



Bio-Formats Documentation

Release 4.4.8-DEV

The Open Microscopy Environment

May 01, 2013

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The following documentation is split into four parts. *About Bio-Formats* explains the goal of the software, discusses how it processes metadata, and provides other useful information such as version history and how to report bugs. *User Information* focusses on how to use Bio-Formats as a plugin for ImageJ and Fiji, and also gives details of other software packages which can use Bio-Formats to read and write microscopy formats. *Developer Documentation* covers more indepth information on using Bio-Formats as a Java library and how to interface from non-Java codes. Finally, *Formats* is a guide to all the file formats currently supported by Bio-Formats.

Part I

About Bio-Formats

Bio-Formats is a standalone Java library for reading and writing life sciences image file formats. It is capable of parsing both pixels and metadata for a large number of formats, as well as writing to several formats.

The primary goal of Bio-Formats is to facilitate the exchange of microscopy data between different software packages and organizations. It achieves this by converting proprietary microscopy data into an open standard called the [OME data model](#)¹, particularly into the [OME-TIFF](#)² file format.

We believe the standardization of microscopy metadata to a common structure is of vital importance to the community. A [brief article on the benefits of standardization](#)³ from [thinkstandards.net](#)⁴ provides an excellent summary.

¹<http://genomebiology.com/2005/6/5/R47>

²<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

³<http://www.thinkstandards.net/benefits.html>

⁴<http://www.thinkstandards.net/>

BIO-FORMATS METADATA PROCESSING

Pixels in microscopy are almost always very straightforward, stored on evenly spaced rectangular grids. It is the metadata (details about the acquisition, experiment, user, and other information) that can be complex. Using the OME data model enables applications to support a single metadata format, rather than the multitude of proprietary formats available today.

Every file format has a distinct set of metadata, stored differently. Bio-Formats processes and converts each format's metadata structures into a standard form called the [OME data model](#)¹, according to the [OME-XML](#)² specification. We have defined an open exchange format called [OME-TIFF](#)³ that stores its metadata as OME-XML. Any software package that supports OME-TIFF is also compatible with the dozens of formats listed on the Bio-Formats page, because Bio-Formats can convert your files to OME-TIFF format.

To facilitate support of OME-XML, we have created a [library in Java](#)⁴ for reading and writing [OME-XML](#)⁵ metadata.

There are three types of metadata in Bio-Formats, which we call core metadata, original metadata, and OME metadata.

1. **Core metadata** only includes things necessary to understand the basic structure of the pixels: image resolution; number of focal planes, time points, channels, and other dimensional axes; byte order; dimension order; color arrangement (RGB, indexed color or separate channels); and thumbnail resolution.
2. **Original metadata** is information specific to a particular file format. These fields are key/value pairs in the original format, with no guarantee of cross-format naming consistency or compatibility. Nomenclature often differs between formats, as each vendor is free to use their own terminology.
3. **OME metadata** is information from #1 and #2 converted by Bio-Formats into the OME data model. **Performing this conversion is the primary purpose of Bio-Formats.** Bio-Formats uses its ability to convert proprietary metadata into OME-XML as part of its integration with the OME and OMERO servers—essentially, they are able to populate their databases in a structured way because Bio-Formats sorts the metadata into the proper places. This conversion is nowhere near complete or bug free, but we are constantly working to improve it. We would greatly appreciate any and all input from users concerning missing or improperly converted metadata fields.

¹<http://genomebiology.com/2005/6/5/R47>

²<http://www.openmicroscopy.org/site/support/ome-model/ome-xml>

³<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

⁴<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/java-library.html>

⁵<http://www.openmicroscopy.org/site/support/ome-model/ome-xml>

For help, see the [Bio-Formats¹](#), [File Formats²](#) and [OME-XML and OME-TIFF³](#) sections of the [OME FAQ⁴](#) for answers to some common questions. Please [contact us⁵](#) if you have any questions or problems with Bio-Formats. There is a [guide for reporting bugs here](#).

For advanced users and developers, further information is available on the [troubleshooting page](#).

2.1 Reporting a bug

2.1.1 Before filing a bug report

If you think you have found a bug in Bio-Formats, the first thing to do is update your version of Bio-Formats to the latest trunk version. It is possible that the problem has already been addressed. For both Fiji and ImageJ users, select Update LOCI Plugins under the LOCI menu. Select Trunk Build.

You can also download the [newest version of Bio-Formats⁶](#). If you are not sure which version you need, select the Trunk Build under LOCI Tools complete bundle.

2.1.2 Sending a bug report

If you can still reproduce the bug after updating to the newest version of Bio-Formats, please send us a bug report. To ensure that any inquiries you make are resolved promptly, please include the following information:

- **Exact error message.** Copy and paste any error messages into the text of your email. Alternatively, attach a screenshot of the relevant windows.
- **Version information.** Indicate which release of Bio-Formats, which operating system, and which version of Java you are using.
- **Non-working data.** If possible, please send a non-working file. This helps us ensure that the problem is fixed for next release and will not reappear in later releases. We can provide you with an FTP server for uploading your file(s) if needed. Note that any data provided is used for internal testing only; we do not make images publicly available unless given explicit permission to do so.
- **Metadata and screenshots.** If possible, include any additional information about your data. We are especially interested in the expected dimensions (width, height, number of channels, Z slices, and timepoints). Screenshots of the image being successfully opened in other software are also useful.

¹<http://www.openmicroscopy.org/site/support/faq/bio-formats>

²<http://www.openmicroscopy.org/site/support/faq/file-formats>

³<http://www.openmicroscopy.org/site/support/faq/ome-xml-and-ome-tiff>

⁴<http://www.openmicroscopy.org/site/support/faq>

⁵<http://www.openmicroscopy.org/site/community/mailing-lists>

⁶<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

- **Format details.** If you are requesting support for a new format, we ask that you send as much data as you have regarding this format (sample files, specifications, vendor/manufacturer information, etc.). This helps us to better support the format and ensures future versions of the format are also supported.

Once you have gathered all the relevant information, send it as an e-mail to the [OME Users mailing list](#)⁷.

Please be patient - it may be a few days until you receive a response, but we reply to *every* email inquiry we receive.

2.2 Troubleshooting

This page is aimed at anyone who is responsible for supporting Bio-Formats, but may also be useful for advanced users looking to troubleshoot their own problems. Eventually, it might be best to move some of this to the FAQ or other documentation.

2.2.1 General tips

- Make sure to read the [FAQ](#)⁸, particularly the “File Formats”, “Bio-Formats”, and “OME-XML & OME-TIFF” sections
- If this page doesn’t help, it is worth quickly checking the following places where questions are commonly asked and/or bugs are reported:
 - [OME Trac](#)⁹
 - [Fiji Bugzilla](#) (for ImageJ/Fiji issues)¹⁰
 - [ome-devel mailing list](#)¹¹ (searchable using google with ‘site:lists.openmicroscopy.org.uk’)
 - [ome-users mailing list](#)¹² (searchable using google with ‘site:lists.openmicroscopy.org.uk’)
 - [ImageJ mailing list](#) (for ImageJ/Fiji issues)¹³
- Make sure to ask for a `_specific_` error message or description of the unexpected behavior, if one is not provided (“it does not work” is obviously not adequate).
- “My (12, 14, 16)-bit images look all black when I open them” is a common issue. In ImageJ/Fiji, this is almost always fixable by checking the “Autoscale” option; with the command line tools, the “-autoscale -fast” options should work. The problem is typically that the pixel values are very, very small relative to the maximum possible pixel value (4095, 16383, and 65535, respectively), so when displayed the pixels are effectively black.
- If the file is very, very small (4096 bytes) and any exception is generated when reading the file, then make sure it is not a [Mac OS X resource fork](#)¹⁴. The ‘file’ command should tell you:

```
$ file /path/to/suspicious-file
suspicious-file: AppleDouble encoded Macintosh file
```

⁷<http://lists.openmicroscopy.org.uk/mailman/listinfo/ome-users/>

⁸<http://www.openmicroscopy.org/site/support/faq>

⁹<http://trac.openmicroscopy.org.uk/ome>

¹⁰<http://fiji.sc/cgi-bin/bugzilla/index.cgi>

¹¹<http://lists.openmicroscopy.org.uk/pipermail/ome-devel>

¹²<http://lists.openmicroscopy.org.uk/pipermail/ome-users>

¹³<http://imagej.1557.n6.nabble.com/>

¹⁴http://en.wikipedia.org/wiki/Resource_fork#The_Macintosh_file_system

2.2.2 Tips for ImageJ/Fiji

- The Bio-Formats version being used can be found by selecting “Help > About Plugins > LOCI Plugins”.
- “How do I make the options window go away?” is a common question. There are a few ways to do this:
 - To disable the options window only for files in a specific format, select “Plugins > LOCI > LOCI Plugins Configuration”, then pick the format from the list and make sure the “Windowless” option is checked.
 - To avoid the options window entirely, use the “Plugins > LOCI > Bio-Formats Windowless Importer” menu item to import files.
 - Open files by calling the Bio-Formats importer plugin from a macro.
- A not uncommon cause of problems is that the user has multiple copies of loci_tools.jar in their ImageJ plugins folder, or has a copy of loci_tools.jar and a copy of bio-formats.jar. It is often difficult to determine for sure that this is the problem - the only error message that pretty much guarantees it is a “NoSuchMethodException”. If the user maintains that they downloaded the latest version and whatever error message/odd behavior they are seeing looks like it was fixed already, then it is worth suggesting that they remove all copies of loci_tools.jar and download a fresh version.

2.2.3 Tips for command line tools

- When run with no arguments, all of the command line tools will print information on usage.
- When run with the ‘-version’ argument, ‘showinf’ and ‘bfconvert’ will display the version of Bio-Formats that is being used (version number, build date, and Git commit reference).

2.2.4 Tips by format

3I/Olympus Slidebook (.sid)

- Slidebook support is generally not great, despite a lot of effort. This is the one format for which it is recommended to just export to OME-TIFF from the acquisition software and work with the exported files. Happily, there is free software from 3I which can do the export post-acquisition: <https://www.slidebook.com/reader.php>

DICOM

- Health care or institutional regulations often prevent users from sending problematic files, so often we have to solve the problem blind. In these cases, it is important to get the exact error message, and inform the user that fixing the problem may be an iterative process (i.e. they might have to try a couple of trunk builds before we can finally fix the problem).

ZVI

- If the ZVI reader plugin is installed in ImageJ/Fiji, then it will be used instead of Bio-Formats to read ZVI files. To check if this is the cause of the problem, make sure that the file opens correctly using “Plugins > LOCI > Bio-Formats Importer”; if that works, then just remove ZVI_Reader.class from the plugins folder.

BIO-FORMATS VERSIONS

Bio-Formats is updated whenever a significant bug fix is made, or whenever a new version of [OMERO](#)¹ is released. The version number is three numbers separated by dots; e.g., 4.0.0. See the [version history](#) for a list of major changes in each release.

The latest stable version of Bio-Formats is 4.4.8-DEV. For future development directions, see the [4.5](#)² and [5.0](#)³ roadmaps.

3.1 Version history

3.1.1 4.4.6 (2013 February 7)

- Many bug fixes

3.1.2 4.4.5 (2012 November 13)

- Restructured and improved documentation
- **Many bug fixes, including:**
 - File grouping in many multi-file formats
 - Maven build fixes
 - ITK plugin fixes

3.1.3 4.4.4 (2012 September 24)

- Many bug fixes

3.1.4 4.4.2 (2012 August 22)

- Security fix for OMERO plugins for ImageJ

¹<http://www.openmicroscopy.org/site/support/omero4/>

²<http://trac.openmicroscopy.org.uk/ome/query?group=status&component=Bio-Formats&milestone=OMERO-4.5>

³<http://trac.openmicroscopy.org.uk/ome/query?group=status&component=Bio-Formats&milestone=OMERO-5.0>

3.1.5 4.4.1 (2012 July 20)

- Fix a bug that prevented BigTIFF files from being read
- Fix a bug that prevented PerkinElmer .flex files from importing into OMERO

3.1.6 4.4.0 (2012 July 13)

- Many, many bug fixes
- **Added support for:**
 - .nd2 files from Nikon Elements version 4
 - PerkinElmer Operetta data
 - MJPEG-compressed AVIs
 - MicroManager datasets with multiple positions
 - Zeiss CZI data
 - IMOD data

3.1.7 4.3.3 (2011 October 18)

- **Many bug fixes, including:**
 - Speed improvements to HCImage/SimplePCI and Zeiss ZVI files
 - Reduce memory required by Leica LIF reader
 - More accurately populate metadata for Prairie TIFF datasets
 - Various fixes to improve the security of the OMERO plugin for ImageJ
 - Better dimension detection for Bruker MRI datasets
 - Better thumbnail generation for histology (SVS, NDPI) datasets
 - Fix stage position parsing for Metamorph TIFF datasets
 - Correctly populate the channel name for PerkinElmer Flex files

3.1.8 4.3.2 (2011 September 15)

- **Many bug fixes, including:**
 - Better support for Volocity datasets that contain compressed data
 - More accurate parsing of ICS metadata
 - More accurate parsing of cellSens .vsi files
- **Added support for a few new formats**
 - .inr
 - Canon DNG
 - Hitachi S-4800
 - Kodak .bip

- JPX
 - Volocity Library Clipping (.acff)
 - Bruker MRI
- Updated Zeiss LSM reader to parse application tags
- Various performance improvements, particularly for reading/writing TIFFs
- Updated OMERO ImageJ plugin to work with OMERO 4.3.x

3.1.9 4.3.1 (2011 July 8)

- **Several bug fixes, including:**
 - Fixes for multi-position Deltavision files
 - Fixes for MicroManager 1.4 data
 - Fixes for 12 and 14-bit JPEG-2000 data
 - Various fixes for reading Volocity .mvd2 datasets
- Added various options to the ‘showinf’ and ‘bfconvert’ command line tools
- Added better tests for OME-XML backwards compatibility
- Added the ability to roughly stitch tiles in a multi-position dataset

3.1.10 4.3.0 (2011 June 14)

- **Many bug fixes, including:**
 - Many fixes for reading and writing sub-images
 - Fixes for stage position parsing in the Zeiss formats
 - File type detection fixes
- Updated JPEG-2000 reading and writing support to be more flexible
- **Added support for 9 new formats:**
 - InCell 3000
 - Trestle
 - Hamamatsu .ndpi
 - Hamamatsu VMS
 - SPIDER
 - Volocity .mvd2
 - Olympus SIS TIFF
 - IMAGIC
 - cellSens VSI
- Updated to 2011-06 OME-XML schema
- Minor speed improvements in many formats
- Switched version control system from SVN to Git

- Moved all Trac tickets into the OME Trac: <http://trac.openmicroscopy.org.uk>
- Improvements to testing frameworks
- Added Maven build system as an alternative to the existing Ant build system
- Added pre-compiled C++ bindings to the download page

3.1.11 4.2.2 (2010 December 6)

- **Several bug fixes, notably:**
 - Metadata parsing fixes for Zeiss LSM, Metamorph STK, and FV1000
 - Prevented leaked file handles when exporting to TIFF/OME-TIFF
 - Fixed how BufferedImages are converted to byte arrays
- Proper support for OME-XML XML annotations
- Added support for SCANCO Medical .aim files
- Minor improvements to ImageJ plugins
- Added support for reading JPEG-compressed AVI files

3.1.12 4.2.1 (2010 November 12)

