A Versatile Scientific Programming Environment for Cardiovascular Data Analysis

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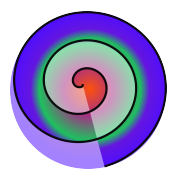

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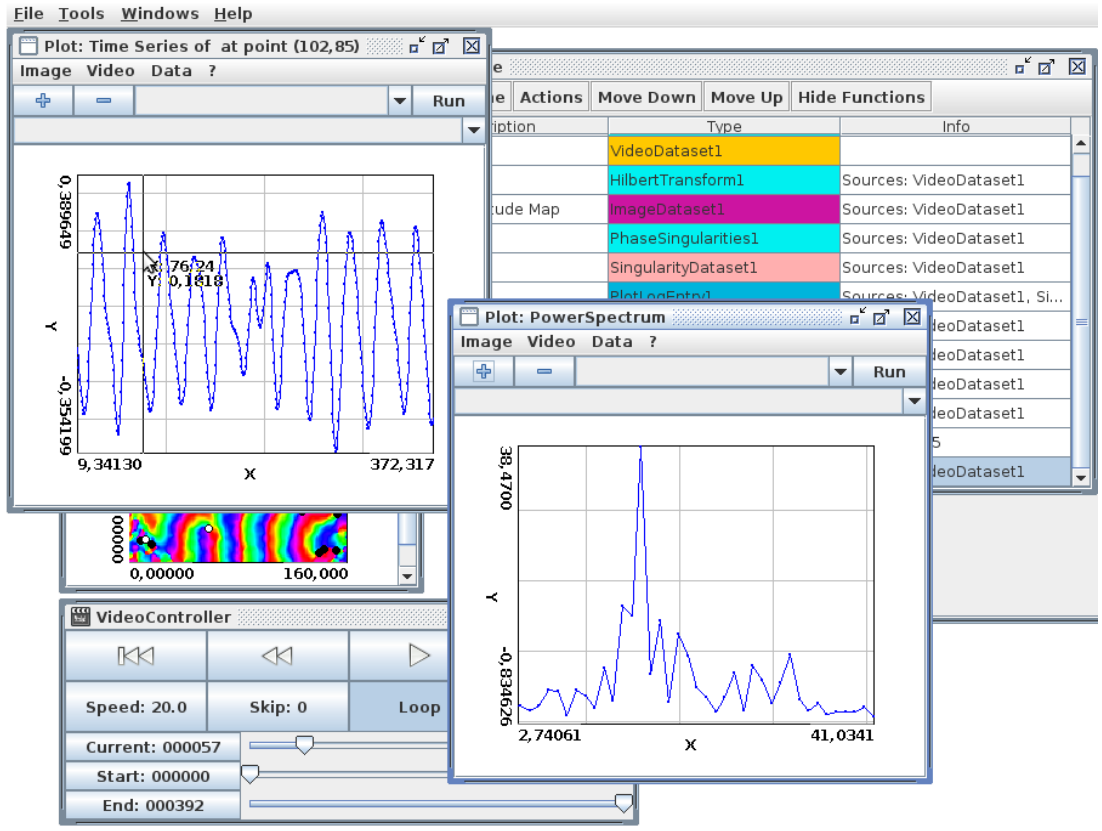
- Performant application of algorithms
- Efficient and standardized development of algorithms
- Reproducability of results

OpenAnalyser



OpenAnalyser is an open source-licensed (GNU GPL) Java application for scientific data analysis with a graphical user interface (GUI) and integrated plugin system.

