



- Support the next generation of image data
- Interoperate and collaborate with other projects
- Broaden the ImageJ community
- Reuse each others' work wherever practical
- Provide a central online resource for ImageJ
 - Program downloads, a plugin repository, developer resources and more

Why ImageJ2?





Max Planck Institute of Molecular Cell Biology and Genetics Dresden



And anyone who wants to contribute!

Who Develops ImageJ2?

- Preserve backwards compatibility
- Maintain good performance
- Support N-dimensional imaging
- Use common input and output for data
- Minimize complexity
- Employ open source software dev. practices

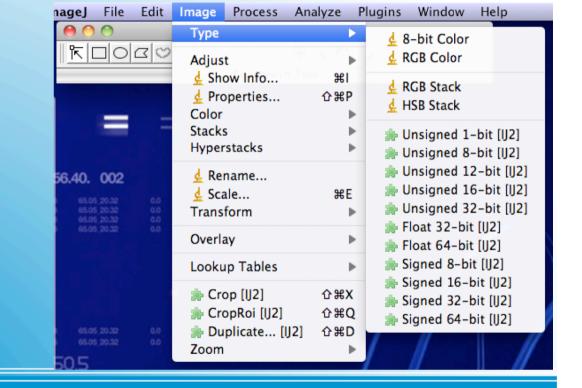
Guiding Principles

- Supports most ImageJ1 plugins and macros
- Many new pixel types
- Multidimensional data beyond 5D
- Import and export of many file formats
- Improved region of interest (ROI) tools
- Truly headless
- Automatic updates
- Easily install additional plugins (e.g., Fiji >350 plugins!)
- 175 new/reimplemented core ImageJ2 plugins so far

ImageJ 2.0.0-beta2

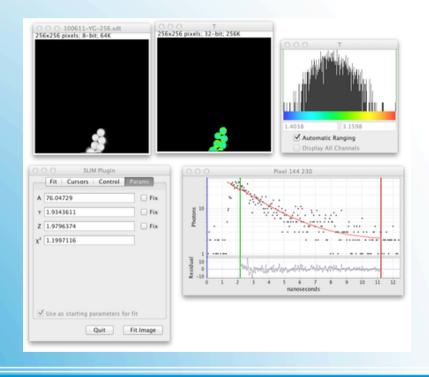
- Based on ImgLib2 library
- Any data source (files, URLs, DBs...)
- N-dimensional images
- Unlimited pixel types
- Write algorithms once

ImgLib2



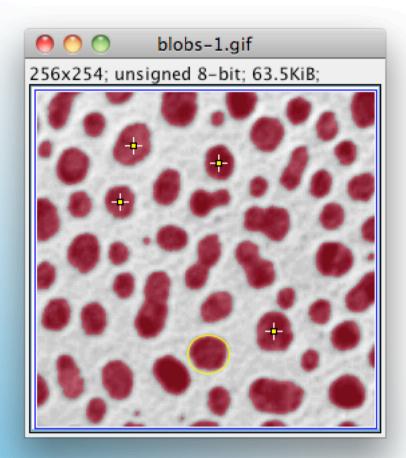
Data Model

- The user interface provides views of the data
- Show multiple datasets in one window
- Or multiple windows showing the same dataset
- Composite any # of channels
- Fully pluggable



Displays and Visualization

- ROIs are functions that identify samples upon which to operate
- Overlays are visuals superimposed over a dataset, often (but not always) linked to ROIs



Regions of Interest

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Provides widgets for several UI styles:

- Swing
- "Pure" AWT
- Eclipse SWT
- Apache Pivot
- Custom UIs possible
- Can run headless
- Use ImageJ2 as a library to execute plugins