- Many, many bug fixes
- **Added support for 7 new formats:**
 - CellWorX .pnl
 - ECAT7
 - Varian FDF
 - Perkin Elmer Densitometer
 - FEI TIFF
 - Compix/SimplePCI TIFF
 - Nikon Elements TIFF
- Updated Zeiss LSM metadata parsing, with generous assistance from Zeiss, FMI, and MPI-CBG
- Lots of work to ensure that converted OME-XML validates
- Improved file stitching functionality; non-numerical file patterns and limited regular expression-style patterns are now supported

3.1.13 4.2.0 (2010 July 9)

- Fixed many, many bugs in all aspects of Bio-Formats
- Reworked ImageJ plugins to be more user- and developer-friendly
- Added many new unit tests
- Added support for approximately 25 new file formats, primarily in the SPM domain
- Rewrote underlying I/O infrastructure to be thread-safe and based on Java NIO

- Rewrote OME-XML parsing/generation layer; OME-XML 2010-06 is now supported
- Improved support for exporting large images
- Improved support for exporting to multiple files
- Updated logging infrastructure to use slf4j and log4j

3.1.14 4.1.1 (2009 December 3)

- Fixed many bugs in popular file format readers

4.1 (2009 October 21):

- Fixed many bugs in most file format readers
- Significantly improved confocal and HCS metadata parsing
- Improved C++ bindings
- Eliminated references to Java AWT classes in core Bio-Formats packages
- Added support for reading Flex datasets from multiple servers
- Improved OME-XML generation; generated OME-XML is now valid
- Added support for Olympus ScanR data
- Added OSGi information to JARs
- Added support for Amira Mesh files
- Added support for LI-FLIM files
- Added more informative exceptions
- Added support for various types of ICS lifetime data
- Added support for Nikon EZ-C1 TIFFs
- Added support for Maia Scientific MIAS data

3.1.15 4.0.1 (2009 June 1)

- Lots of bug fixes in most format readers and writers
- Added support for Analyze 7.1 files
- Added support for Nifti files
- Added support for Cellomics .c01 files
- Refactored ImageJ plugins
- Bio-Formats, the common package, and the ImageJ plugins now require Java 1.5
- Eliminated native library dependency for reading lossless JPEGs
- Changed license from GPL v3 or later to GPL v2 or later
- Updated Olympus FV1000, Zeiss LSM, Zeiss ZVI and Nikon ND2 readers to parse ROI data
- Added option to ImageJ plugin for displaying ROIs parsed from the chosen dataset
- Fixed BufferedImage construction for signed data and unsigned int data

3.1.16 4.0.0 (2009 March 3)

- Improved OME data model population for Olympus FV1000, Nikon ND2, Metamorph STK, Leica LEI, Leica LIF, InCell 1000 and MicroManager
- Added TestNG tests for format writers
- Added option to ImageJ plugin to specify custom colors when customizing channels
- Added ability to upgrade the ImageJ plugin from within ImageJ
- Fixed bugs in Nikon ND2, Leica LIF, BioRad PIC, TIFF, PSD, and OME-TIFF
- Fixed bugs in Data Browser and Exporter plugins
- Added support for Axon Raw Format (ARF), courtesy of Johannes Schindelin
- Added preliminary support for IPLab-Mac file format

3.1.17 2008 December 29

- Improved metadata support for Deltavision, Zeiss LSM, MicroManager, and Leica LEI
- Restructured code base/build system to be component-driven
- Added support for JPEG and JPEG-2000 codecs within TIFF, OME-TIFF and OME-XML
- Added support for 16-bit compressed Flex files
- Added support for writing JPEG-2000 files
- Added support for Minolta MRW format
- Added support for the 2008-09 release of OME-XML
- Removed dependency on JMagick
- Re-added caching support to data browser plugin
- Updated loci.formats.Codec API to be more user-friendly
- Expanded loci.formats.MetadataStore API to better represent the OME-XML model
- Improved support for Nikon NEF
- Improved support for TillVision files
- Improved ImageJ import options dialog
- Fixed bugs with Zeiss LSM files larger than 4 GB
- Fixed minor bugs in most readers
- Fixed bugs with exporting from an Image5D window
- Fixed several problems with virtual stacks in ImageJ

3.1.18 2008 August 30

- Fixed bugs in many file format readers
- Fixed several bugs with swapping dimensions
- Added support for Olympus CellR/APL files
- Added support for MINC MRI files

- Added support for Aperio SVS files compressed with JPEG 2000
- Added support for writing OME-XML files
- Added support for writing APNG files
- Added faster LZW codec
- Added drag and drop support to ImageJ shortcut window
- Re-integrated caching into the data browser plugin

3.1.19 2008 July 1

- Fixed bugs in most file format readers
- Fixed bugs in OME and OMERO download functionality
- Fixed bugs in OME server-side import
- Improved metadata storage/retrieval when uploading to and downloading from the OME Perl server
- Improved Bio-Formats ImageJ macro extensions
- Major updates to MetadataStore API
- Updated OME-XML generation to use 2008-02 schema by default
- Addressed time and memory performance issues in many readers
- Changed license from LGPL to GPL
- Added support for the FEI file format
- Added support for uncompressed Hamamatsu Aquacosmos NAF files
- Added support for Animated PNG files
- Added several new options to Bio-Formats ImageJ plugin
- Added support for writing ICS files

3.1.20 2008 April 17

- Fixed bugs in Slidebook, ND2, FV1000 OIB/OIF, Perkin Elmer, TIFF, Prairie, Openlab, Zeiss LSM, MNG, Molecular Dynamics GEL, and OME-TIFF
- Fixed bugs in OME and OMERO download functionality
- Fixed bugs in OME server-side import
- Fixed bugs in Data Browser
- Added support for downloading from OMERO 2.3 servers
- Added configuration plugin
- Updates to MetadataStore API
- Updates to OME-XML generation - 2007-06 schema used by default
- Added support for Li-Cor L2D format
- Major updates to TestNG testing framework
- Added support for writing multi-series OME-TIFF files

- Added support for writing BigTIFF files

3.1.21 2008 Feb 12

- Fixed bugs in QuickTime, SimplePCI and DICOM
- Fixed a bug in channel splitting logic

3.1.22 2008 Feb 8

- Many critical bugfixes in format readers and ImageJ plugins
- **Newly reborn Data Browser for 5D image visualization**
 - some combinations of import options do not work yet

3.1.23 2008 Feb 1

- Fixed bugs in Zeiss LSM, Metamorph STK, FV1000 OIB/OIF, Leica LEI, TIFF, Zeiss ZVI, ICS, Prairie, Openlab LIFF, Gatan, DICOM, QuickTime
- Fixed bug in OME-TIFF writer
- Major changes to MetadataStore API
- Added support for JPEG-compressed TIFF files
- **Added basic support for Aperio SVS files**
 - JPEG2000 compression is still not supported
- Improved “crop on import” functionality
- Improvements to bfconvert and bfview
- Improved OME-XML population for several formats
- Added support for JPEG2000-compressed DICOM files
- EXIF data is now parsed from TIFF files

3.1.24 2007 Dec 28

- Fixed bugs in Leica LEI, Leica TCS, SDT, Leica LIF, Visitech, DICOM, Imaris 5.5 (HDF), and Slidebook readers
- Better parsing of comments in TIFF files exported from ImageJ
- Fixed problem with exporting 48-bit RGB data
- Added logic to read multi-series datasets spread across multiple files
- Improved channel merging in ImageJ - requires ImageJ 1.39I
- Support for hyperstacks and virtual stacks in ImageJ - requires ImageJ 1.39I
- Added API for reading directly from a byte array or InputStream
- Metadata key/value pairs are now stored in ImageJ’s “Info” property
- Improved OMERO download plugin - it is now much faster

- Added “open all series” option to ImageJ importer
- ND2 reader based on Nikon’s SDK now uses our own native bindings
- Fixed metadata saving bug in ImageJ
- Added sub-channel labels to ImageJ windows
- Major updates to 4D Data Browser
- Minor updates to automated testing suite

3.1.25 2007 Dec 1

- Updated OME plugin for ImageJ to support downloading from OMERO
- Fixed bug with floating point TIFFs
- Fixed bugs in Visitech, Zeiss LSM, Imaris 5.5 (HDF)
- Added alternate ND2 reader that uses Nikon’s native libraries
- Fixed calibration and series name settings in importer
- Added basic support for InCell 1000 datasets

3.1.26 2007 Nov 21

- Fixed bugs in ND2, Leica LIF, DICOM, Zeiss ZVI, Zeiss LSM, FV1000 OIB, FV1000 OIF, BMP, Evotec Flex, BioRad PIC, Slidebook, TIFF
- Added new ImageJ plugins to slice stacks and do “smart” RGB merging
- **Added “windowless” importer plugin**
 - uses import parameters from IJ_Prefs.txt, without prompting the user
- Improved stack slicing and coloring logic in importer plugin
- **Added support for DICOM files compressed with lossless JPEG**
 - requires native libraries
- Fixed bugs with signed pixel data
- Added support for Imaris 5.5 (HDF) files
- Added 4 channel merging to importer plugin
- Added API methods for reading subimages
- Major updates to the 4D Data Browser

3.1.27 2007 Oct 17

- Critical OME-TIFF bugfixes
- Fixed bugs in Leica LIF, Zeiss ZVI, TIFF, DICOM, and AVI readers
- Added support for JPEG-compressed ZVI images
- Added support for BigTIFF
- Added importer plugin option to open each plane in a new window

- Added MS Video 1 codec for AVI

3.1.28 2007 Oct 1

- Added support for compressed DICOM images
- Added support for uncompressed LIM files
- Added support for Adobe Photoshop PSD files
- Fixed bugs in DICOM, OME-TIFF, Leica LIF, Zeiss ZVI, Visitech, PerkinElmer and Metamorph
- Improved indexed color support
- Addressed several efficiency issues
- Fixed how multiple series are handled in 4D data browser
- Added option to reorder stacks in importer plugin
- Added option to turn off autoscaling in importer plugin
- Additional metadata convenience methods

3.1.29 2007 Sept 11

- Major improvements to ND2 support; lossless compression now supported
- Support for indexed color images
- Added support for Simple-PCI .cxd files
- Command-line OME-XML validation
- Bugfixes in most readers, especially Zeiss ZVI, Metamorph, PerkinElmer and Leica LEI
- Initial version of Bio-Formats macro extensions for ImageJ

3.1.30 2007 Aug 1

- Added support for latest version of Leica LIF
- Fixed several issues with Leica LIF, Zeiss ZVI
- Better metadata mapping for Zeiss ZVI
- Added OME-TIFF writer
- Added MetadataRetrieve API for retrieving data from a MetadataStore
- Miscellaneous bugfixes

3.1.31 2007 July 16

- Fixed several issues with ImageJ plugins
- Better support for Improvion and Leica TCS TIFF files
- Minor improvements to Leica LIF, ICS, QuickTime and Zeiss ZVI readers
- Added searchable metadata window to ImageJ importer

3.1.32 2007 July 2

- Fixed issues with ND2, Openlab LIFF and Slidebook
- Added support for Visitech XYS
- Added composite stack support to ImageJ importer

3.1.33 2007 June 18

- Fixed issues with ICS, ND2, MicroManager, Leica LEI, and FV1000 OIF
- Added support for large (> 2 GB) ND2 files
- Added support for new version of ND2
- Minor enhancements to ImageJ importer
- Implemented more flexible logging
- Updated automated testing framework to use TestNG
- Added package for caching images produced by Bio-Formats

3.1.34 2007 June 6

- Fixed OME upload/download bugs
- Fixed issues with ND2, EPS, Leica LIF, and OIF
- Added support for Khoros XV
- Minor improvements to the importer

3.1.35 2007 May 24

- Better Slidebook support
- Added support for Quicktime RPZA
- Better Leica LIF metadata parsing
- Added support for BioRad PIC companion files
- Added support for bzip2-compressed files
- Improved ImageJ plugins
- Native support for FITS and PGM

3.1.36 2007 May 2

- Added support for NRRD
- Added support for Evotec Flex (requires LuraWave Java SDK with license code)
- Added support for gzip-compressed files
- Added support for compressed QuickTime headers
- Fixed QuickTime Motion JPEG-B support

- Fixed some memory issues (repeated small array allocations)
- Fixed issues reading large (> 2 GB) files
- Removed “ignore color table” logic, and replaced with Leica-specific solution
- Added status event reporting to readers
- Added API to toggle metadata collection
- Support for multiple dimensions rasterized into channels
- Deprecated reader and writer methods that accept the ‘id’ parameter
- Deprecated IFormatWriter.save in favor of saveImage and saveBytes
- Moved dimension swapping and min/max calculation logic to delegates
- Separate GUI logic into isolated loci.formats.gui package
- Miscellaneous bugfixes and tweaks in most readers and writers
- Many other bugfixes and improvements

3.1.37 2007 Mar 16

- Fixed calibration bugs in importer plugin
- Enhanced metadata support for additional formats
- Fixed LSM bug

3.1.38 2007 Mar 7

- Added support for Micro-Manager file format
- Fixed several bugs – Leica LIF, Leica LEI, ICS, ND2, and others
- Enhanced metadata support for several formats
- Load series preview thumbnails in the background
- Better implementation of openBytes(String, int, byte[]) for most readers
- Expanded unit testing framework

3.1.39 2007 Feb 28

- Better series preview thumbnails
- Fixed bugs with multi-channel Leica LEI
- Fixed bugs with “ignore color tables” option in ImageJ plugin

3.1.40 2007 Feb 26

- Many bugfixes: Leica LEI, ICS, FV1000 OIB, OME-XML and others
- Better metadata parsing for BioRad PIC files
- Enhanced API for calculating channel minimum and maximum values

- Expanded MetadataStore API to include more semantic types
- Added thumbnails to series chooser in ImageJ plugin
- Fixed plugins that upload and download from an OME server

3.1.41 2007 Feb 7

- Added plugin for downloading images from OME server
- Improved HTTP import functionality
- Added metadata filtering – unreadable metadata is no longer shown
- Better metadata table for multi-series datasets
- Added support for calibration information in Gatan DM3
- Eliminated need to install JAI Image I/O Tools to read ND2 files
- Fixed ZVI bugs: metadata truncation, and other problems
- Fixed bugs in Leica LIF: incorrect calibration, first series labeling
- Fixed memory bug in Zeiss LSM
- Many bugfixes: PerkinElmer, Deltavision, Leica LEI, LSM, ND2, and others
- IFormatReader.close(boolean) method to close files temporarily
- Replaced Compression utility class with extensible Compressor interface
- Improved testing framework to use .bioformats configuration files

3.1.42 2007 Jan 5

- Added support for Prairie TIFF
- Fixed bugs in Zeiss LSM, OIB, OIF, and ND2
- Improved API for writing files
- Added feature to read files over HTTP
- Fixed bugs in automated testing framework
- Miscellaneous bugfixes

3.1.43 2006 Dec 22

- Expanded ImageJ plugin to optionally use Image5D or View5D
- Improved support for ND2 and JPEG-2000 files
- Added automated testing framework
- Fixed bugs in Zeiss ZVI reader
- Miscellaneous bugfixes

3.1.44 2006 Nov 30

- Added support for ND2/JPEG-2000
- Added support for MRC
- Added support for MNG
- Improved support for floating-point images
- Fixed problem with 2-channel Leica LIF data
- Minor tweaks and bugfixes in many readers
- Improved file stitching logic
- Allow ImageJ plugin to be called from a macro

3.1.45 2006 Nov 2

- Bugfixes and improvements for Leica LIF, Zeiss LSM, OIF and OIB
- Colorize channels when they are split into separate windows
- Fixed a bug with 4-channel datasets