The Java Platform

- Platform independence

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- Powerful API including GUI-toolkit

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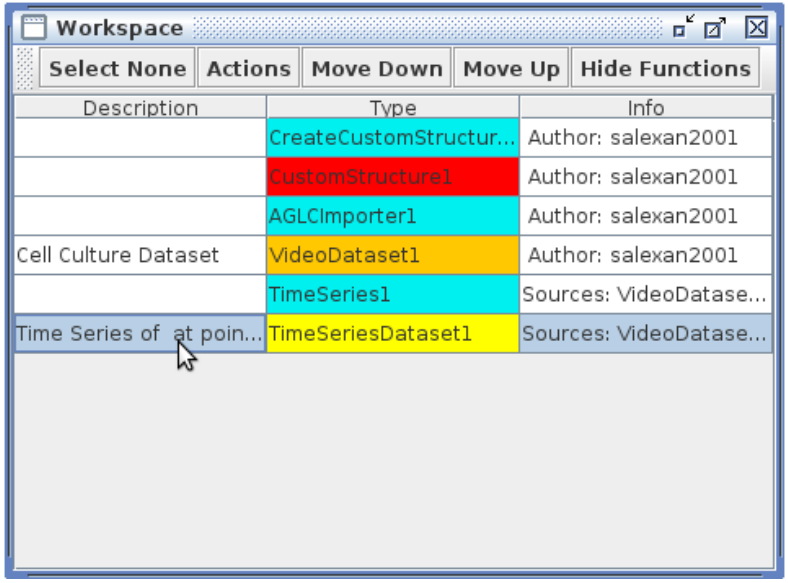
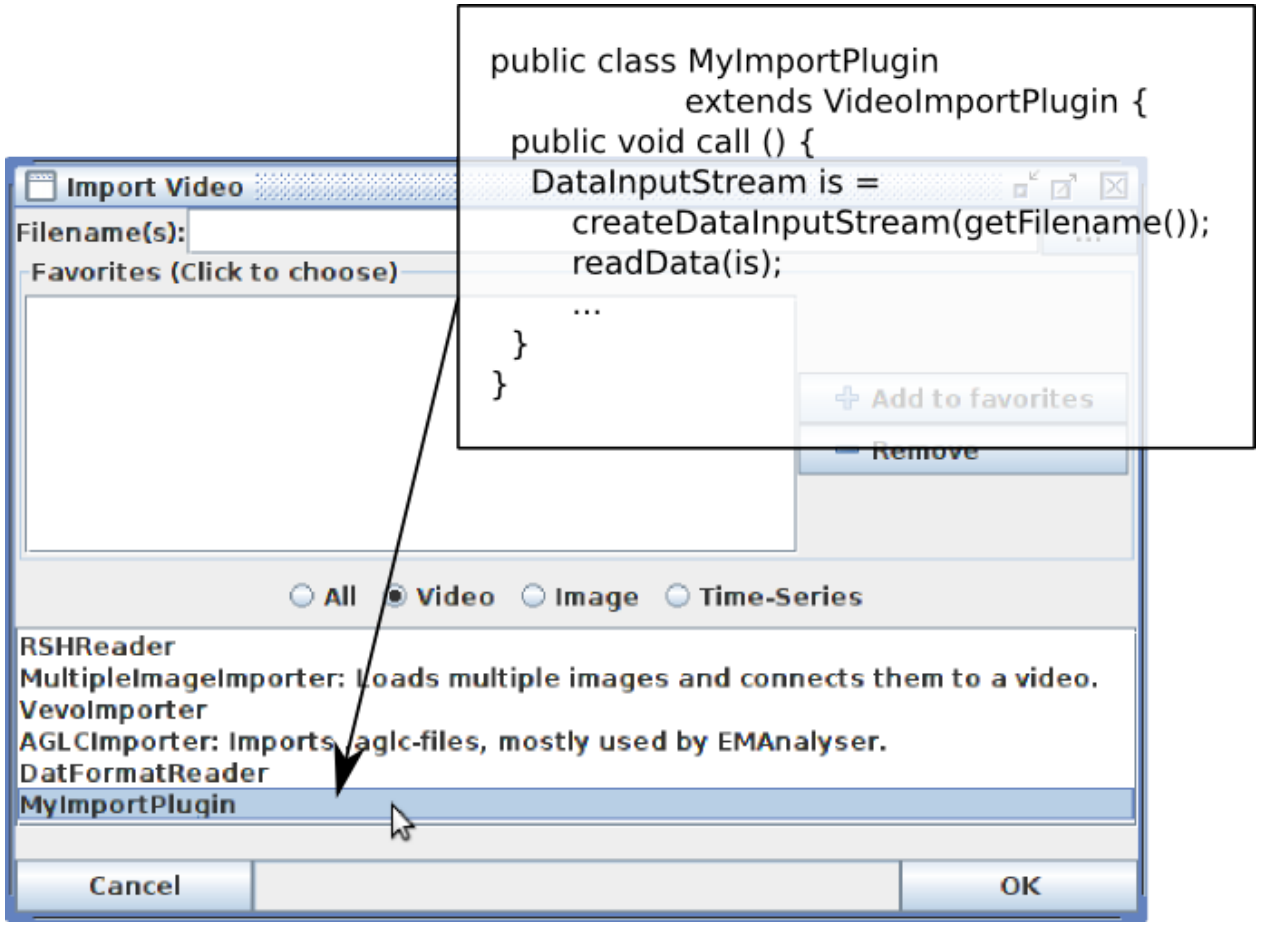
- Modularity and dynamic features
- Integration of other programming languages, e.g. Python, C++ or FORTRAN

