure	Installation/start	Isolated	Ask support for Obsolete OS (Mac 10.5)
3	Bug/Failure	Installation/start	Isolated	Unable to start HDFView
15	Improvement	Data values	Common	Import/export data, metadata, file structure in JSON or XML
6	Improvement	Data values	Common	Improvement for showing data
24	Improvement	Data values	Common	Better data view
35	Improvement	Data values	Common	Better subsetting
2, 37	Improvement	Data values	Common	Better data plotting (need more details)
13, 15	Improvement	Documentation	Common	Better version/release information
10, 27	Improvement	Documentation	Common	Cannot find help
20	Improvement	Documentation	Common	Better user's guide
14	Improvement	File/File tree	Common	Show file access mode
16	Improvement	General GUI	Common	Native dialog GUI based on OS
7	Improvement	General GUI	Common	Simple and robust GUI
14	Improvement	General I/O	Common	Shorter response time for loading data
14	Improvement	General I/O	Common	Preventing file crash from concurrent writes
45	Improvement	General I/O	Common	Open large dataset
18	Improvement	Image view	Common	Better way to change image data range
14	Improvement	Image view	Common	Better image color scale
16	Improvement	Installation/start	Common	Shortcut on Mac
7, 15	Improvement	Metadata	Common	Better metadata view
21	Improvement	Text view	Common	Better text view
19	New feature	Data values	Common	Region refs for image/table view
24	New feature	Data values	Common	Import/export with KML format
44	New feature	Data values	Common	Search data content
36	New feature	Data values	Isolated	View all 1D datasets of group in one table view
31	New feature	File/File tree	Common	Export file tree to PNG
39	New feature	General GUI	Common	Support dim scales
16	New feature	General GUI	Common	Support mobile device, e.g. iPhone
38	New feature	General GUI	Common	Support CLI interface
43	New feature	General GUI	Common	Use RCP on NetBean
15	New feature	General GUI	Isolated	Auto creation of UUID
23, 24	New feature	General I/O	Common	Import/export data with OpenOffice/MS Excel
42	New feature	General I/O	Common	Handle custom filters
22	New feature	General I/O	Isolated	Support user defined procedure (need more details)
4	New feature	Image view	Common	Able to handle mask and fill values [related to JAVA-1723]
25	New feature	Image view	Common	Show image with log scale
15, 30	New feature	Image view	Common	Converting to GeoTIFF
7	New feature	Installation/start	Isolated	Need to install HDFView on VirtualBox VM
26	New feature	Metadata	Common	Search on metadata
31	New tool	General GUI	Common	Simple tool to boost the acceptance of HDF
5, 28, 41	New tool	General GUI	Isolated	Tool not built on Java, e.g. QT