3.1.46 2006 Oct 31

- Added support for Imaris 5 files
- Added support for RGB ICS images

3.1.47 2006 Oct 30

- Added support for tiled TIFFs
- Fixed bugs in ICS reader
- Fixed importer plugin deadlock on some systems

3.1.48 2006 Oct 27

- Multi-series support for Slidebook
- Added support for Alicona AL3D
- Fixed plane ordering issue with FV1000 OIB
- Enhanced dimension detection in FV1000 OIF
- Added preliminary support for reading NEF images
- Added option to ignore color tables
- Fixed ImageJ GUI problems
- Fixed spatial calibration problem in ImageJ
- Fixed some lingering bugs in Zeiss ZVI support
- Fixed bugs in OME-XML reader

- Tweaked ICS floating-point logic
- Fixed memory leaks in all readers
- Better file stitching logic

3.1.49 2006 Oct 6

- Support for 3i SlideBook format (single series only for now)
- Support for 16-bit RGB palette TIFF
- Fixed bug preventing import of certain Metamorph STK files
- Fixed some bugs in PerkinElmer UltraView support
- Fixed some bugs in Leica LEI support
- Fixed a bug in Zeiss ZVI support
- Fixed bugs in Zeiss LSM support
- Fixed a bug causing slow identification of Leica datasets
- Fixed bugs in the channel merging logic
- Fixed memory leak for OIB format
- Better scaling of 48-bit RGB data to 24-bit RGB
- Fixed duplicate channels bug in “open each channel in a separate window”
- Fixed a bug preventing PICT import into ImageJ
- Better integration with HandleExtraFileTypes
- Better virtual stack support in Data Browser plugin
- Fixed bug in native QuickTime random access
- Keep aspect ratio for computed thumbnails
- Much faster file stitching logic

3.1.50 2006 Sep 27

- PerkinElmer: support for PE UltraView
- Openlab LIFF: support for Openlab v5
- Leica LEI: bugfixes, and support for multiple series
- ZVI, OIB, IPW: more robust handling of these formats (eliminated custom OLE parsing logic in favor of Apache POI)
- OIB: better metadata parsing (but maybe still not perfect?)
- LSM: fixed a bug preventing import of certain LSMs
- Metamorph STK: fixed a bug resulting in duplicate image planes
- User interface: use of system look & feel for file chooser dialog when available
- Better notification when JAR libraries are missing

3.1.51 2006 Sep 6

- Leica LIF: multiple distinct image series within a single file
- Zeiss ZVI: fixes and improvements contributed by Michel Boudinot
- Zeiss LSM: fixed bugs preventing the import of certain LSM files
- TIFF: fixed a bug preventing import of TIFFs created with Bio-Rad software

3.1.52 2006 Mar 31

- First release

Part II

User Information

USING BIO-FORMATS WITH IMAGEJ AND FIJI

The following sections explain the features of Bio-Formats and how to use it within *ImageJ* and *Fiji*:

4.1 ImageJ

*ImageJ*¹ is an image processing and analysis application written in Java, widely used in the life sciences fields, with an extensible plugin infrastructure. You can use Bio-Formats as a plugin for ImageJ to read and write images in the formats it supports.

4.1.1 Installation

Download `loci_tools.jar`² and drop it into your **ImageJ/plugins** folder. Next time you run ImageJ, a new LOCI submenu with several plugins will appear in the Plugins menu, including the Bio-Formats Importer and Bio-Formats Exporter.

4.1.2 Usage

The Bio-Formats Importer plugin can display image stacks in several ways:

- In a standard ImageJ window (including as a hyperstack)
- Using the **LOCI Data Browser**³ plugin (included)
- With Joachim Walter's **Image5D**⁴ plugin (if installed)
- With Rainer Heintzmann's **View5D**⁵ plugin (if installed)

ImageJ v1.37 and later automatically (via `HandleExtraFileTypes`) calls the Bio-Formats logic, if installed, as needed when a file is opened within ImageJ—e.g., when using File/Open instead of explicitly choosing “Bio-Formats Importer” from the Plugins/LOCI menu.

For a more detailed description of each plugin, see the **Bio-Formats page**⁶ of the Fiji wiki.

¹<http://rsb.info.nih.gov/ij/>

²<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

³<http://loci.wisc.edu/software/data-browser>

⁴<http://rsb.info.nih.gov/ij/plugins/image5d.html>

⁵<http://www.nanoimaging.de/View5D>

⁶<http://fiji.sc/wiki/index.php/Bio-Formats>

4.1.3 Upgrading

To upgrade, just overwrite the old `loci_tools.jar` with the [latest one](#)⁷. Step-by-step upgrade instructions for Windows are available [here](#).

You may want to download the latest version of ImageJ first, to take advantage of new features and bug-fixes.

As of the 4.0.0 release, you can also upgrade the Bio-Formats plugin directly from ImageJ. Select “Plugins>LOCI>Update LOCI Plugins” from the ImageJ menu, then select which release you would like to use. You will then need to restart ImageJ to complete the upgrade process.

4.1.4 Macros and plugins

Bio-Formats is fully scriptable in a macro, and callable from a plugin. To use in a macro, use the Macro Recorder to record a call to the Bio-Formats Importer with the desired options. You can also perform more targeted metadata queries using the Bio-Formats macro extensions.

Here are some example ImageJ macros and plugins that use Bio-Formats to get you started:

[basicMetadata.txt](#)⁸ - A macro that uses the Bio-Formats macro extensions to print the chosen file’s basic dimensional parameters to the Log.

[planeTimings.txt](#)⁹ - A macro that uses the Bio-Formats macro extensions to print the chosen file’s plane timings to the Log.

[recursiveTiffConvert.txt](#)¹⁰ - A macro for recursively converting files to TIFF using Bio-Formats.

[bfOpenAsHyperstack.txt](#)¹¹ - This macro from Wayne Rasband opens a file as a hyperstack using only the Bio-Formats macro extensions (without calling the Bio-Formats Importer plugin).

[zvi2HyperStack.txt](#)¹² - This macro from Sebastien Huart reads in a ZVI file using Bio-Formats, synthesizes the LUT using emission wavelength metadata, and displays the result as a hyperstack.

[dvSplitTimePoints.txt](#)¹³ - This macro from Sebastien Huart splits timepoints/channels on all DV files in a folder.

[batchTiffConvert.txt](#)¹⁴ - This macro converts all files in a directory to TIFF using the Bio-Formats macro extensions.

[Read_Image](#)¹⁵ - A simple plugin that demonstrates how to use Bio-Formats to read files into ImageJ.

[Mass_Importer](#)¹⁶ - A simple plugin that demonstrates how to open all image files in a directory using Bio-Formats, grouping files with similar names to avoiding opening the same dataset more than once.

4.2 Fiji

Fiji¹⁷ is an image processing package. It can be described as a distribution of *ImageJ* together with Java, Java 3D and a lot of plugins organized into a [coherent menu structure](#)¹⁸. Fiji compares to ImageJ as Ubuntu compares to Linux.

⁷<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/basicMetadata.txt>

⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/planeTimings.txt>

¹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/recursiveTiffConvert.txt>

¹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/bfOpenAsHyperstack.txt>

¹²<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/zvi2HyperStack.txt>

¹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/dvSplitTimePoints.txt>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/macros/batchTiffConvert.txt>

¹⁵https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/Read_Image.java

¹⁶https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/Mass_Importer.java

¹⁷<http://fiji.sc/>

¹⁸http://fiji.sc/wiki/index.php/Plugins_Menu

Fiji works with Bio-Formats out of the box, because it comes bundled with the *Bio-Formats ImageJ plugins*.

4.2.1 Upgrading

Upgrading Bio-Formats within Fiji is as simple as invoking the “Update Fiji” command from the Help menu. By default, Fiji even automatically checks for updates every time it is launched, so you will always be notified when new versions of Bio-Formats (or any other bundled plugin) are available.

Updates in the Fiji updater are not always Bio-Formats’ most recent trunk build or stable release; they are versions that are known to remain compatible with other plugins that depend upon Bio-Formats. You should use the Fiji updater if you use other plugins that might use Bio-Formats. However, if you encounter a bug within Bio-Formats, use Bio-Formats’ own updater to see if the latest trunk build fixes it.

4.3 Bio-Formats features in ImageJ and Fiji

When you select Bio-Formats under the Plugin menu, you will see the following features:

- The **Bio-Formats Importer** is a plugin for *loading images* into ImageJ or Fiji. It can read over 100 proprietary life sciences formats and standardizes their acquisition metadata into the common *OME data model*. It will also extract and set basic metadata values such as *spatial calibration*¹⁹ if they are available in the file.
- The **Bio-Formats Exporter** is a plugin for exporting data to disk. It can save to the open *OME-TIFF*²⁰ file format, as well as several movie formats (e.g. QuickTime, AVI) and graphics formats (e.g. PNG, JPEG).
- The **Bio-Formats Remote Importer** is a plugin for importing data from a remote URL. It is likely to be less robust than working with files on disk, so we recommend downloading your data to disk and using the regular Bio-Formats Importer whenever possible.
- The **Bio-Formats Windowless Importer** is a version of the Bio-Formats Importer plugin that runs with the last used settings to avoid any additional dialogs beyond the file chooser. If you always use the same import settings, you may wish to use the windowless importer to save time ([Learn more here](#)).
- The **Bio-Formats Macro Extensions** plugin prints out the set of commands that can be used to create macro extensions. The commands and the instructions for using them are printed to the ImageJ log window.
- The **Stack Slicer** plugin is a helper plugin used by the Bio-Formats Importer. It can also be used to split a stack across channels, focal planes or time points.
- The **LOCI Plugins Configuration** dialog is a useful way to configure the behavior of each file format. The Formats tab lists supported file formats and toggles each format on or off, which is useful if your file is detected as the wrong format. It also toggles whether each format bypasses the importer options dialog through the “Windowless” checkbox. You can also configure any specific option for each format. The Libraries tab provides a list of available helper libraries used by Bio-Formats.
- The **LOCI Plugins Shortcut Window** opens a small window with a quick-launch button for each LOCI plugin. Dragging and dropping files onto the shortcut window opens them quickly using the **Bio-Formats Importer** plugin.
- The **Update LOCI Plugins** command will check for LOCI Plugins updates. We recommend you update to the newest Trunk build as soon as you think you may have *discovered a bug*.

¹⁹<http://fiji.sc/wiki/index.php/SpatialCalibration>

²⁰<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

4.4 Installing Bio-Formats in ImageJ

(Since FIJI is essentially ImageJ with plugins like Bio-Formats already built in, people who install Fiji can skip this section.)

Once you [download](#)²¹ and install ImageJ, you can install the Bio-Formats plugin by going to the Bio-Formats [download page](#)²². For most end-users, we recommend downloading the **loci_tools.jar** complete bundle. However, you must decide which version of it you want to install. There are three primary versions of Bio-Formats: the trunk build, the daily builds, and the Stable Release. Which version you should download depends on your needs:

- The **trunk build** is automatically updated every time any change is made to the source code on the main “trunk” branch in Git, LOCI’s software version control system. This build has the latest bug fixes, but it is not well tested and may have also introduced new bugs.
- The **daily build** is a compilation of that day’s changes that occurs daily around midnight. It is not any better tested than the trunk build; but if you download it multiple times in a day, you can be sure you’ll get the same version each time.
- The **stable release** is thoroughly tested and has documentation to match. The list of supported formats on the Bio-Formats site corresponds to the most recent stable release. We do not add new formats to the list until a release containing support for that format has been completed. The stable release is less likely to contain bugs.

The stable release is also more useful to programmers because they can link their software to a known, fixed version of Bio-Formats. Bio-Formats’ behavior won’t be changing “out from under them” as they continue developing their own programs.

We often **recommend that most people simply use the trunk build** for two reasons. First, trunk may contain bug-fixes or new features you want anyway; secondly, you will have to reproduce any bug you encounter in Bio-Formats against the latest trunk build before submitting a bug report. Rather than using the stable release until you find a bug that requires you to upgrade and reproduce it, why not just use the trunk build to begin with?

Once you decide which version you need, go to the Bio-Formats [download page](#)²³ and save the appropriate **loci_tools.jar** to the Plugins directory within ImageJ.

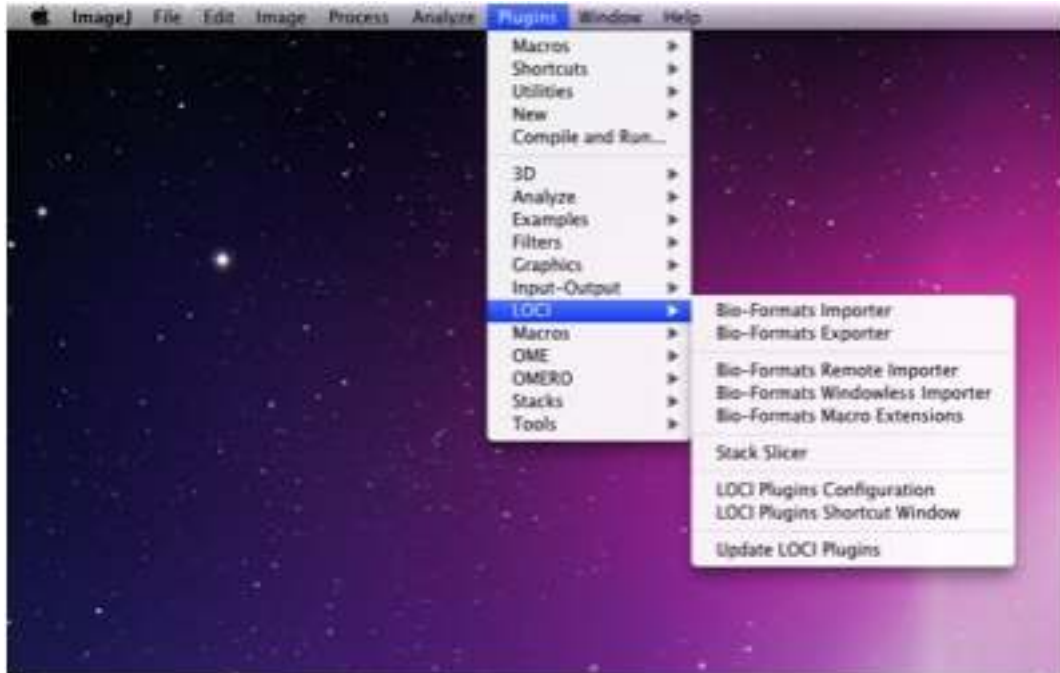
You may have to quit and restart ImageJ. Once you restart it, you will find Bio-Formats in the LOCI option under the Plugins menu:

²¹<http://rsbweb.nih.gov/ij/download.html>

²²<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

²³<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

Figure 4.1: Plugin Directory for ImageJ: Where in ImageJ's file structure you should place the file once you downloaded it.



You are now ready to start using Bio-Formats.