The Workspace

- Overview over data, analysis steps and results
- Visualization and analysis algorithms applicable via context menus

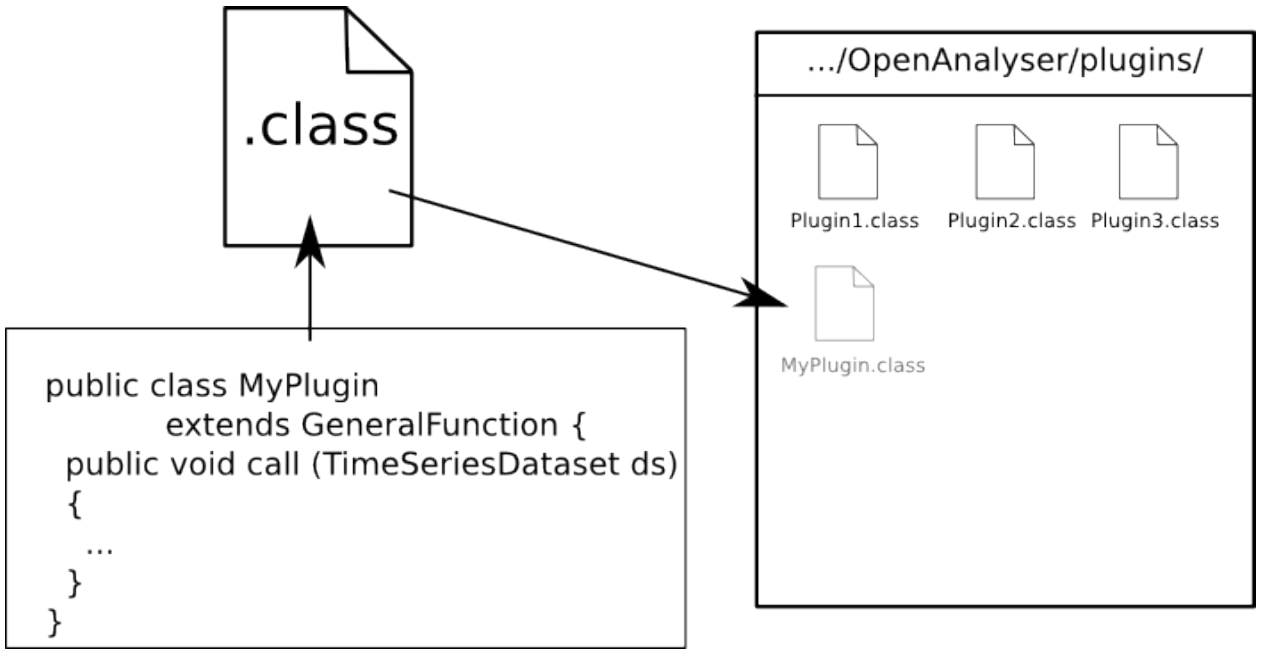


Data Import



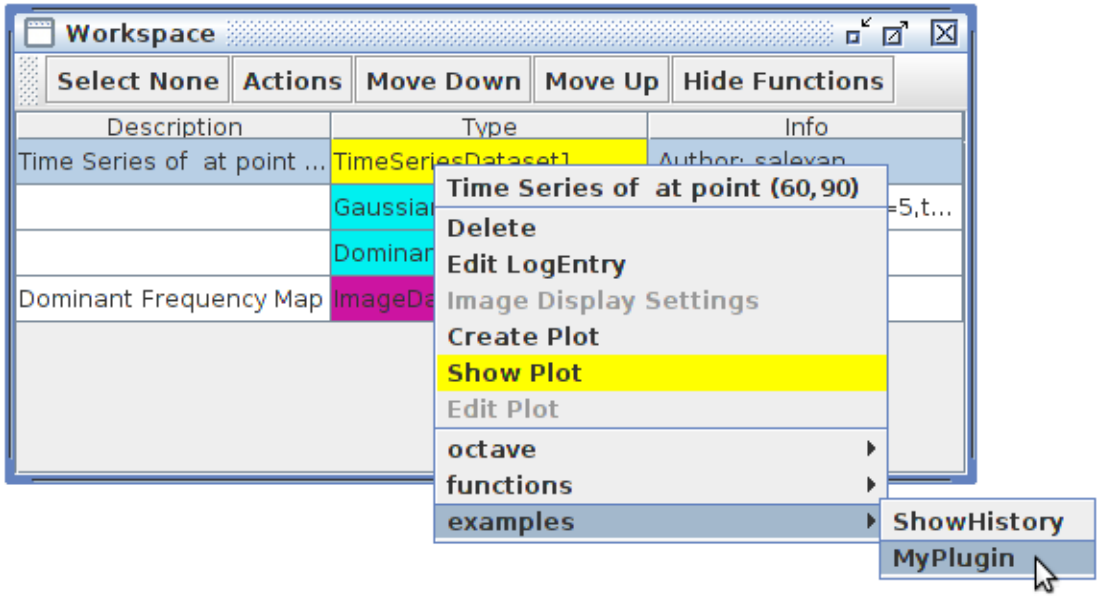
