Icy

F. de Chaumont, S. Dallongeveille, A. Dufour, J.-C. Olivo-Marin and the AIQ team

OME User’s Meeting
Institut Pasteur June 18-19 2012
Icy?

Open bioimage informatics platform.

Icy is designed to take users and developers into equal consideration.

User oriented solution with the capability to reuse, combine and adapt existing tools.

High-end visual programming framework.

A central ressource web repository bundled with a rich client application.

de Chaumont et al., Nat. Methods, 7, 2012
The Icy platform

Standalone Application

Plugin install
- Plugin list
- Plug-in images, abstract and changelog
- Plugin dependencies
- Plugin files
- Plugin versions

Web

Icy webservice
- Database
  - Registered users
  - Comments
  - Bug reports
  - Plugins
  - Dependencies
  - Announcement
  - Blog
  - Workspaces
  - Log

Plugin & Protocol Development
- Initial submission
- Updated/Fixed plugin

Icy website
- Content management system
- Update
- Plugin dedicated webpage
- Main Icy page promotion
- Cross references

Plugin / Protocol Usage
- Bug report
- Comments

Search engine
Graphical interface
Visualization

de Chaumont et al., Nat. Methods 2012
Multiple ROIs / Synchronized multiplied viewers
Level of detail
User customizable interface
Plug it anywhere... but at the right place.
Plugin of plugins

Main plugin

Pipe of plugins

Sub plugin list built by the mother-plugin

Bring in your standards!
Available plug-ins

- **Active Contours**: Fast multiple coupled active contours using edge and region information for segmentation and tracking.
- **Additive Histogram Equalization**: The adaptive histogram equalization implements the Contrast-Limited Adaptive Histogram Equalization (CLAHE).
- **Angle Helper**: Tool to measure angles on images.
- **Animated painter**: This tutorial explains how to create an animated painter.
- **Anisotropic Filter**: Anisotropic filter implements the classical Coherence Enhancing Diffusion Filter (Weickert). The plugins works on images on your sequences. (This plugin requires Icy v. 1.2.0.0)
- **Bar Chart**: Tutorial explaining how to display a JFreeChart graph in Icy.
- **Best Threshold**: Choose the best auto thresholding technique for your data. Ported from Auto Threshold plugin in ImageJ by G. L.
- **Chromosomes**: Simple chromosome UI.
- **Count Pixels Threshold**: Image segmentation by representative colors selection. Two versions are available: - thresholding – positive.
- **Connectivities**: This plugin provides some useful functions to work with complex-valued sequences.
- **Connected Components**: This plugin extracts groups of connected pixels in 2D and 3D based on their intensity and that of the background.
- **Contiguous Painter**: Right click on a sequence or ROIs for a Context Menu.
- **Create Simple Area ROI**: This tutorial explains how to create a simple Area ROI.
- **Deviation Chart**: This tutorial explains how to use a deviation reader JFreeChart chart in Icy.
- **Diffusion Filters Tool**: Some functions for DFO filtering.
- **Edit Plugin**: Create nice-looking plug-ins in no time with this library. No required knowledge in GUI programming, declare p...
Writing plugins with EzPlug

```java
package plugins.fab.challengeScoring;
import plugins.adufour.ezplug.EzPlug;
import plugins.adufour.ezplug.EzVarSequence;

public class EzTest extends EzPlug {
    EzVarSequence inputSequence = new EzVarSequence("Input sequence");
    @Override
    protected void initialize() {
        addEzComponent( inputSequence );
    }
    @Override
    protected void execute() {
        System.out.println("The sequence selected is "+inputSequence.getValue());
    }
    @Override
    public void clean() {
    }
}
```
Provided libraries

BioFormats
Flamingo
Flanagan
VTK
Icy-Insubstantial
Jama
JFreeChart
Java Media Framework
JTransforms
MicroManager
JXL
Phys 2D
JEval
ImageJ
Xuggler
OME

Updated & not-conflicting
Plugin CMS: Submission
### General Description
Projects data over Z-Stack or over Time, using max, min, mean, sum saturated, and sum unsaturated. Sum saturated means that if sum is greater than the data type of the image, then the value will be the max value available with this data type.

### Plugin Icon
![Plugin Icon]

### Plugin Tooltip
No tooltip image defined.

### JAR files
<table>
<thead>
<tr>
<th>date/time</th>
<th>version</th>
<th>min kernel version required</th>
<th>regression</th>
<th>changelog</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.5</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.4</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.3</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.2</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.1</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-09-23 11:42:27</td>
<td>1.0.0.0</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Full generated changelog.
- **Version 1.0.0.5**
  - Date: 2011-09-23 11:42:27
  - Fixed a crash could occur if there is no image in sequence

### Dependencies
Nothing.

### List of plugins depending on this plugin
No other plugin depends on this plugin.

### Special operations
- delete this plugin
- rename this plugin
- change the classname of this plugin

### Automatic bug reports log
- Automatic bug report is private - switch to public
- Jump to automatic bug report list

### Associated splash screens
- Add a new associated splash screen

### Associated internet mini-screens
- Total number of view of miniscreen on website: 0
- Add a new associated mini-screen

### Promote plugin on mainPage
- Promote will only work if at least one miniscreen is referenced
- Promotion is on - switch to off

---

**Plugin unique ID:** A6L7V2

---

**Tag List**
- projection - remove
- add a new tag (7 remaining)
Plugin install
Automatic bug reports

Is it useful?

In 1 year:
- 2114 automatic bug reports
- 768 plug-in updates
- 439 console reports
- 233 issues fixed
ImageJ 100% compatibility
MicroManager
Graphical programming

de Chaumont et al., Nat. Methods, 7, 2012
Introducing protocols
Communication chat
Thanks to