4.5 Using Bio-Formats to load images into ImageJ

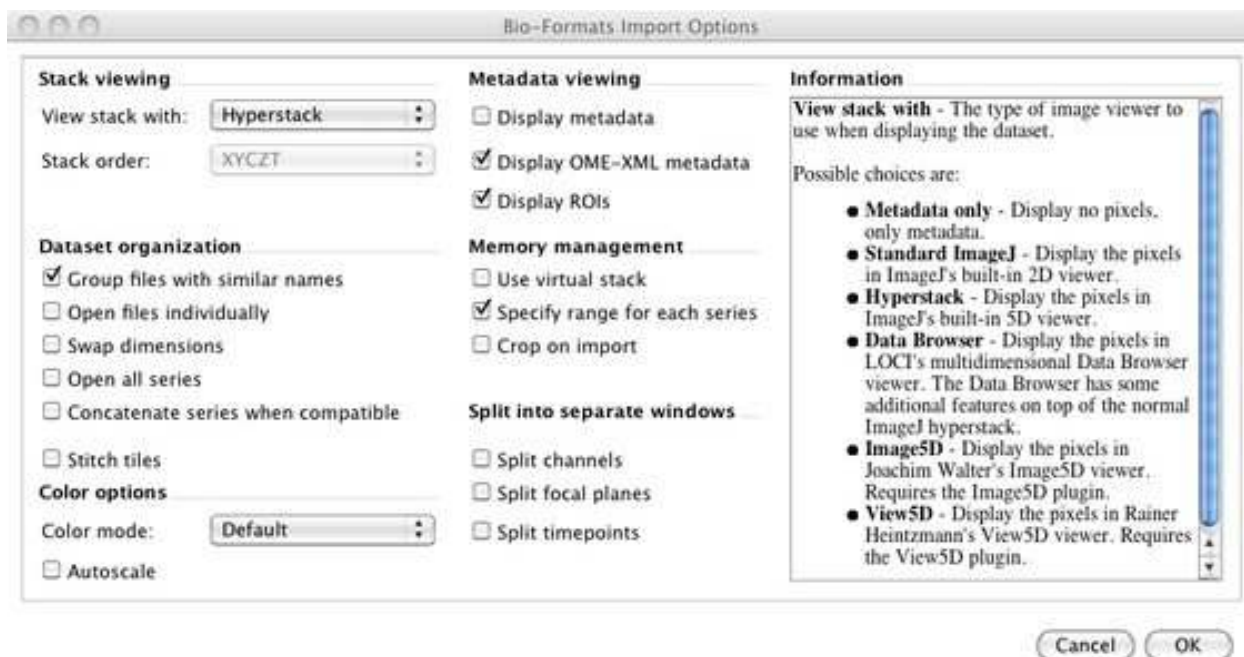
This section will explain how to use Bio-Formats to import files into ImageJ and how to use the settings on the Bio-Formats Import Options screen.

4.5.1 Opening files

There are three ways you can open a file using Bio-Formats:

1. Select the Bio-Formats Importer under the LOCI plugins menu.
2. Drag and drop it onto the LOCI Plugins Shortcut window.
3. Use the Open command in the File menu.

Unless you used the LOCI Plugins Configuration dialog to open the file type windowlessly, you know you used Bio-Formats to open a file when you see a screen like this:



If you used the File > Open command and did not see the Bio-Formats Import Options screen, ImageJ/Fiji probably used another plugin instead of Bio-Formats to open the file. If this happens and you want to open a file using Bio-Formats, use one of the other two methods instead.

4.5.2 Opening files windowlessly

When you open a file with Bio-Formats, the Import Options Screen automatically recalls the settings you last used to open a file with that specific format (e.g. JPG, TIF, LSM, etc.). If you always choose the same options whenever you open files in a specific file format, you can save yourself time by bypassing the Bio-Formats Import Options screen. You can accomplish this two ways:

1. You can select the **Bio-Formats Windowless Importer**, located in the LOCI menu under ImageJ's Plugin menu. When you select this option, Bio-Formats will import the file using the same settings you used the last time you imported a file with the same format.
2. If you invariably use the same settings when you open files in a specific format, you can always bypass the Import Options Screen by changing the settings in the **LOCI Plugins Configuration** option, which is also located in the LOCI menu under ImageJ's Plugin menu.

Once you select this option, select the file format you are interested in from the list on the left side of the screen. Check both the **Enabled** and **Windowless** boxes. Once you do this, whenever you open a file using the **Bio-Formats Windowless Importer**, the **Bio-Formats Importer**, or the drag-and-drop method described in the previous section, the file will always open the same way using the last setting used.

Please note that if you want to change any of the import settings once you enable this windowless option, you will have to go back to the **LOCI Plugins Configuration** screen, unselect the windowless option, open a file using the regular **Bio-Formats Importer**, select your settings, and re-select the windowless option.

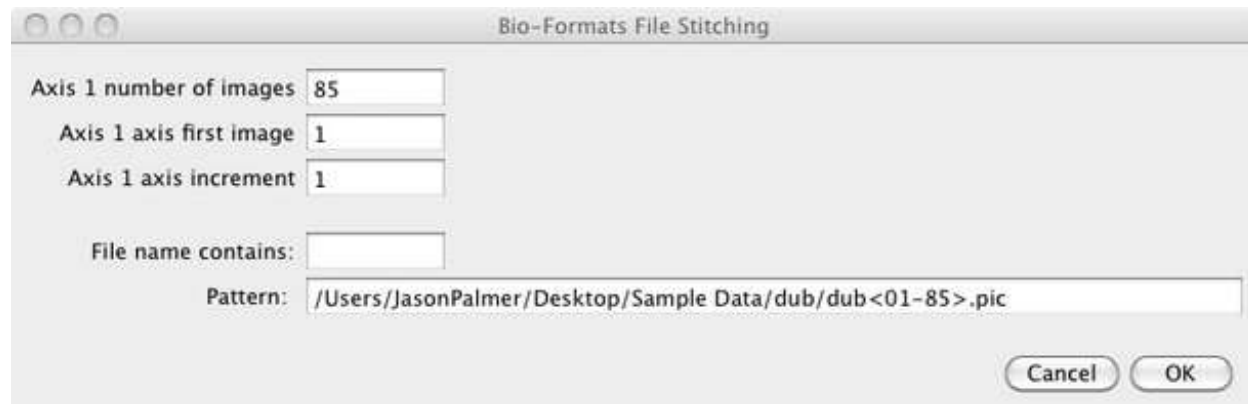
4.5.3 Group files with similar names

One of the most important features of Bio-Formats is to combine multiple files from a data set into one coherent, multi-dimensional image.

To demonstrate how to use the **Group files with similar names** feature, you can use the [dub](http://www.loci.wisc.edu/sample-data/dub)²⁴ data set available under LOCI's [Sample Data](http://www.loci.wisc.edu/sample-data)²⁵ page. You will notice that it is a large dataset: each of the 85 files shows the specimen at 33 optical sections along the z-plane at a specific time.

If you open just one file in ImageJ/Fiji using the **Bio-Formats Importer**, you will get an image incorporating three dimensions (x, y, z). However, if you select **Group files with similar names** from the Bio-Formats Import Options screen, you will be able to create a 4-D image (x, y, z, and t) incorporating the 85 files.

After clicking OK, you will see a screen like this:



This screen allows you to select which files within the 85-file cluster to use to create that 4-D image. Some information will be pre-populated in the fields. Unless you want to change the settings in that field, there is no need to change or delete it. If you click OK at this point, you will load all 85 files.

However, you can specify which files you want to open by adjusting the “axis information”, the file “name contains,” or the “pattern” sections. Even though there are three options, you only need to need to make changes to one of them. Since Bio-Format’s precedence for processing data is from top to bottom, only the uppermost section that you made changes to will be used. If you change multiple boxes, any information you enter into lower boxes will be ignored.

To return to the example involving the dub data set, suppose you want to open the first image and only every fifth image afterwards (i.e. dub01, dub06, dub11 . . . dub81). This would give you 17 images. There are different ways to accomplish this:

You can use the **Axis Settings** only when your files are numbered in sequential order and you want to open only a subset of the files that have similar names. Since the dub data set is numbered sequentially, you can use this feature.

Axis 1 number of images refers to the total number of images you want to open. Since you want to view 17 images, enter 17. **Axis 1 axis first image** specifies which image in the set you want to be the first. Since you want to start with dub01, enter 1 in that box. You also want to view only every fifth image, so enter 5 in the **Axis 1 axis increment** box.

The **File name contains** box should be used if all of the files that you want to open have common text. This is especially useful when the files are not numbered. For example, if you have “Image_Red.tif”, “Image_Green.tif”, and “Image_Blue.tif” you could enter “Image_” in the box to group them all.

To continue the example involving the dub data set, you cannot use the **file name contains** box to open every fifth image. However, if you only wanted to open dub10 through dub19, you could enter “dub1” in the **file name contains** box.

The **pattern** box can be used to do either of the options listed above or much more. This box can accept a single file name like “dub01.pic.” It can also contain a pattern that use “<” and “>” to specify what numbers or text the file names contain.

There are three basic forms to the “< >” blocks:

²⁴<http://www.loci.wisc.edu/sample-data/dub>

²⁵<http://www.loci.wisc.edu/software/sample-data>

- Text enumeration - “Image_<Red,Green,Blue>.tif” is the pattern for Image_Red.tif, Image_Green.tif, Image_Blue.tif. (Note that the order you in which you enter the file names is the order in which they will be loaded.)
- Number range - “dub<1-85>.pic” is the pattern for “dub1.pic”, “dub2.pic”, “dub3.pic” . . . “dub85.pic”.
- Number range with step - “dub<1-85:5>.pic” is the pattern for “dub1.pic”, “dub6.pic”, “dub11.pic”, “dub11.pic” . . . “dub85.pic”.

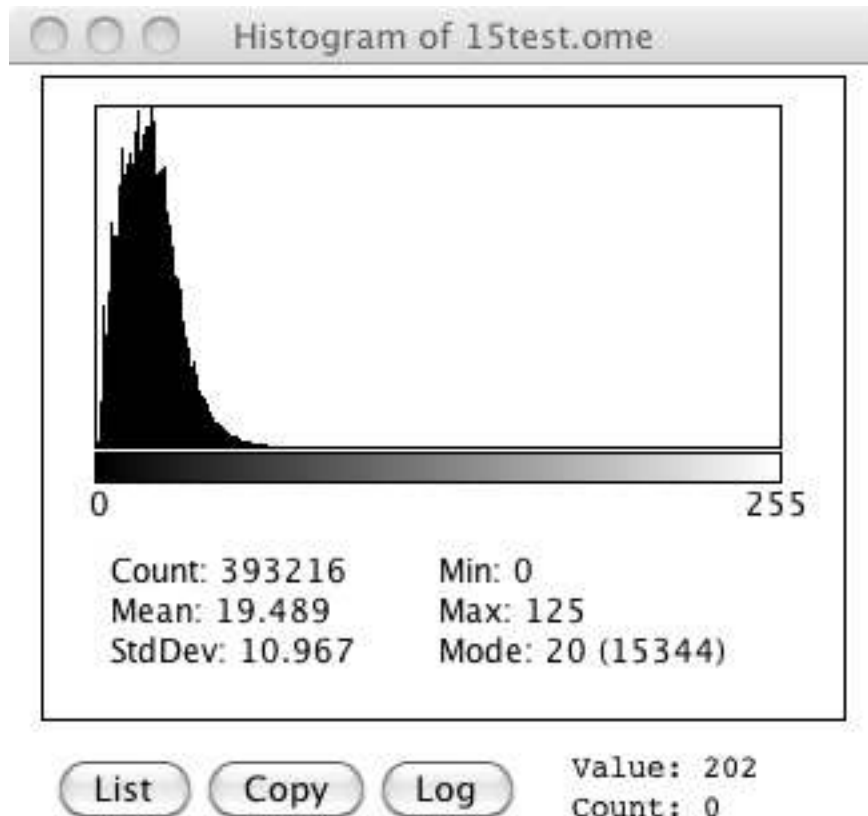
It can also accept a [Java regular expression](#)²⁶.

4.5.4 Autoscale

Autoscale helps increase the brightness and contrast of an image by adjusting the range of light intensity within an image to match the range of possible display values. Note that Autoscale does not change your data. It just changes how it is displayed.

Each pixel in an image has a numerical value ascribed to it to describe its intensity. The bit depth—the number of possible values—depends on the number of bits used in the image. Eight bits, for example, gives 256 values to express intensity where 0 is completely black, 255 is completely white, and 1 through 254 display increasingly lighter shades of grey.

ImageJ can collect the intensity information about each pixel from an image or stack and create a histogram. (You can see it by selecting Histogram under the Analyze menu.) Here is the histogram of a one particular image:

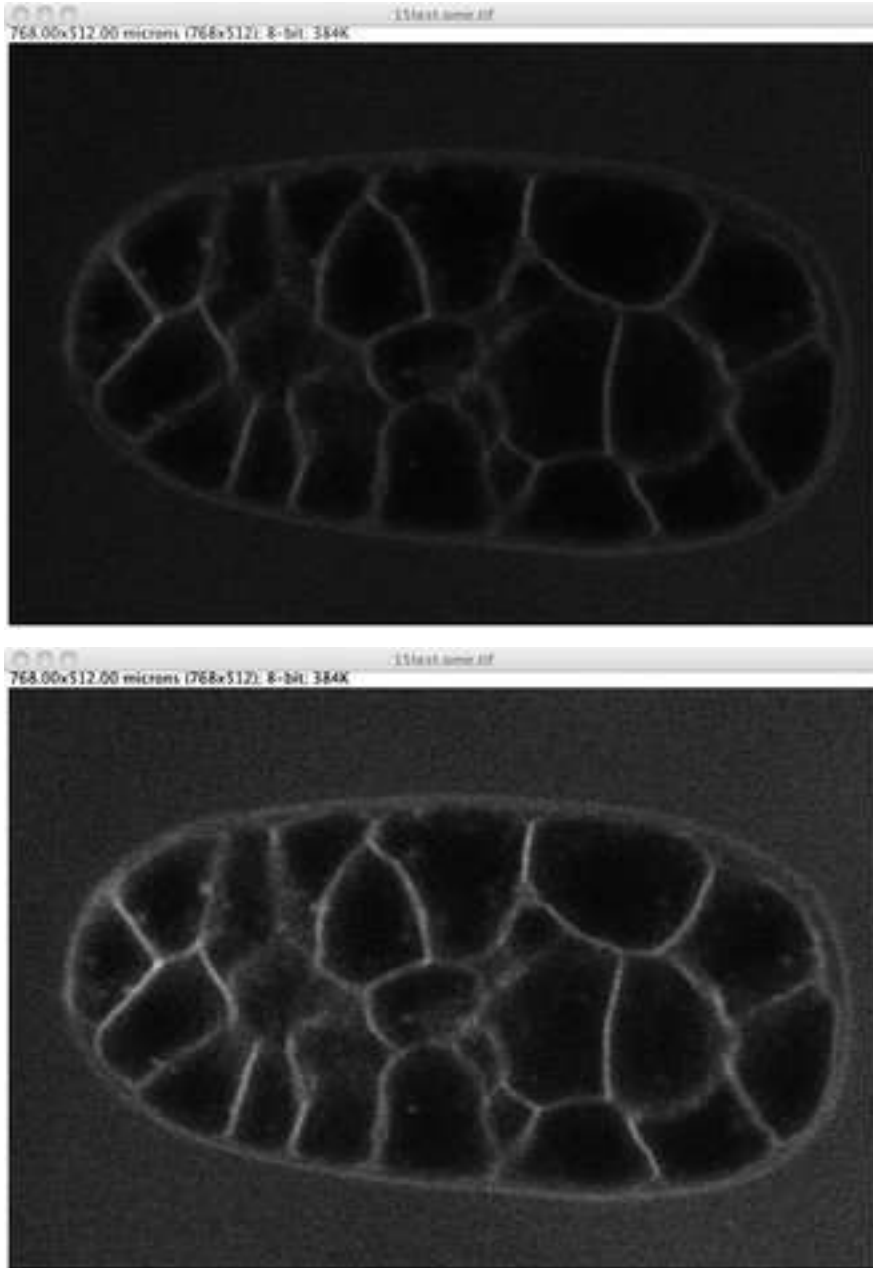


Notice that the histogram heavily skews right. Even though there are 256 possible values, only 0 through 125 are being used.