- Import plugins facilitate the integration of data formats.

Plugin-System



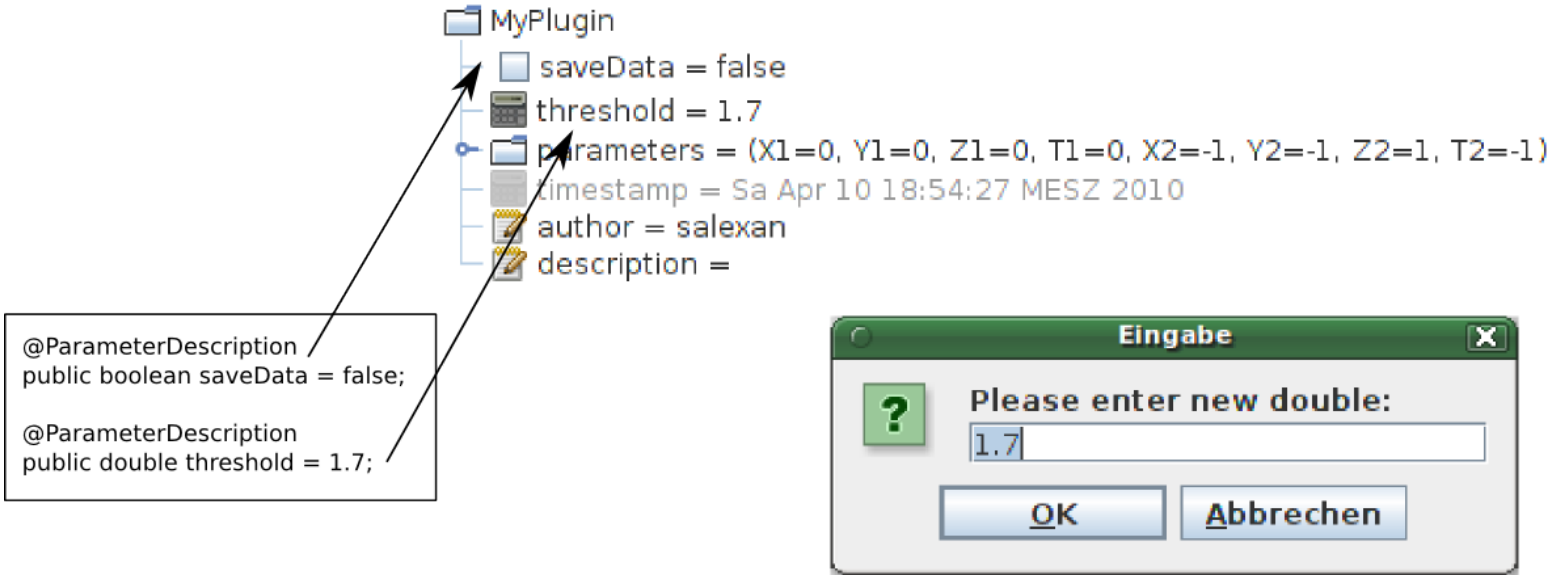
- Simple, yet powerful and flexible plugin-system for development of algorithms for OpenAnalyser
- Permits users to add their own algorithms

