O2Plib library for Open2Dprot

Welcome To O2Plib

http://open2dprot.sourceforge.net/O2Plib and http://www.lecb.ncifcrf.gov/Open2Dprot/O2Plib/

```
Note: This pre-alpha level software is under construction and will
change.
Not all functionality described is fully implemented or fully
debugged.
This documentation will undergo revision as the program develops.
```

Introduction

O2Plib is a Java common library for use with Open2Dprot project available from the open2dprot.sourceforge. net server. The common library makes it easier to interface the various applications in the Open2Dprot analysis pipeline since it enforces the consistency of conventions including the XML data exchange formats.

The library is automatically downloaded (O2Plib.jar) with the Open2Dprot application programs when you download any of them to your computer. All of the programs will also download the new version of O2Plib.jar if you update the application program from the server (see particular application for details).

Design of the O2Plib library

The library is divided into subdirectories by function. It currently contains the following directories:

1. **db** database objects and their readers and writers
   - DbAccession.java - read, write and access accession sample database
   - DbBaseSpot.java - base spot feature object
   - DbBoundary.java - spot boundary manipulation
   - DbLM.java - read, write and access paired sample landmark spots database
   - DbPairSamples.java - read, write and access paired sample instance
   - DbPspot.java - duplet spot-pair feature object extends DbBaseSpot
   - DbSample.java - read, write and access sample spot list instance
   - DbSpot.java - spot feature object extends DbBaseSpot
   - LMset.java - landmark set object for a (Rsample,Sample) pair
   - CSD - Composite Samples Database objects
     - CSD.java - CSD top-level database instance object

- CSDglb.java - instance variables
- CSDacc.java - accession object
- CSDannotation.java - CSD annotation
- CSDcache.java - CSD cache manageer
- CSDcal.java - calibration object
- CSDcond.java - named condition object list of samples
- CSDexpr.java - expression across samples object
- CSDexprList.java - named list of expression objects
- CSDfilterState.java - data filter object
- CSDio.java - CSD I/O object
- CSDlimits.java - limits object
- CSDlistInterface.java - Java interface for some list classes
- CSDlms.java - landmark sets object
- CSDnorm.java - normalization object
- CSDRmap.java - Rspot map object
- CSDRspot.java - Rspot set object
- CSDRspotList.java - named list of Rspots obvject
- CSDsizes.java - manage sizes
- CSDtotals.java - manage CSD totals
  - ○ xml - XML loader
    - PipeLineDefault - load pipeline module
    - XmlLoader - XML loader using .xsd schemas
2. **gui** popup gui objects
   - ○ MenuSupport.java - pull-down menu MenuItem and CheckboxMenuItem support
   - ○ PopupDialogQuery.java - popup dialog window
   - ○ PopupFileDialog.java - popup file-dialog window
   - ○ PopupHTMLbrowser.java - popup Web browser window
   - ○ PopupNameListSelectorDialog.java - popup name-list checkbox edit window
   - ○ PopupOptions.java - popup command-line switch list edit options window
   - ○ PopupTableEditDialog.java - popup Table object editing window
   - ○ PopupTextFieldDialog.java - popup text field dialog window
   - ○ PopupYesNoDialogBox.java - popup yes/no/cancel confirmation window
3. **image** image objects and their readers and writers
   - ○ DrawOverlays.java - draw overlays for us with ScrollableImage
   - ○ DrawPix.java - draw text into pixel array image
   - ○ PixReader.java - read picture image file into picture object
   - ○ PixWriter.java - write picture image file from picture object
   - ○ PpxLoader.java - read PPX (old GELLAB-II) format image file
   - ○ Roi.java - Region Of Interest (ROI) object
   - ○ RoiList.java - list of ROIs
   - ○ ScrollableImage.java - to support zoom images
   - ○ TiffPixelLoader.java - read TIFF format image file
   - ○ WinDump.java - make printable window string of pixel array image
   - ○ WriteGifEncoder.java - write GIF image from pixel array image
4. **io** file, URL readers and writers
   - ○ FileIO.java - file reader and writer

5. **misc** utility functions
   - ○ CalibrateOD.java - calibrate grayscale to OD or other units
   - ○ ParamHash.java - get parameters from a hash table
   - ○ Sort.java - sort package
   - ○ Switches.java - support for command-line switch parsing
   - ○ Util.java - miscellaneous utility functions
6. **table** spread-sheet type (row X column) table objects
   - ○ SimpleTable.java - base class for table objects
   - ○ Table.java - table objects

Javadoc API documentation for the O2Plib library

See the javadoc documentation for more details on the library API.

Source code for the O2Plib library

The source code is available on either the Open2Dprot CVS server; view individual files in the CVS browser server; or complete checkpointed version on the Files mirror.

Please contact us with suggestions and comments. If you make interesting changes in the source code, please send us a copy and describe your changes so we can merge them in the released version.

Contact us

O2Plib is a contributed program available at Open2Dprot.sourceforge. net/O2Plib

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Revised: 10/04/2005

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open2dprot.sourceforge.net

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Revised: 11/07/2005

O2Plib Program Contributors

The current O2Plib library is the result of collaborative efforts by various groups and various projects. The current Java program is partly based based on some of the code refactored from the C/Unix GELLAB-II 2D gel programs. That in turn had been refactored from a DEC-10/SAIL language version. The new Java version also includes code from the open source [Flicker](#) and [MAExplorer](#) programs.