²⁶<http://download.oracle.com/javase/1.5.0/docs/api/java/util/regex/Pattern.html>

Autoscale adjusts the image so the smallest and largest number in that image or stack's histogram become the darkest and brightest settings. For this image, pixels with the intensity of 125 will be displayed in pure white. The other values will be adjusted too to help show contrast between values that were too insignificant to see before.

Here is one image Bio-Formats imported with and without using Autoscale:



Autoscale readjusts the image based on the highest value in the entire data set. This means if the highest value in your dataset is close to maximum display value, Autoscale's adjusting may be undetectable to the eye.

ImageJ/Fiji also has its own tools for adjusting the image, which are available by selecting Brightness/Contrast, which is under the Adjust option in the Image menu.

4.6 Managing memory in ImageJ/Fiji using Bio-Formats

When dealing with a large stack of images, you may receive a warning like this:



This means the allotted memory is less than what Bio-Formats needs to load all the images. If you have a very large data set, you may have to:

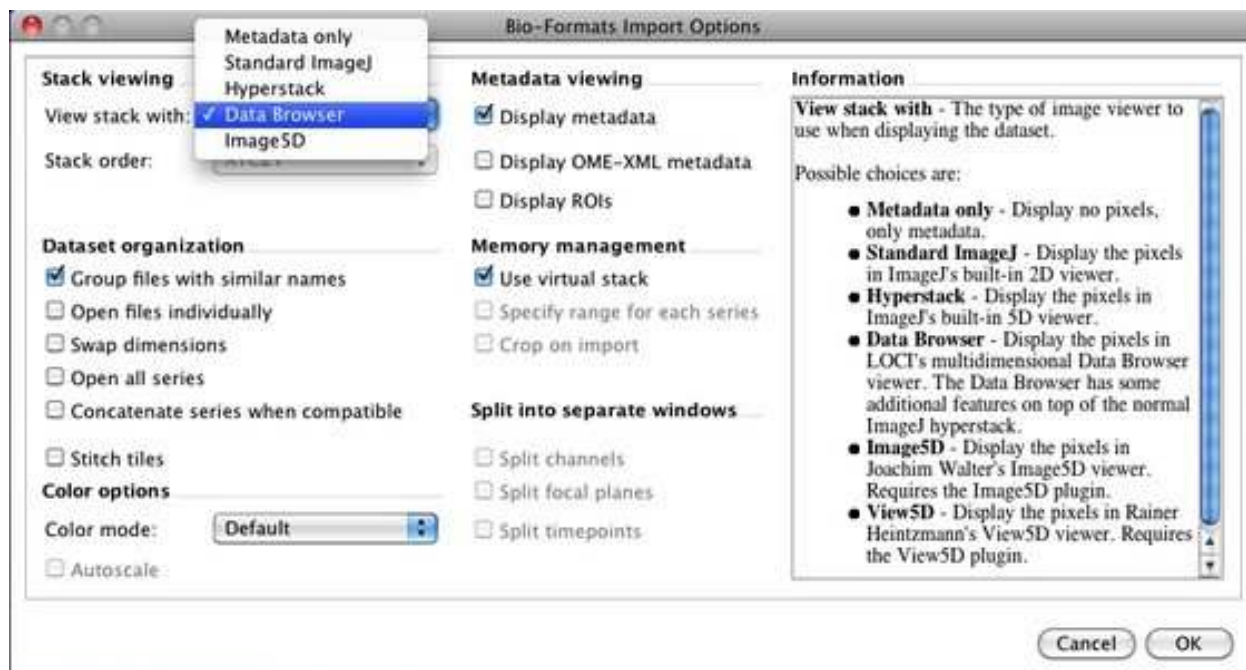
- View your stack with Data Browser
- Crop the view area
- Open only a subset of images
- Use Virtual Stack
- Increase ImageJ/Fiji's memory.

If your files contain JPEG or JPEG-2000 images, you may see this memory warning even if your file size is smaller than the amount of allocated memory. This is because compressed images like JPEG need to be decompressed into memory before being displayed and require more memory than their file size suggests. If you are having this issue, try utilizing one of the memory management tools below.

4.6.1 View your stack with Data Browser

Data Browser is another part of Bio-Formats that enables users to view large 3, 4, or 5-D datasets by caching a subset of all the images available. This enables users to view a stack that is bigger than the computer's memory.

You can select Data Browser as an option for **View stack with**, the leftmost, uppermost option in the **Bio-Formats Import Options** screen.



Note that when you use Data Browser, other features like cropping and specifying range are not available. You can, however, adjust the size of the image cache in the Data Browser after you open the files. You can read more about it on LOCI's Data Browser page²⁷.

4.6.2 Cropping the view area

Crop on Import is useful if your images are very large and you are only interested in one specific section of the stack you are importing. If you select this feature, you will see a screen where you can enter the height and width (in pixels) of the part of image you want to see. Note that these measurements are from the top left corner of the image.

4.6.3 Opening only a subset of images

The **Specify Range for Each Series** option is useful for viewing a portion of a data set where all the plane images are encapsulated into one file (e.g. the Zeiss LSM format). If your file has a large quantity of images, you can specify which channels, Z-planes, and times you want to load.

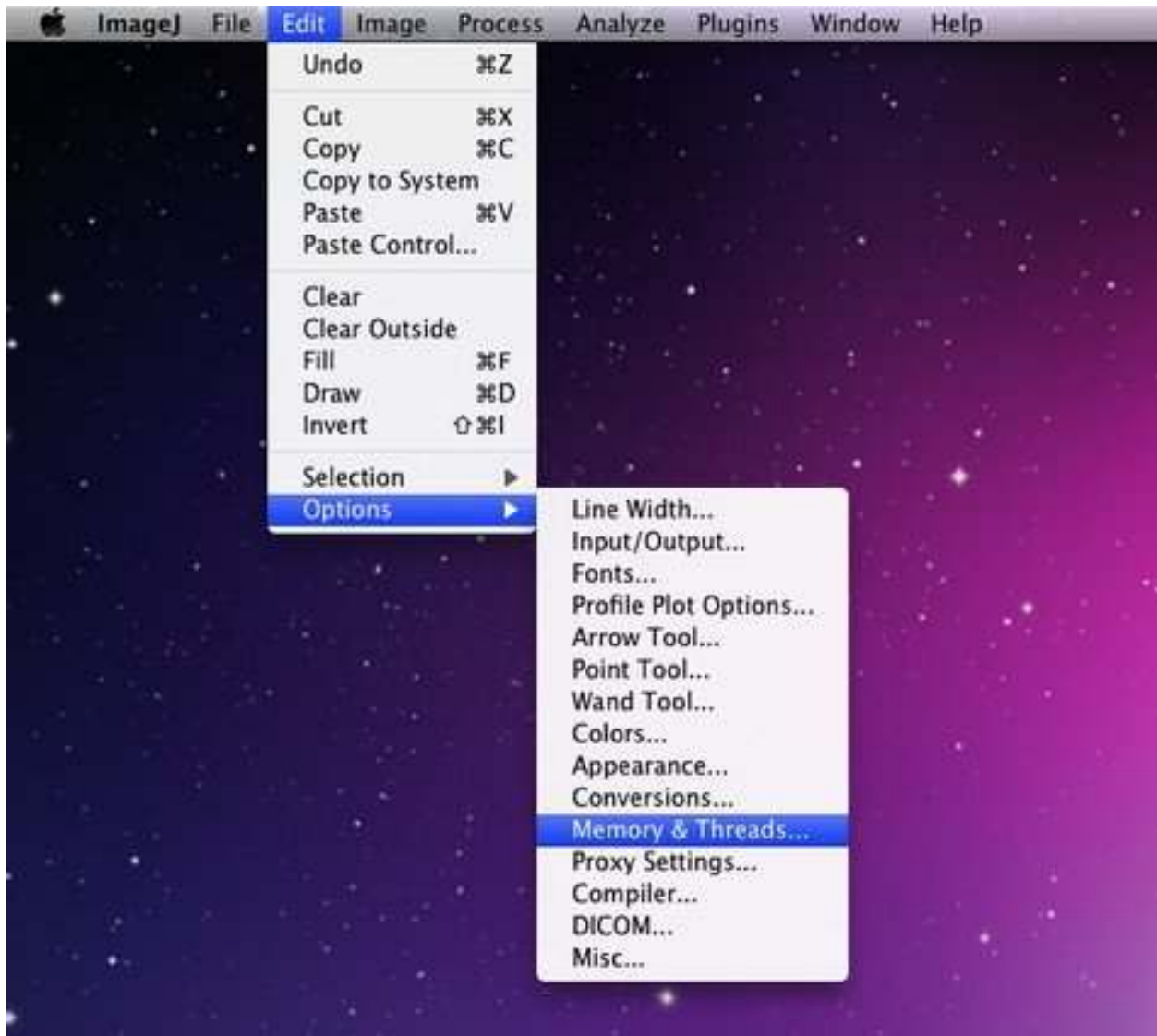
4.6.4 Use Virtual Stack

Virtual Stack conserves memory by not loading specific images until necessary. Note that unlike Data Browser, Virtual Stack does not contain a buffer and may produce choppy animations.

4.6.5 Increasing ImageJ/Fiji's memory

Finally, you can also increase the amount of the computer memory devoted to ImageJ/Fiji by selecting **Memory & Threads** under the **Edit** menu.

²⁷<http://www.loci.wisc.edu/software/data-browser>



Generally, allocating more than 75% of the computer's total memory will cause ImageJ/Fiji to become slow and unstable.

Please note that unlike the other three features, ImageJ/Fiji itself provides this feature and not Bio-Formats. You can find out more about this feature by looking at ImageJ's documentation²⁸.

4.7 Upgrading the Bio-Formats importer for ImageJ to the latest trunk build

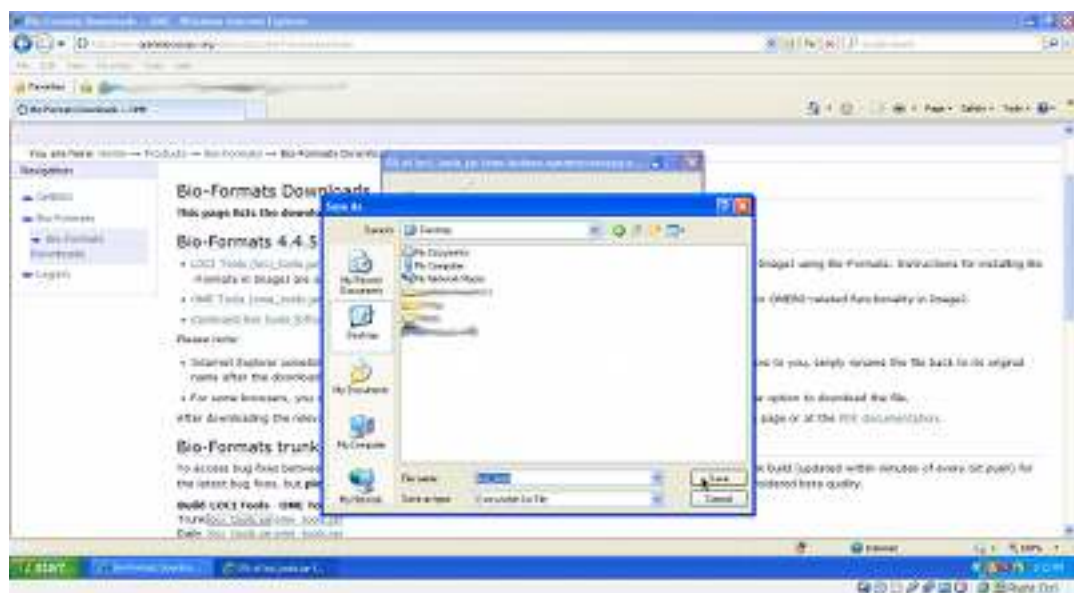
1) Download the latest trunk build of **loci_tools.jar** from Bio-Formats downloads²⁹

²⁸<http://rsbweb.nih.gov/ij/docs/menus/edit.html#options>

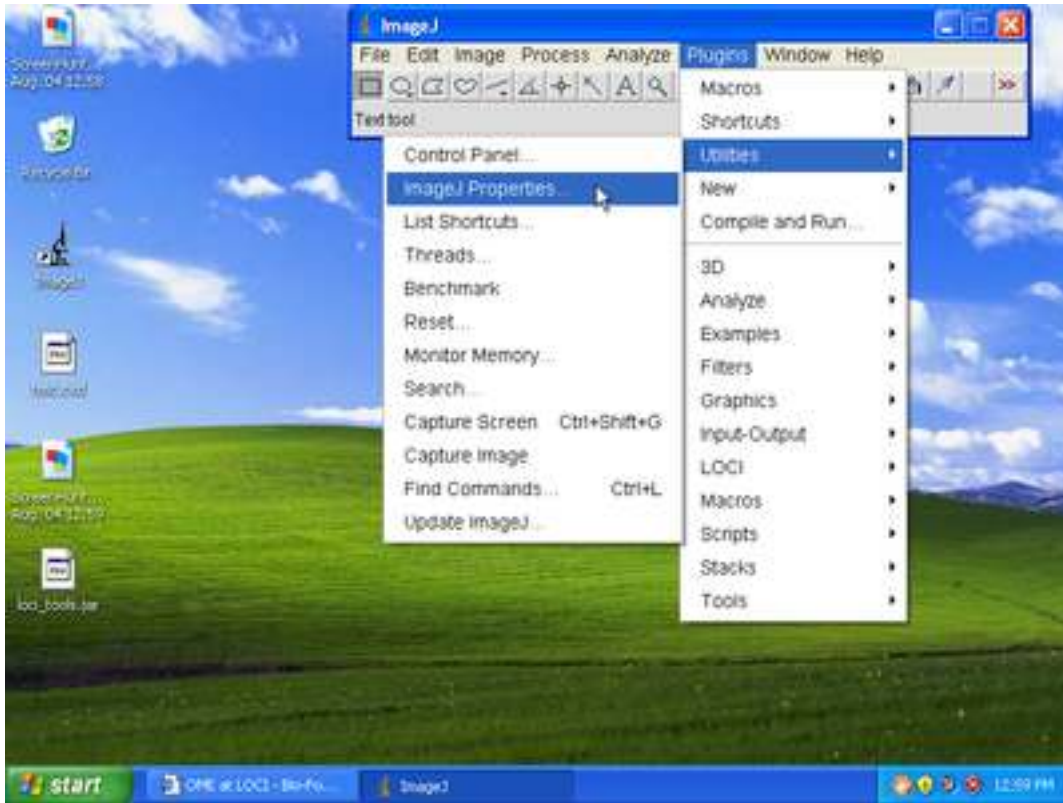
²⁹<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>



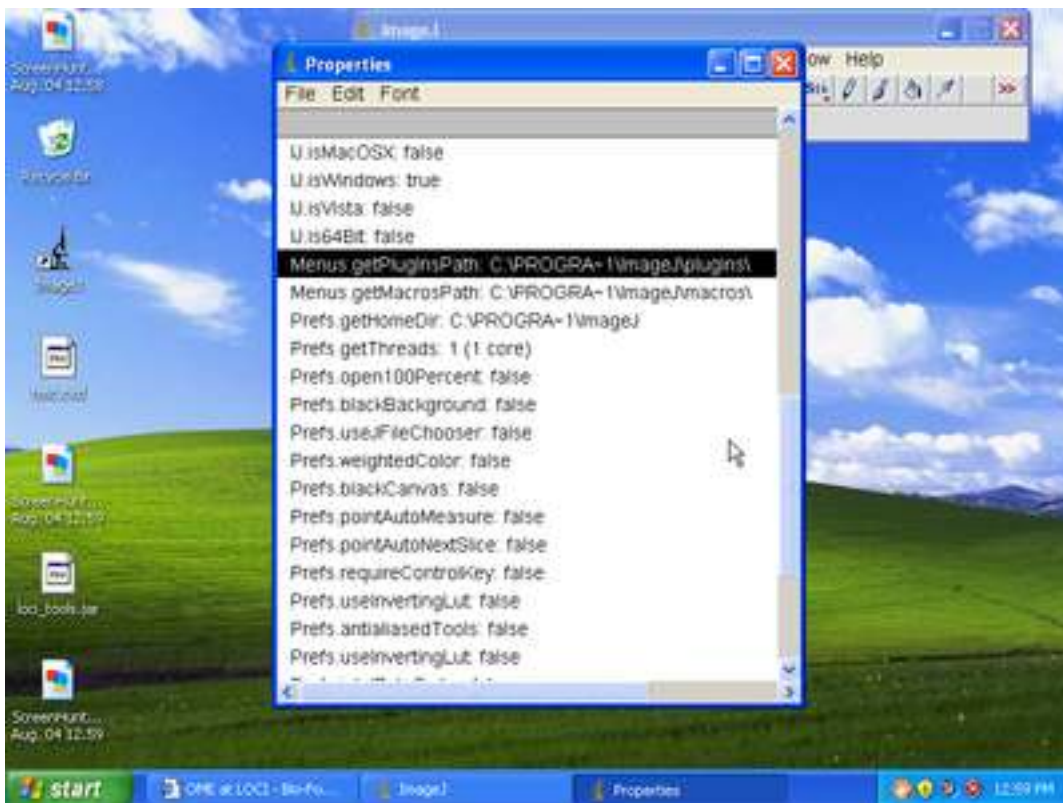
2) Internet Explorer will ask you where it should save **loci_tools.jar**. Select 'Desktop'.