Integration of Algorithms



- New algorithms are integrated into the GUI and can even be reloaded at runtime

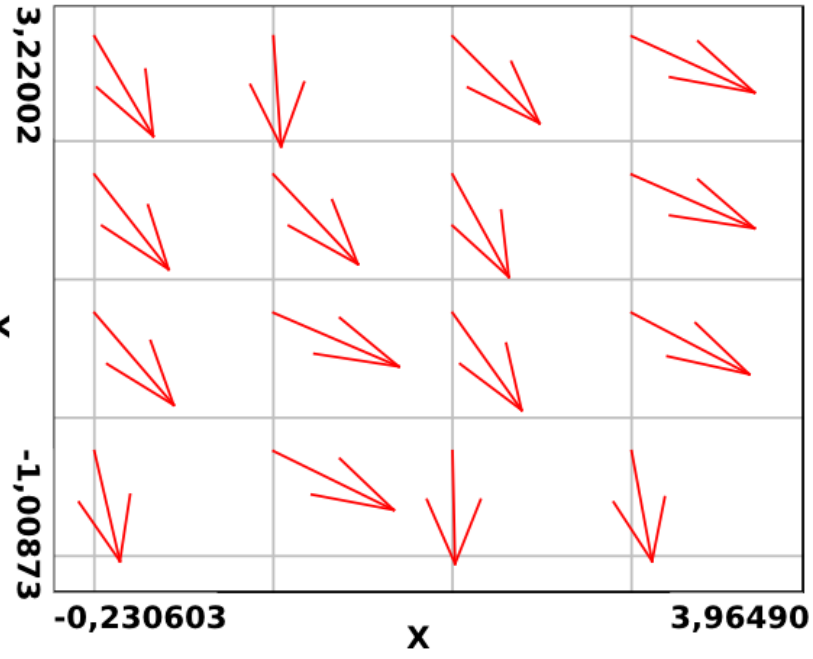
Parameters



- Simple declaration of parameters needed by plugins
- Automatic integration of parameters into user-interface