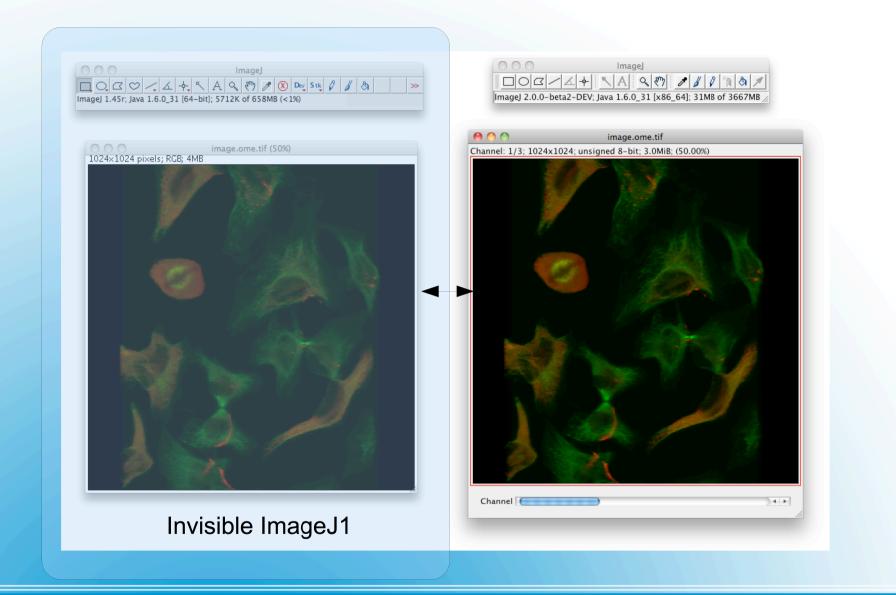
User Interface

ኛ CellProfiler (r10540): Pipeline_ImageJ2.0.cp (\\iodine\imaging_analysis\People\Lee\output\ImageJ_example)

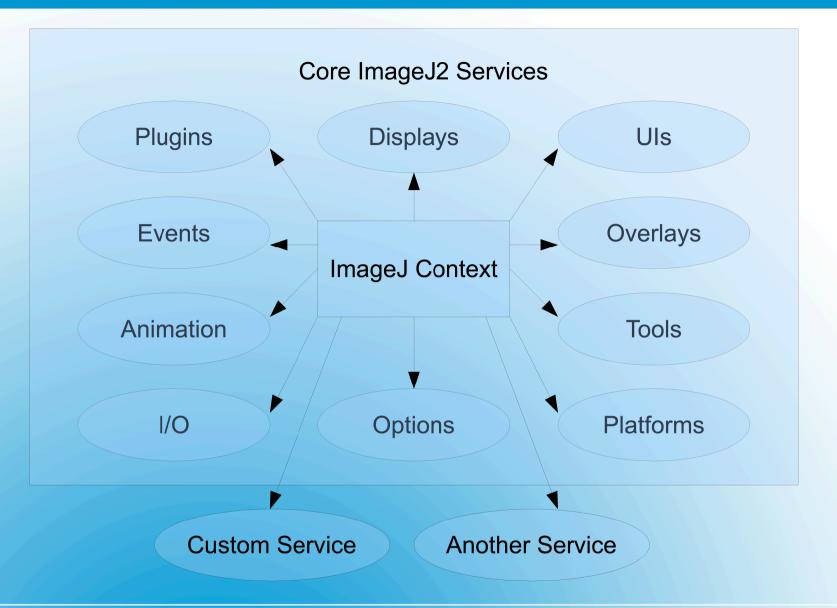
<u>File Edit Test Window Data tools H</u>elp

CellProfiler [™] cell image analysis software	Module notes Run the ImageJ Tubeness 2.0 plugin from within CellProfiler. CellProfiler displays Tubeness's @parameter annotations as settings.			
Module	Command or macro? Command 🖌			
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	Saved pipeline to \\iodine\imaging_analysis\People\Lee\output\ImageJ_example\Pipeline_ImageJ2.0.cp			

Interoperability



Compatibility



Service Architecture

- Keeps ImageJ2 plugins up-to-date
- Installs new plugins
- Anyone can create an update site and upload their own plugins to it
- Compatible with existing Fiji update sites (including fiji.sc)

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Search:						
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ImageJ Updater

- Uses SCIFIO (SCientific Image Format Input & Output) library for reading and writing data
- New formats can be added as SCIFIO plugins

OME
SCIFIO
BIO-FORMATS



- Many options for launching ImageJ2
- Run scripts in batch mode
- Multiple platforms
- Run headless

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	📕 ImageJ-macosx	Unix Executable File	156 KB		
	📕 ImageJ-tiger	Unix Executable File	160 KB		
	PkgInfo	Document	4 KB		
	Resources	Folder			
	📕 ImageJ-linux32	Unix Executable File	66 KB		
	📕 ImageJ-linux64	Unix Executable File	74 KB		
	📄 ImageJ-win32.exe	Document	123 KB		
	📄 ImageJ-win64.exe	Document	352 KB		
	📄 imagej.bat	Document	4 KB		
	📄 imagej.sh	public.shell-script	4 KB		
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	plugins	Folder			
	README.txt	Plain Text	4 KB		
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Launcher

- Release one beta per month
- Big green button
- Better integration with native code
- Website: central plugins listing
- Application-driven development



Future Directions