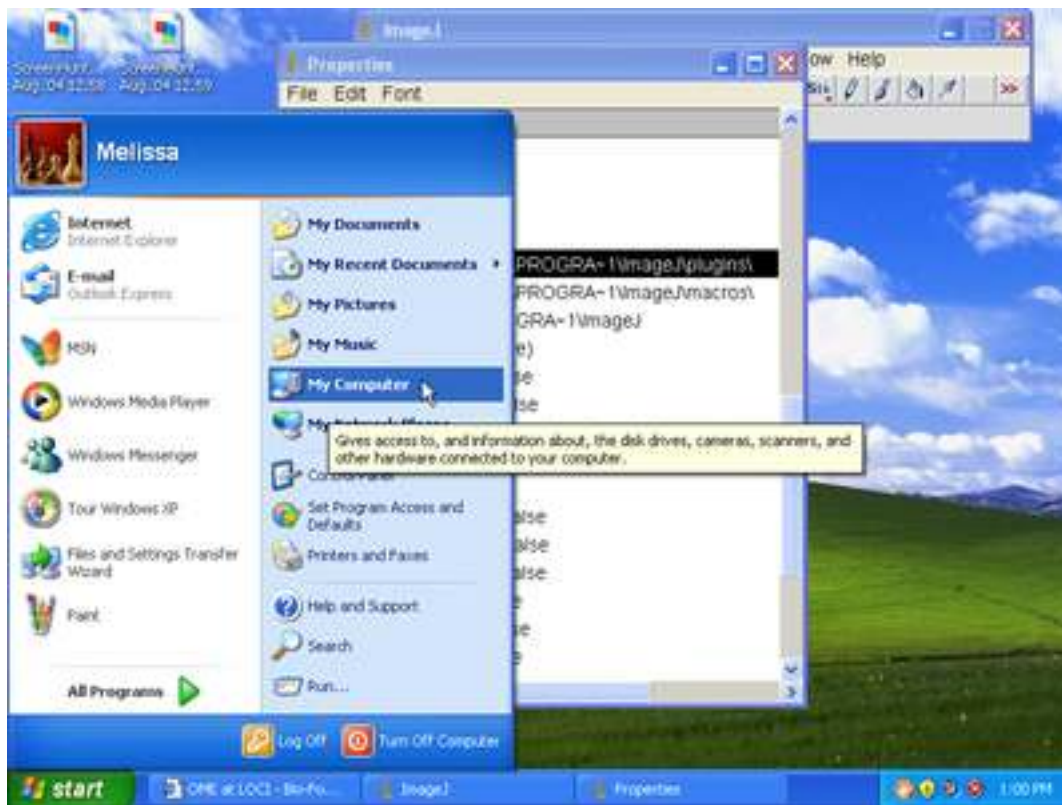
3. Start ImageJ.
4. Select "Plugins > Utilities > ImageJ Properties..."



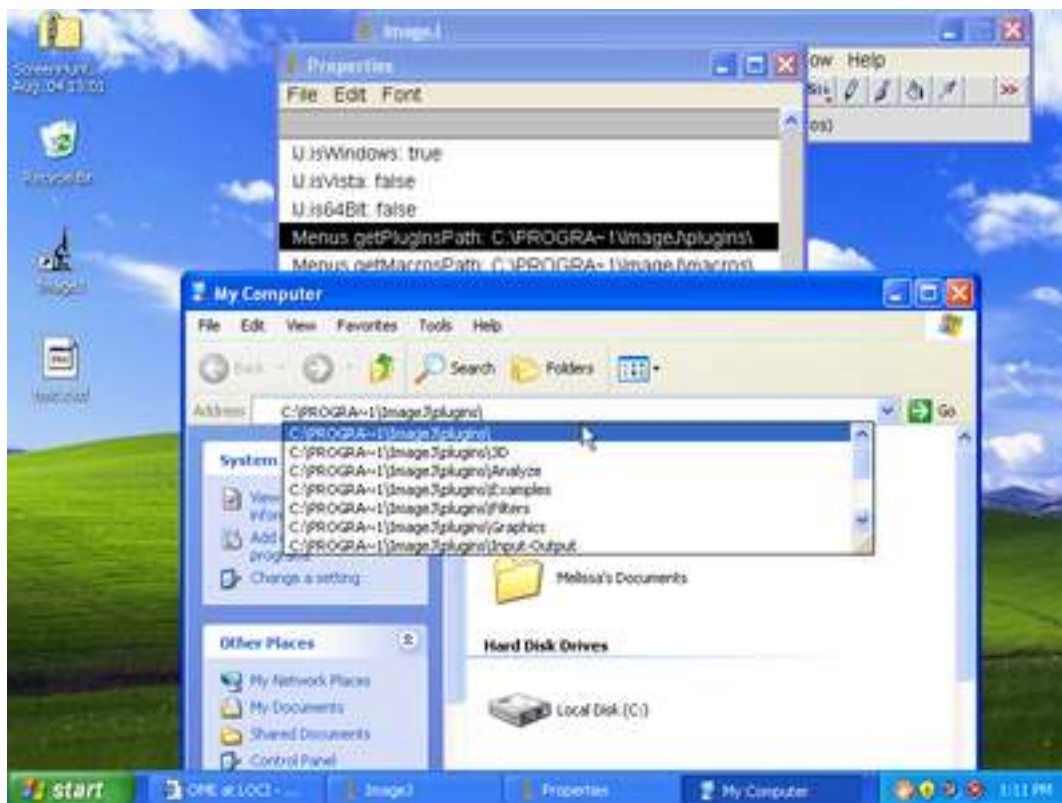
5) Scroll through the **Properties** window until you find a line that starts with “Menus.getPlugInsPath” (highlighted).



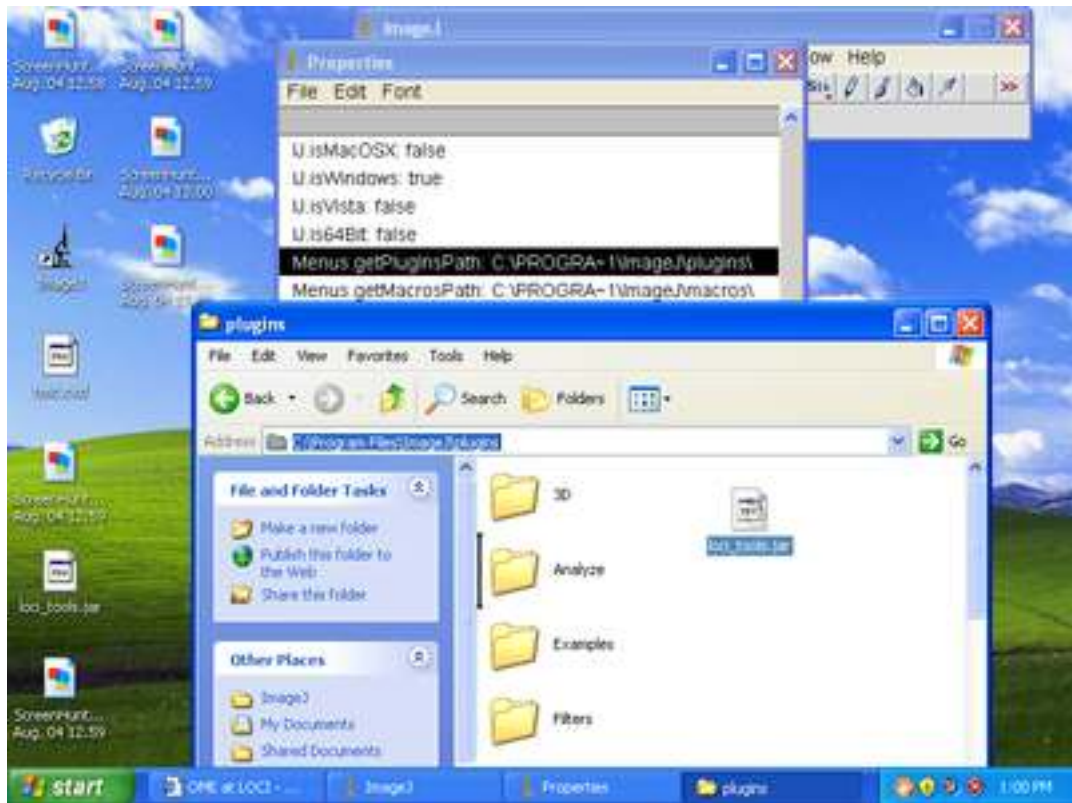
6) Leaving ImageJ and the Properties window open, click the **Start** button, then **My Computer**.



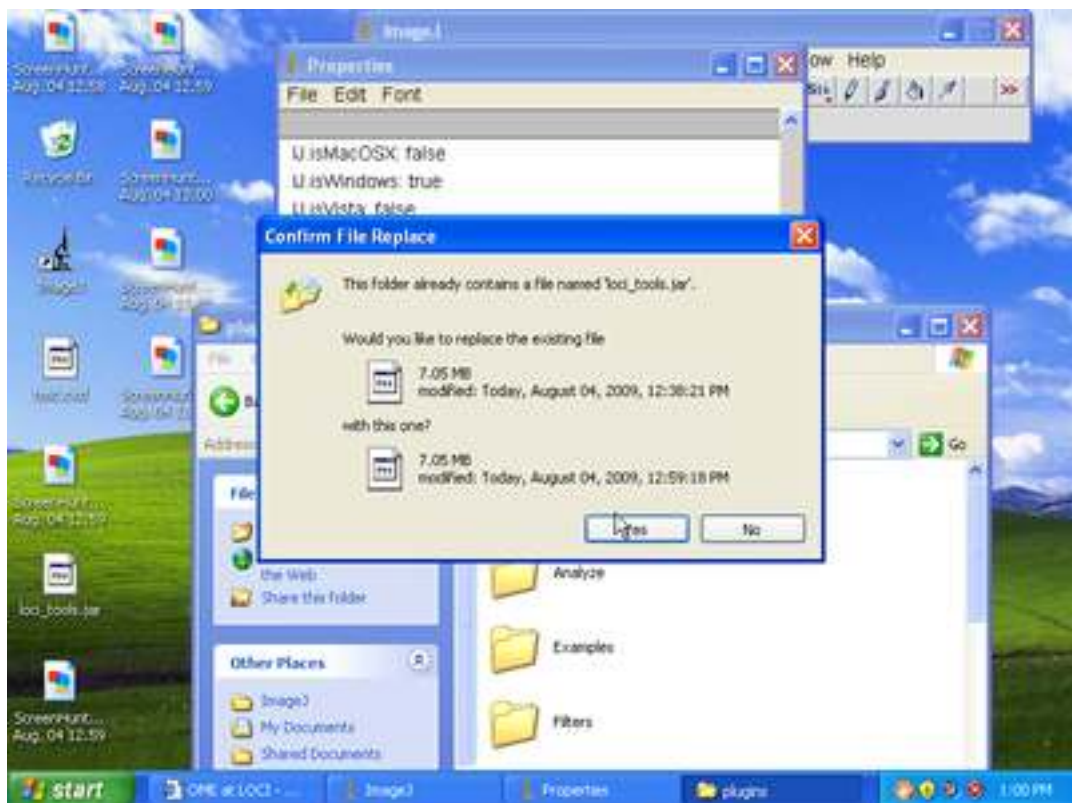
7) Type the path from step 5 into the address bar in the **My Computer** window, then hit the **Enter** key. The path should look something like this `C:\PROGRA~1\ImageJ\plugins\`



8) Click “loci_tools.jar” on your Desktop and drag it to the “plugins” window.



9. If you are asked to replace an existing file, click “Yes”.



10. Close ImageJ.
11. Open ImageJ.
- 12) ImageJ now recognizes the latest trunk build of the Bio-Formats importer.

OMERO

OMERO.importer uses Bio-Formats to read image pixels and propagate metadata into the OMERO.server system. Please refer to the [OMERO documentation](http://www.openmicroscopy.org/site/support/omero4/)¹ for further information.

¹<http://www.openmicroscopy.org/site/support/omero4/>

IMAGE SERVER APPLICATIONS

6.1 BISQUE

The **BISQUE**¹ (Bio-Image Semantic Query User Environment) Database, developed at the Center for Bio-Image Informatics at UCSB, was developed for the exchange and exploration of biological images. The Bisque system supports several areas useful for imaging researchers from image capture to image analysis and querying. The bisque system is centered around a database of images and metadata. Search and comparison of datasets by image data and content is supported. Novel semantic analyses are integrated into the system allowing high level semantic queries and comparison of image content.

Bisque integrates with Bio-Formats by calling the *showinf command line tool*.

6.2 OME Server

OME² is a set of software that interacts with a database to manage images, image metadata, image analysis and analysis results. The OME system is capable of leveraging Bio-Formats to import files.

Please note - the OME server is no longer maintained and has now been superseded by the **OMERO server**³.

6.2.1 Installation

For **OME Perl v2.6.1**⁴ and later, the command line installer automatically downloads the latest **loci_tools.jar** and places it in the proper location. This location is configurable, but is **/OME/java/loci_tools.jar** by default.

For a list of what was recognized for a particular import into the OME server, go to the Image details page in the web interface, and click the “Image import” link in the upper right hand box.