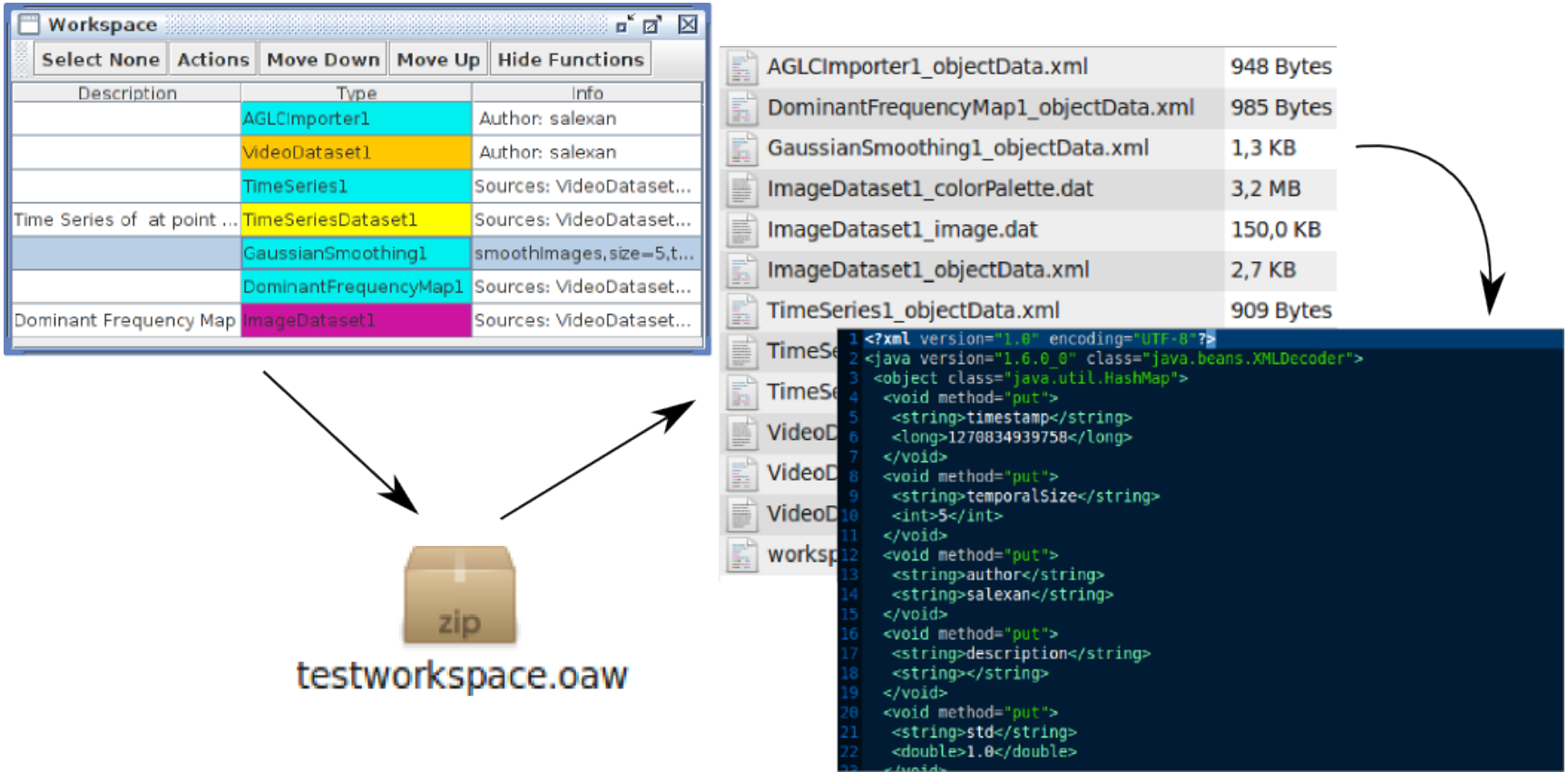
Visualization-System

```
public class VectorVisualizer
                extends GeneralVisualizer {

    private VectorDataset dataset;

    public void paint(Graphics2D g) {
        for (int i = 0; i < dataset.vectors.size(); i++) {
            Arrow vector = dataset.vectors.get(i);
            DoubleXY pos = vector.pos;

            ...

            }
    }
}
```



- OpenAnalyser offers basic visualization functionality (e.g. xy-plots, video display, ...)
- Support for custom visualization methods (e.g. for custom datatypes) via visualization plugins