Many individuals have been involved over the years in its development both as direct collaborators running 2D gel experiments as well as in offering suggestions for improvement including: Lew Lipkin, Eric Lester, Jim Myrick, Mary Robinson, Carl Merril, Heinz Busse, Peter Sonderegger, Pete Rogan, Ye Chung Wu, Steve Aley, Mike Alley, Rob Ashmore, Kyle Upton, Jeff Orr, Mort Schultz, George Carman, Mark Miller, Arthur Olson, Norman and Leigh Anderson, Sam Hanash, and many others in the electrophoresis community. Published descriptions of the algorithms for the [GELLAB-II](#) program on the Open2Dprot Web site and are in the [References](#) section of this Web site.

The core group developing the O2Plib program source currently consists of

```
    * Peter Lemkin
    * Greg Thornwall
    * Jai Evans
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O2Plib is a contributed program available at open2dprot.sourceforge.net/O2Plib

Revised: 10/14/2004

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O2Plib Reference Manual

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O2Plib is a Java 2D common library for Open2Dprot.

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O2Plib Jar Version

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There are two versions of the O2Plib library available on Open2Dprot
at the server
     http://open2dprot.sourceforge.net/O2Plib

or the mirror server at
     http://www.lecb.ncifcrf.gov/Open2Dprot/O2Plib

The library is normally included when you install any of the
programs.

Until futher notice, O2Plib is to be considered pre-alpha-level
code until it is officially released. This means that there may be
some functionality not fully implemented, that works incorrectly,
or that has changed. New commands and functionality are in the
process of being added. Please report problems and suggestions to us.

1. Full download installation O2Plib version 0.3.6
Revised: 08-05-2005
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2. Update O2Plib program (O2Plib.jar) version 0.3.6
Revised: 08-05-2005
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O2Plib - (PDF) documents

There are a number of Adobe Acrobat PDF formated documents and slide shows available for the O2Plib project.

If you do not have Adobe Acrobat, you can download it for free from Adobe. The following lists some of the PDF documents you may download. As otheres are created, they will be added to this list.

1. O2Plib Overview slide show for use as a printable document (2 slides/page)

2. This O2Plib Web site as a PDF document for use as a printable document

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O2Plib Revision History

This describes the revision history of the O2Plib program of released or soon to be released versions. Generally, only the most recent versions are kept on the Web site (see Version). Documentation for unresolved bugs and requested functionality is found in the status Web page.

- **V.3.5 06-21-2005:** Fixed bug in O2Plib.db.MenuSupport for radio buttons.

- **V.3.4 06-01-2005:** Refactored O2Plib.image.PixReader and other modules to help support new CdgDIGE subproject.

- **V.3.3 05-29-2005:** Refactored many classes. Added support for BuildCSD, fixed bug in SPF XML data writer, etc.

- **V.3.1 05-11-2005:** Refactored many classes and fixed bugs. Added classes in particular O2Plib.db.CSD.* used in building and supporting the Composite Samples Database. New XML schemas for SSF and SPF data including new XML readers. Many support methods, etc.

- **V.0.5.4 01-19-2005:** Refactored and fixed bugs in and methods as well as cleanup db.DbAccession, misc.

CalibrateDB, misc.Util.

- **V.0.5.3 01-18-2005:** Refactored and added new variables and methods as well as cleanup db.DbLM, db. DbSample, db.DbSpot, db.DbPairSamples, image.Roi, image.RoiList, image.ScrollableImage, misc.Util, misc.CalibrateOD.

- **V.0.2.9 12-17-2004:** Cleanup and added new methods in DbLM, DbSample, DbPairSamples.

- **V.0.2.7 12-08-2004:** Cleanup and added new methods in DbLM, DbSample, DbPairSamples.

- **V.0.2.5 11-22-2004:** Cleanup and added new methods and new classes O2Plib.gui.MenuSupport making their construction and event handling easier. O2Plib.db.DbSpot now supports two-way linked spot lists. O2Plib.db.DbSample now contains methods for inserting, removing, sorting etc. DbSpot lists. O2Plib. Table.SimpleTable has new methods for better manipulating tables.

- **V.0.2.4 11-03-2004:** Cleanup, some functionality changes and documentation.

- **V.0.2 10-21-2004:** Cleanup and added a few methods.

- **V.0.1 10-14-2004:** Moved code from Open2Dprot applications into the new Open2Dprot common library O2Plib.

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O2Plib Program Status

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The following are known bugs, suggested features, functions that are being debugged or being developed. Documentation for resolved bugs is found in the revision history Web page.

- Revision history
- FAQ
- Known bugs

- [Suggested Features/FAQ](#)

Known Bugs

The neumonic *GGGR* is shorthand for "Grep, Get Gestault and Refactor".

- **V.0.3.2 05-31-2005:** Add O2Plib/gui/ImageData.java, O2Plib/gui/DrawHistogramCanvas.java classes

- **V.0.1 10-14-2004:** Add O2Plib/db/DbCSD.java class. Add O2Plib/gui/ImageData.java, O2Plib/gui/ScrollableImageCanvas.java, O2Plib/gui/DrawHistogramCanvas.java, O2Plib/gui/DrawHistogramCanvas.java classes

- **V.0.1 10-12-2004:** Initial release

Suggested Features

- **V.0.1 10-14-2004:** [TODO]

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O2Plib Program Frequently asked questions (FAQ)

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The following are some frequently asked questions. This is a list of some of the questions that we will be answering. Please [send us your questions](#) about O2Plib so we can add them and the answers to this list.

- [Revision history](#)
- [Known bugs](#)
- [Suggested Features/FAQ](#)

FAQ

- *** to do ***

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