Bio-Formats is capable of parsing original metadata for supported formats, and standardizes what it can into the OME data model. For the rest, it expresses the metadata in OME terms as key/value pairs using an OriginalMetadata custom semantic type. However, this latter method of metadata representation is of limited utility, as it is not a full conversion into the OME data model.

Bio-Formats is enabled in OME v2.6.1 for all formats except:

- OME-TIFF
- Metamorph HTD

¹<http://www.bioimage.ucsb.edu/bisque>

²<http://openmicroscopy.org/site/support/legacy/ome-server>

³<http://www.openmicroscopy.org/site/support/omero4/>

⁴<http://cvs.openmicroscopy.org.uk/>

- Deltavision DV
- Metamorph STK
- Bio-Rad PIC
- Zeiss LSM
- TIFF
- BMP
- DICOM
- OME-XML

The above formats have their own Perl importers that override Bio-Formats, meaning that Bio-Formats is not used to process them by default. However, you can override this behavior (except for Metamorph HTD, which Bio-Formats does not support) by editing an OME database configuration value:

```
% psql ome
```

To see the current file format reader list:

```
ome=# select value from configuration where name='import_formats';
 value
-----
['OME::ImportEngine::OMETIFFreader','OME::ImportEngine::MetamorphHTDFormat',
'OME::ImportEngine::DVreader','OME::ImportEngine::STKreader',
'OME::ImportEngine::BioradReader','OME::ImportEngine::LSMreader',
'OME::ImportEngine::TIFFreader','OME::ImportEngine::BMPreader',
'OME::ImportEngine::DICOMreader','OME::ImportEngine::XMLreader',
'OME::ImportEngine::BioFormats']
(1 row)
```

To remove extraneous readers from the list:

```
ome=# update configuration set value=['\OME::ImportEngine::MetamorphHTDFormat\','
'\OME::ImportEngine::XMLreader\','\OME::ImportEngine::BioFormats\'] where
name='import_formats';
UPDATE 1
ome=# select value from configuration where name='import_formats';
 value
-----
['OME::ImportEngine::MetamorphHTDFormat','OME::ImportEngine::XMLreader',
'OME::ImportEngine::BioFormats']
(1 row)
```

To reset things back to how they were:

```
ome=# update configuration set value=['\OME::ImportEngine::OMETIFFreader\','
'\OME::ImportEngine::MetamorphHTDFormat\','\OME::ImportEngine::DVreader\','
'\OME::ImportEngine::STKreader\','\OME::ImportEngine::BioradReader\','
'\OME::ImportEngine::LSMreader\','\OME::ImportEngine::TIFFreader\','
'\OME::ImportEngine::BMPreader\','\OME::ImportEngine::DICOMreader\','
'\OME::ImportEngine::XMLreader\','\OME::ImportEngine::BioFormats\'] where
name='import_formats';
```

Lastly, please note that Li-Cor L2D files cannot be imported into an OME server (see [this Trac ticket⁵](#) for details). Since the OME perl server has been discontinued, we have no plans to fix this limitation.

⁵<http://dev.loci.wisc.edu/trac/software/ticket/266>

6.2.2 Upgrading

You can upgrade your OME server installation to take advantage of a [new Bio-Formats release](#)⁶ by overwriting the old `loci_tools.jar` with the new one.

6.2.3 Source Code

The source code for the Bio-Formats integration with OME server spans three languages, using piped system calls in both directions to communicate, with imported pixels written to OMEIS pixels files. The relevant source files are:

- `OmeisImporter.java`⁷ – omebf Java command line tool
- `BioFormats.pm`⁸ – Perl module for OME Bio-Formats importer
- `omeis.c`⁹ – OMEIS C functions for Bio-Formats (search for “bioformats” case insensitively to find relevant sections)

⁶<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ome/OmeisImporter.java>

⁸<http://svn.openmicroscopy.org.uk/svn/ome/trunk/src/perl2/OME/ImportEngine/BioFormats.pm>

⁹<http://svn.openmicroscopy.org.uk/svn/ome/trunk/src/C/omeis/omeis.c>

LIBRARIES AND SCRIPTING APPLICATIONS

7.1 Command line tools

There are several scripts for using Bio-Formats on the command line.

7.1.1 Installation

Download [bftools.zip](#)¹, unzip it into a new folder, then download [loci_tools.jar](#)² and place it in the same folder.

The zip file contains both Unix scripts and Windows batch files. Currently available tools include:

showinf Prints information about a given image file to the console, and displays the image itself in the Bio-Formats image viewer.

bfview Launches the Bio-Formats image viewer, displaying the given file (if any).

ijview Displays the given image file in ImageJ using the Bio-Formats Importer plugin (requires **ij.jar**).

bfconvert Converts an image file from one format to another. Bio-Formats must support writing to the output file (determined by extension; see the *Supported Formats*).

formatlist Displays a list of supported file formats in HTML, plaintext or XML.

xmllindent A simple XML prettifier similar to `xmllint --format` but more robust in that it attempts to produce output regardless of syntax errors in the XML.

xmllvalid A command-line XML validation tool, useful for checking an OME-XML document for compliance with the OME-XML schema.

omeul A command-line client-side import tool for OME.

tiffcomment Dumps the comment from the given TIFF file's first IFD entry; useful for examining the OME-XML block in an OME-TIFF file.

All scripts require **loci_tools.jar** in the same directory as the command line tools.

7.1.2 Tutorial

There is a [Bio-Formats command line tools tutorial](#)³ on the FARSIGHT web site.

¹<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

²<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

³http://www.farsight-toolkit.org/wiki/FARSIGHT_Tutorials/Bio-Formats

7.1.3 Using the tools directly from source

If you have *checked out the source from the Git repository* you already have the command line tools in the `tools` directory. You can configure the scripts to use your source tree instead of `loci_tools.jar` in the same directory by following these steps:

1. Point your CLASSPATH to the checked-out directory and the JAR files in the `jar` folder.
 - E.g. on Windows with Java 1.6 or later, if you have checked out the source at `C:\code\loci`, set your CLASSPATH environment variable to the value `C:\code\loci\jar*;C:\code\loci`. You can access the environment variable configuration area by right-clicking on My Computer, choosing Properties, Advanced tab, Environment Variables button.
2. Compile the source with `ant compile`.
3. Set the `LOCI_DEVEL` environment variable to any value (the variable just needs to be defined).

7.2 FARSIGHT

FARSIGHT⁴ is a collection of modules for image analysis created by LOCI's collaborators at the [Rensselaer Polytechnic Institute](#)⁵. These open-source modules are built on the *ITK* libraries and thus can take advantage of LOCI's BF-ITK plugin for processing normally unsupported image types.

The principal FARSIGHT module that benefits from the BF-ITK plugin is the [Nucleus Editor](#)⁶. The Nucleus Editor has been shown to work well with BF-ITK on Mac and Linux operating systems, but unfortunately not on Windows. Note that both FARSIGHT and BF-ITK can work independently on Windows.

Warning: you will find links for downloading pre-built versions of both FARSIGHT and the BF-ITK plugin below. However, currently these have not been shown to work together on any operating system.

In summary, to use the Bio-Formats plugin with a FARSIGHT module, you will need to build the FARSIGHT module from source and should be using a Linux or Mac-based computer.

To use FARSIGHT and BF-ITK together, there are several tutorials that will guide you through the process of downloading and building the source code for these projects:

- [This tutorial](#)⁷ will guide you through building FARSIGHT exclusively. Once FARSIGHT is built, you can follow the instructions on the *ITK* page to download and install a pre-built version of BFTIK.
- [The tutorials on this page](#)⁸ provide platform-specific guides for building both FARSIGHT and the BF-ITK plugin from source.

If you are just interested in using FARSIGHT without going through the steps of compiling from source, you can visit [this downloads page](#)⁹ and download stable releases of FARSIGHT.

7.3 i3dcore

[i3dcore](#)¹⁰, also known as the CBIA 3D image representation library, is a 3D image processing library developed at

⁴http://www.farsight-toolkit.org/wiki/Main_Page

⁵<http://www.rpi.edu/>

⁶<http://www.farsight-toolkit.org/wiki/NucleusEditor>

⁷http://www.farsight-toolkit.org/wiki/FARSIGHT_HowToBuild

⁸http://www.farsight-toolkit.org/wiki/FARSIGHT_Tutorials/Building_Software/Bio-Formats

⁹<http://www.farsight-toolkit.org/wiki/Special:FarsightDownloads>

¹⁰http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dcore/index.html

the Centre for Biomedical Image Analysis¹¹. Together with `i3dalgo`¹² and `i4dcore`¹³, `i3dcore` forms a continuously developed templated cross-platform C++ suite of libraries for multidimensional image processing and analysis.

`i3dcore` is capable of reading images with Bio-Formats using `Java for C++`¹⁴ (`java4cpp`).

See Also

[Download i3dcore](#)¹⁵

[CBIA Software Development](#)¹⁶

7.4 ImgLib

`ImgLib2`¹⁷ (see also the [ImgLib Fiji page](#)¹⁸) is a multidimensional image processing library. It provides a general mechanism for writing image analysis algorithms, without writing case logic for `bit depth`¹⁹, or worrying about the source of the pixel data (arrays in memory, files on disk, etc.).

`ImgLib` provides an `ImgOpener`²⁰ utility class for reading data using Bio-Formats.

7.5 ITK

The `Insight Toolkit`²¹ (ITK) is an open-source, cross-platform system that provides developers with an extensive suite of software tools for image analysis. Developed through extreme programming methodologies, ITK employs leading-edge algorithms for registering and segmenting multidimensional data.

ITK provides an `ImageIO` plug-in structure that works via discovery through a dependency injection scheme. This allows a program built on ITK to load plug-ins for reading and writing different image types without actually linking to the `ImageIO` libraries required for those types. Such encapsulation automatically grants two major boons: firstly, programs can be easily extended just by virtue of using ITK (developers do not have to specifically accommodate or anticipate what plug-ins may be used). Secondly, the architecture provides a distribution method for open source software, like Bio-Formats, which have licenses that might otherwise exclude them from being used with other software suites.

The Bio-Formats ITK plug-in provides an `ImageIO` plug-in for ITK that uses `Bio-Formats`²² to read and write supported life sciences file formats. This plug-in allows any program built on ITK to read any of the image types supported by Bio-Formats.

7.5.1 Prerequisites

If you have not done so already, [download](#)²³ and build ITK. Note that BF-ITK requires ITK 3.20.0 or newer. It should also work with the latest [ITK source from git](#)²⁴. BF-ITK also requires ITK to be built with the following flags set:

¹¹<http://cbia.fi.muni.cz/software-development.html>

¹²http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dalgo/index.html

¹³http://cbia.fi.muni.cz/user_dirs/of_doc/libi4d.html

¹⁴<http://java4cpp.kapott.org/>

¹⁵http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dcore/index.html#download

¹⁶<http://cbia.fi.muni.cz/software-development.html>

¹⁷<http://imglib2.net/>

¹⁸<http://fiji.sc/wiki/index.php/Imglib>

¹⁹http://en.wikipedia.org/wiki/Color_depth

²⁰<https://github.com/imagej/imglib/blob/master/io/src/main/java/net/imglib2/io/ImgOpener.java>

²¹<http://itk.org/>

²²<http://farsight-toolkit.org/wiki/Bio-Formats>

²³<http://itk.org/ITK/resources/software.html>

²⁴<http://www.itk.org/Wiki/ITK/Git>

- `ITK_USE_REVIEW = ON`
- `BUILD_SHARED_LIBS = ON`

You will also need [Git](#)²⁵, [Ant](#)²⁶ and [CMake](#)²⁷ for the installation tutorial.

7.5.2 Installation

1. Clone the *Bio-Formats source code*:

```
git clone git://github.com/openmicroscopy/bioformats.git
```

2. Compile the Bio-Formats tools bundle:

```
cd bioformats
ant tools
```

3. Configure your BF-ITK build:

```
mkdir ../bf-itk-build && cd ../bf-itk-build
ccmake ../bioformats/components/native/bf-itk-pipe
```

If you prefer, you can use `cmake-gui` rather than `ccmake` to configure the project. If you receive a configuration error stating that the location of ITK cannot be found, then set `ITK_DIR` to your binary build of ITK.

4. Compile BF-ITK:

On Linux and OSX, simply run `make`, or on Windows start `BioFormatsImageIO.sln`.

This will open the solution in Visual Studio. Select `Debug` or `Release` from the drop-down menu, as appropriate. Press `F7` to compile, or select `Build Solution` from the `Build` menu.

5. Package BF-ITK build (optional):

By default, all necessary libraries including `loci_tools.jar` will be copied to `dist/bf-itk` inside the BF-ITK build folder.

If desired, everything can be packaged into a single archive by running:

On Linux and OSX, run `make package` or on Windows, click on the `PACKAGE` target in the Visual Studio interface. Then choose `Build PACKAGE` from the `Build` menu.

7.5.3 Usage

To use BF-ITK, you must set your `ITK_AUTOLOAD_PATH` to point to the folder containing the BF-ITK binaries (including the **BioFormatsIO** and **BioFormatsIOPlugin** shared libraries, and the `loci_tools.jar` Java library). For example:

```
export ITK_AUTOLOAD_PATH=~/.bf-itk-build/dist/bf-itk
```

Once this variable is set, ITK's ImageIO routines will automatically use Bio-Formats as needed to read and write supported file formats.

If you build ITK with examples, you can test using various programs:

```
cd ~/itk-build/bin
./ImageReadWrite ~/data/inputFile.ics ~/data/outputFile.mha
```

²⁵<http://git-scm.com/>

²⁶<http://ant.apache.org/>

²⁷<http://www.cmake.org/>

7.6 Qu for MATLAB

Qu for MATLAB²⁸ is a MATLAB toolbox for the visualization and analysis of N-dimensional datasets targeted to the field of biomedical imaging, developed by Aaron Ponti.

- Uses Bio-Formats to read files
- Open source software available under the Mozilla Public License

See Also

[Qu for MATLAB download page](#)²⁹

7.7 Subimager

Subimager³⁰, the SUBprocess IMAGE server, is an HTTP server that uses Bio-Formats as a back-end to serve .TIF images. Subimager is designed to be run as a subprocess of CellProfiler to provide CellProfiler with the capability to read and write a variety of image formats. It can be used as a stand-alone image server. It was developed by the Broad Institute³¹ to facilitate integration with their CellProfiler³² image analysis application.

²⁸http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55

²⁹http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55&limitstart=3

³⁰<https://github.com/CellProfiler/subimager>

³¹<http://www.broadinstitute.org/>

³²<http://www.cellprofiler.org/>

NUMERICAL DATA PROCESSING APPLICATIONS

8.1 IDL

IDL¹ (Interactive Data Language) is a popular data visualization and analysis platform used for interactive processing of large amounts of data including images.

IDL possesses the ability to interact with Java applications via its IDL-Java bridge. Karsten Rodenacker has written a script that uses Bio-Formats to read in image files to IDL.

8.1.1 Installation

Download the `ij_read_bio_formats.pro`² script from Karsten Rodenacker's IDL goodies (?)³ web site. See the comments at the top of the script for installation instructions and caveats.

8.1.2 Upgrading

To use a newer version of Bio-Formats, overwrite the requisite JAR files with the newer version⁴ and restart IDL.

8.2 KNIME

KNIME⁵ (Konstanz Information Miner) is a user-friendly and comprehensive open-source data integration, processing, analysis, and exploration platform. KNIME supports image import using Bio-Formats using the KNIME Image Processing⁶ (a.k.a. KNIP) plugin.