Workspace storage and logging mechanism



- Workspace objects are mapped to xml- and binary-data

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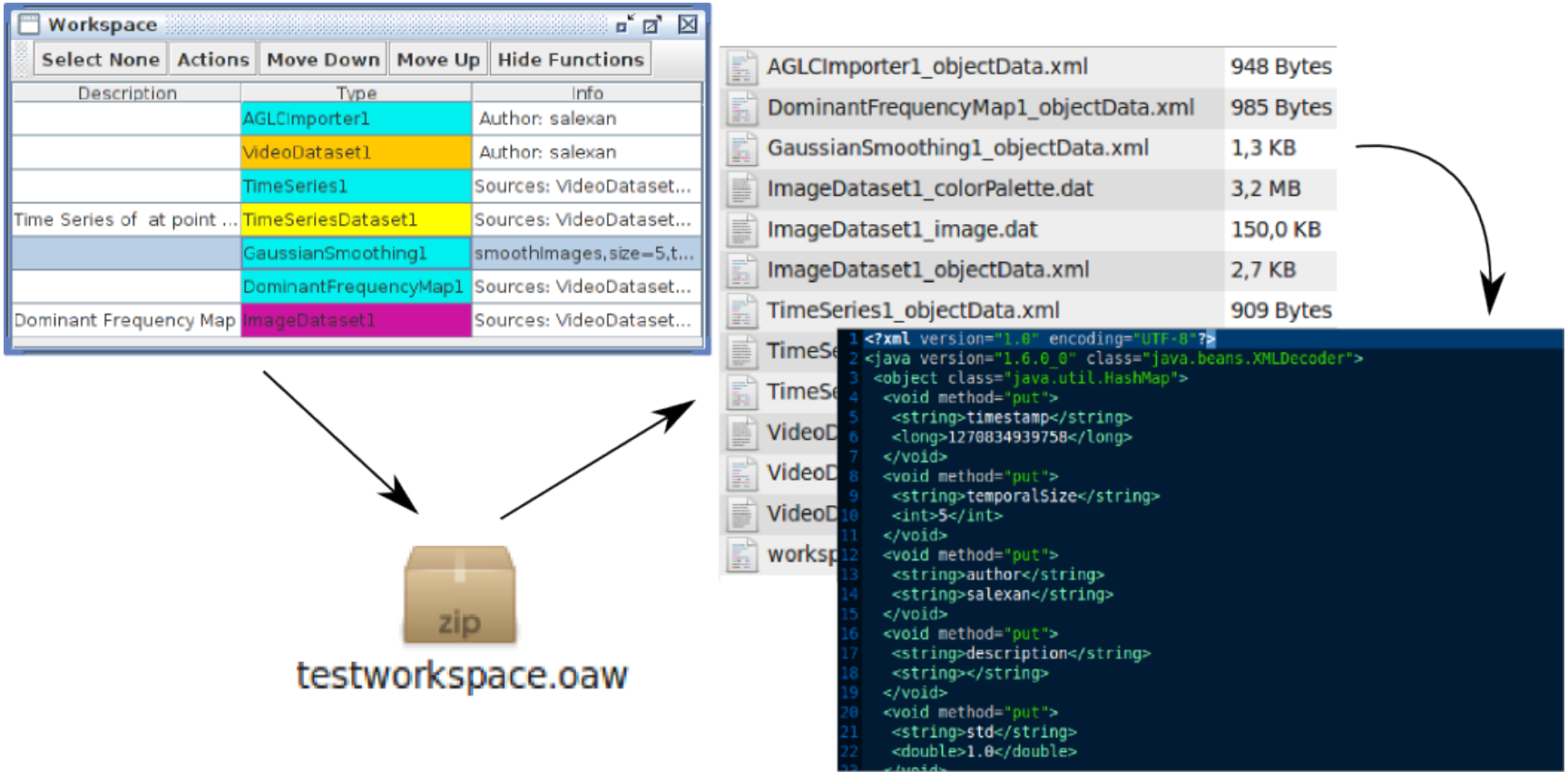

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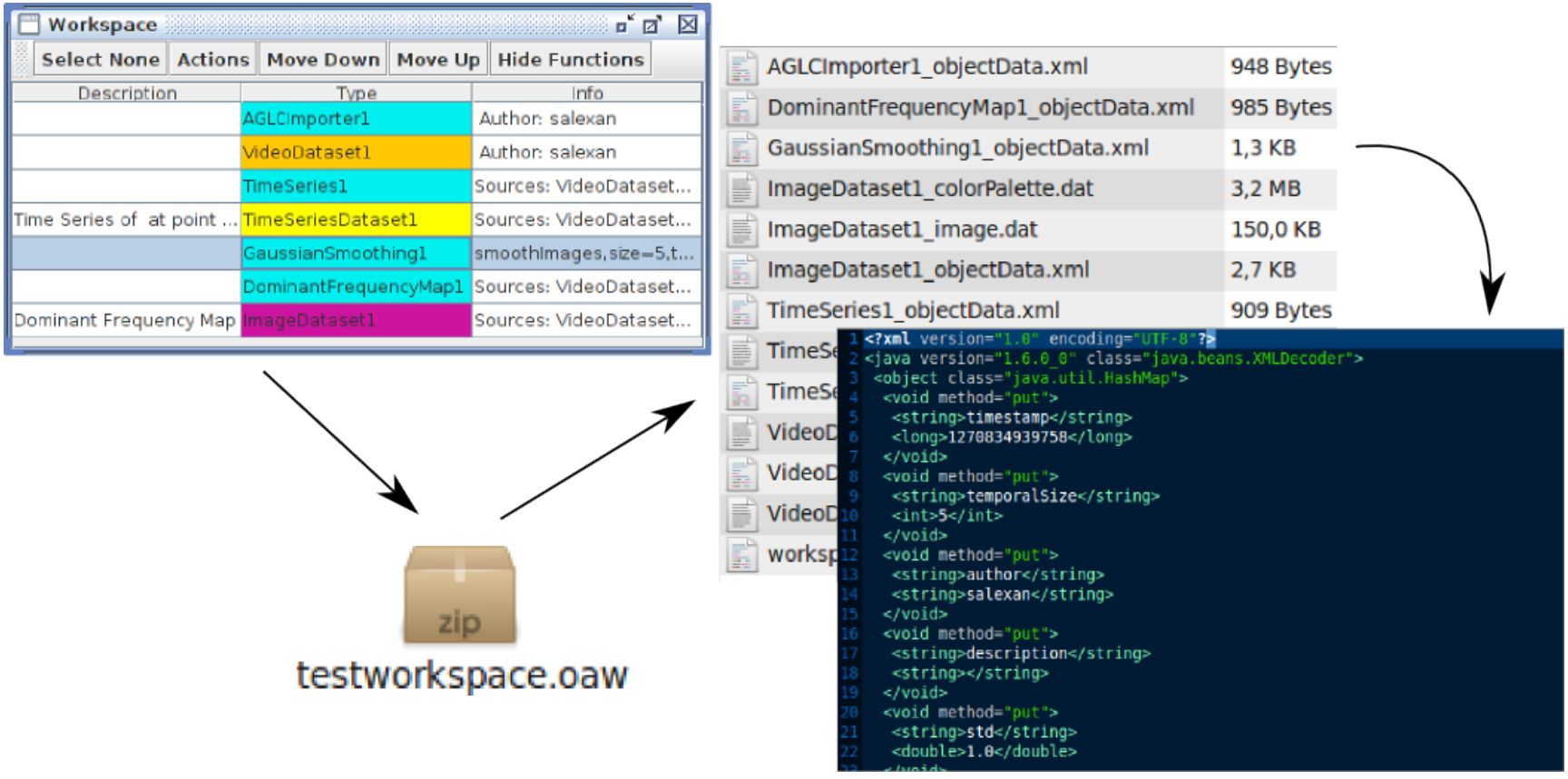

- Workspace objects are mapped to xml- and binary-data
- Storage in container-files or databases possible
- Each step in the analysis procedure can be reproduced

Conclusion

- OpenAnalyser is designed for collaborative data analysis in large-scale, cross-disciplinary research networks
- OpenAnalyser combines an intuitive GUI with a powerful prorgamming framework for algorithm development and application
- Users can integrate existing code easily via versatile plugin system
- OpenAnalyser is work in progress. Your suggestions, comments and contributions are welcome!

Thank you!

Thank you for your attention!

Download and more Information about OpenAnalyser:

http://www.bmp.ds.mpg.de/software.html

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