8.3 MATLAB

MATLAB⁷ is a high-level language and interactive environment that facilitates rapid development of algorithms for performing computationally intensive tasks.

¹<http://www.exelisvis.com/ProductsServices/IDL.aspx>

²http://www.helmholtz-muenchen.de/ibb/homepage/karsten.rodenacker/IDL/_pro/ij_read_bio_formats.pro

³<http://www.helmholtz-muenchen.de/ibb/homepage/karsten.rodenacker/IDL/index.php>

⁴<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

⁵<http://knime.org/>

⁶<http://tech.knime.org/community/image-processing>

⁷<http://www.mathworks.com/products/matlab/>

Calling Bio-Formats from MATLAB is fairly straightforward, since MATLAB has built-in interoperability with Java. We have created a simple script for reading image files: [bfopen.m](#)⁸.

We are not MATLAB experts—any comments on improving the script are welcome.

8.3.1 Performance

In our tests (MATLAB R14 vs. java 1.6.0_20), the script executes at approximately half the speed of our *showinf command line tool*, due to overhead from copying arrays.

8.3.2 Installation

To use the script, download [bfopen.m](#)⁹ and [loci_tools.jar](#)¹⁰ and place them in your MATLAB work directory.

8.3.3 Upgrading

To use a newer version of Bio-Formats, overwrite **loci_tools.jar** with the [newer version](#)¹¹ and restart MATLAB.

8.3.4 More information

For further instructions on working with Bio-Formats from MATLAB, see the *Bio-Formats MATLAB Guide*.

8.4 VisAD

The [VisAD](#)¹² visualization toolkit is a Java component library for interactive and collaborative visualization and analysis of numerical data. VisAD uses Bio-Formats to read many image formats, notably TIFF.

8.4.1 Installation

The **visad.jar** file has Bio-Formats bundled inside, so no further installation is necessary.

8.4.2 Upgrading

It should be possible to use a newer version of Bio-Formats by putting the latest [loci_tools.jar](#)¹³ or [bio-formats.jar](#)¹⁴ before **visad.jar** in the class path. Alternately, you can create a “VisAD Lite” using the `make lite` command from VisAD source, and use the resultant **visad-lite.jar**, which is a stripped down version of VisAD without sample applications or Bio-Formats bundled in.

⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/matlab/bfopen.m>

⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/matlab/bfopen.m>

¹⁰<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

¹¹<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

¹²<http://www.ssec.wisc.edu/%7Ebillh/visad.html>

¹³<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

¹⁴<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

VISUALIZATION AND ANALYSIS APPLICATIONS

9.1 Bitplane Imaris

Imaris¹ is Bitplane's core scientific software module that delivers all the necessary functionality for data visualization, analysis, segmentation and interpretation of 3D and 4D microscopy datasets. Combining speed, precision and ease-of-use, Imaris provides a complete set of features for working with three- and four-dimensional multi-channel images of any size, from a few megabytes to multiple gigabytes in size.

As of version 7.2², Imaris integrates with *Fiji*, which includes Bio-Formats. See [this page](#)³ for a detailed list of Imaris' features.

9.2 CellProfiler

CellProfiler⁴—developed by the Broad Institute⁵'s Imaging Platform⁶—is free open-source software designed to enable biologists without training in computer vision or programming to quantitatively measure phenotypes from thousands of images automatically. CellProfiler uses Bio-Formats to read images from disk, as well as write movies.

9.2.1 Installation

The CellProfiler distribution comes with Bio-Formats included, so no further installation is necessary.

9.2.2 Upgrading

It should be possible to use a newer version of Bio-Formats by replacing the bundled **loci_tools.jar** with a newer version.

- For example, on Mac OS X, Ctrl+click the CellProfiler icon, choose Show Package Contents, and replace the following files:
 - Contents/Resources/bioformats/loci_tools.jar
 - Contents/Resources/lib/python2.5/bioformats/loci_tools.jar

¹<http://www.bitplane.com/>

²<http://www.bitplane.com/go/releasenotes?product=Imaris&version=7.2&patch=0>

³<http://www.bitplane.com/index.cfm?objectid=0D8067BB-B4BA-B42D-00D7454EF75DB9A8>

⁴<http://www.cellprofiler.org/>

⁵<http://www.broadinstitute.org/>

⁶<http://www.broadinstitute.org/science/platforms/imaging/imaging-platform>

See also:

CellProfiler web site⁷

9.3 Comstat2

Comstat2 is a Java-based computer program for the analysis and treatment of biofilm images in 3D. It is the Master's project of Martin Vorregaard⁸.

Comstat2 uses the *Bio-Formats Importer plugin for ImageJ* to read files in TIFF and Leica LIF formats.

See also:

Comstat2 - a modern 3D image analysis environment for biofilms⁹

9.4 Endrov

Endrov¹⁰ (or <http://www.endrov.net>) (EV) is a multi-purpose image analysis program developed by the Thomas Burglin group¹¹ at Karolinska Institute¹², Department of Biosciences and Nutrition.

9.4.1 Installation

The EV distribution comes bundled with the core Bio-Formats library (**bio-formats.jar**), so no further installation is necessary.

9.4.2 Upgrading

It should be possible to use a newer version of Bio-Formats by downloading the latest **bio-formats.jar**¹³ and putting it into the `libs` folder of the EV distribution, overwriting the old file.

You could also include some *optional libraries*, to add support for additional formats, if desired.

9.5 FocalPoint

FocalPoint¹⁴ is an image browser, similar to Windows Explorer¹⁵ or other file manager¹⁶ application, specifically designed to work with more complex image types. FocalPoint uses Bio-Formats to generate thumbnails for some formats.

⁷<http://www.cellprofiler.org/>

⁸<http://www.comstat.dk/>

⁹http://www2.imm.dtu.dk/pubdb/views/publication_details.php?id=5628

¹⁰<https://github.com/mahogany/Endrov>

¹¹<http://www.biosci.ki.se/groups/tbu>

¹²<http://www.ki.se/>

¹³<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

¹⁴<http://www.bioinformatics.bbsrc.ac.uk/projects/focalpoint/>

¹⁵http://en.wikipedia.org/wiki/Windows_Explorer

¹⁶http://en.wikipedia.org/wiki/File_manager

9.5.1 Installation

FocalPoint is bundled with Bio-Formats, so no further installation is necessary.

9.5.2 Upgrading

It should be possible to use a [newer version of Bio-Formats](#)¹⁷ by overwriting the old **loci_tools.jar** within the FocalPoint distribution. For Mac OS X, you will have to control click the FocalPoint program icon, choose “Show Package Contents” and navigate into Contents/Resources/Java to find the **loci_tools.jar** file.

9.6 Graphic Converter

[Graphic Converter](#)¹⁸ is a Mac OS application for opening, editing, and organizing photos. Versions 6.4.1 and later use Bio-Formats to open all file formats supported by Bio-Formats.

9.7 Icy

[Icy](#)¹⁹ is an open-source image analysis and visualization software package that combines a user-friendly graphical interface with the ability to write scripts and plugins that can be uploaded to a centralized website. It uses Bio-Formats internally to read images and acquisition metadata, so no further installation is necessary.

9.8 imago

[Mayachitra imago](#)²⁰ is an advanced desktop image management package that enables scientists to easily store, manage, search, and analyze 5D biological images and their analysis results. imago integrates flexible annotation and metadata management with advanced image analysis tools.

imago uses Bio-Formats to read files in some formats, including Bio-Rad PIC, Image-Pro Workspace, Metamorph TIFF, Leica LCS LEI, Olympus FluoView FV1000, Nikon NIS-Elements ND2, and Zeiss LSM.

A free 30-day trial version of imago is available [here](#)²¹.

9.9 Iqm

[Iqm](#)²² is an image processing application written in Java. It is mainly constructed around the Java JAI library and furthermore it incorporates the functionality of the popular ImageJ image processing software.

Because iqm integrates with ImageJ, it can take advantage of the *Bio-Formats ImageJ plugin* to read image data.

¹⁷<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

¹⁸<http://www.lemkesoft.com>

¹⁹<http://icy.bioimageanalysis.org/>

²⁰<http://mayachitra.com/imago/index.html>

²¹<http://mayachitra.com/imago/download-trial.php>

²²<http://code.google.com/p/iqm/>

9.10 Macnification

Macnification²³ is a Mac OS X application for organizing, editing, analyzing and annotating microscopic images, designed for ease of use. It is being developed by Orbicule²⁴.

Macnification uses Bio-Formats to read files in some formats, including Gatan DM3, ICS, ImagePro SEQ, ImagePro IPW, Metamorph STK, OME-TIFF and Zeiss LSM.

See also:

[Free trial download](#)²⁵

9.11 MIPAV

The MIPAV²⁶ (Medical Image Processing, Analysis, and Visualization) application—developed at the [Center for Information Technology](#)²⁷ at the [National Institutes of Health](#)²⁸—enables quantitative analysis and visualization of medical images of numerous modalities such as PET, MRI, CT, or microscopy. You can use Bio-Formats as a plugin for MIPAV to read images in the formats it supports.

9.11.1 Installation

Follow these steps to install the Bio-Formats plugin for MIPAV:

1. Download [loci_tools.jar](#)²⁹ and drop it into your MIPAV folder.
2. Download the [plugin source code](#)³⁰ into your user `mipav/plugins` folder.
3. From the command line, compile the plugin with:

```
cd mipav/plugins
javac -cp $MIPAV:$MIPAV/loci\tools.jar \
    PlugInBioFormatsImporter.java
```

4. where `$MIPAV` is the location of your MIPAV installation.
5. Add **loci_tools.jar** to MIPAV's class path:
 - How to do so depends on your platform.
 - E.g., in Mac OS X, edit the `mipav.app/Contents/Info.plist` file.
6. Run MIPAV and a new “BioFormatsImporter - read image” menu item will appear in the `Plugins > File` submenu.

See the [readme file](#)³¹ for more information.

To upgrade, just overwrite the old **loci_tools.jar** with the [latest one](#)³². You may want to download the latest version of MIPAV first, to take advantage of new features and bug-fixes.

²³<http://www.orbicule.com/macnification/>

²⁴<http://www.orbicule.com>

²⁵<http://www.orbicule.com/macnification/download>

²⁶<http://mipav.cit.nih.gov/>

²⁷<http://cit.nih.gov/>

²⁸<http://nih.gov/>

²⁹<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/utis/mipav/PlugInBioFormatsImporter.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/utis/mipav/readme.txt>

³²<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

9.12 Vaa3D

Vaa3D³³, developed by the Peng Lab³⁴ at the HHMI Janelia Farm Research Campus³⁵, is a handy, fast, and versatile 3D/4D/5D Image Visualization & Analysis System for Bioimages & Surface Objects.

Vaa3D can use Bio-Formats via the [Bio-Formats C++ bindings](#)³⁶ to read images.

9.13 VisBio

VisBio³⁷ is a biological visualization tool designed for easy visualization and analysis of multidimensional image data. VisBio uses Bio-Formats to import files as the Bio-Formats library originally grew out of our efforts to continually expand the file format support within VisBio.

9.13.1 Installation

VisBio is bundled with Bio-Formats, so no further installation is necessary.

9.13.2 Upgrading

It should be possible to use a [newer version of Bio-Formats](#)³⁸ by overwriting the old **bio-formats.jar** and optional libraries within the VisBio distribution. For Mac OS X, you'll have to control click the VisBio program icon, choose "Show Package Contents" and navigate into Contents/Resources/Java to find the JAR files.

9.14 XuvTools

XuvTools³⁹ is automated 3D stitching software for biomedical image data. As of release 1.8.0, XuvTools uses Bio-Formats to read image data.

³³<http://vaa3d.org>

³⁴<http://penglab.janelia.org/>

³⁵<http://www.hhmi.org/janelia/>

³⁶http://www.farsight-toolkit.org/wiki/FARSIGHT_Tutorials/Building_Software/Bio-Formats/Building_C%2B%2B_Bindings

³⁷<http://www.loci.wisc.edu/visbio/>

³⁸<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

³⁹<http://www.xuvtools.org>

Part III

Developer Documentation

USING BIO-FORMATS

10.1 An in-depth guide to using Bio-Formats

10.1.1 Overview

This document describes various things that are useful to know when working with Bio-Formats. It is recommended that you obtain the Bio-Formats source by following the directions on the *source code page*, rather than using an official release. It is also recommended that you have a copy of the *Javadocs*¹ nearby - the notes that follow will make more sense when you see the API.

For a complete list of supported formats, see the Bio-Formats *supported formats table*.

For a few working examples of how to use Bio-Formats, see *these Github pages*²

10.1.2 Basic file reading

Bio-Formats provides several methods for retrieving data from files in an arbitrary (supported) format. These methods fall into three categories: raw pixels, core metadata, and format-specific metadata. All methods described here are present and documented in `loci.formats.IFormatReader`³ - it is advised that you take a look at the source and/or the Javadocs. In general, it is recommended that you read files using an instance of `ImageReader`⁴. While it is possible to work with readers for a specific format, `ImageReader` contains additional logic to automatically detect the format of a file and delegate subsequent calls to the appropriate reader.

Prior to retrieving pixels or metadata, it is necessary to call `setId(String)`⁵ on the reader instance, passing in the name of the file to read. Some formats allow multiple series (5D image stacks) per file; in this case you may wish to call `setSeries(int)`⁶ to change which series is being read.

Raw pixels are always retrieved one plane at a time. Planes are returned as raw byte arrays, using one of the `openBytes` methods.

Core metadata is the general term for anything that might be needed to work with the planes in a file. A list of core metadata fields is given below, with the appropriate accessor method in parentheses:

- image width (`getSizeX()`⁷)
- image height (`getSizeY()`⁸)

¹<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

²<http://github.com/openmicroscopy/bioformats/tree/develop/components/bio-formats/utills>

³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/IFormatReader.java>

⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ImageReader.java>

⁵[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatHandler.html#setId\(java.lang.String\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatHandler.html#setId(java.lang.String))

⁶[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#setSeries\(int\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#setSeries(int))

⁷[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeX\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeX())

⁸[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeY\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeY())

- number of series per file (`getSeriesCount()`⁹)
- total number of images per series (`getImageCount()`¹⁰)
- number of slices in the current series (`getSizeZ()`¹¹)
- number of timepoints in the current series (`getSizeT()`¹²)
- number of actual channels in the current series (`getSizeC()`¹³)
- number of channels per image (`getRGBChannelCount()`¹⁴)
- the ordering of the images within the current series (`getDimensionOrder()`¹⁵)
- whether each image is RGB (`isRGB()`¹⁶)
- whether the pixel bytes are in little-endian order (`isLittleEndian()`¹⁷)
- whether the channels in an image are interleaved (`isInterleaved()`¹⁸)
- the type of pixel data in this file (`getPixelType()`¹⁹)

All file formats are guaranteed to accurately report core metadata.

Format-specific metadata refers to any other data specified in the file - this includes acquisition and hardware parameters, among other things. This data is stored internally in a **java.util.Hashtable**, and can be accessed in one of two ways: individual values can be retrieved by calling `getMetadataValue(String)`²⁰, which gets the value of the specified key. Alternatively, `getMetadata()`²¹ will return the entire Hashtable. Note that the keys in this Hashtable are different for each format, hence the name “format-specific metadata”.

See *Bio-Formats metadata processing* for more information on the metadata capabilities that Bio-Formats provides.

10.1.3 File reading extras

The previous section described how to read pixels as they are stored in the file. However, the native format is not necessarily convenient, so Bio-Formats provides a few extras to make file reading more flexible.

- There are a few “wrapper” readers (that implement `IFormatReader`) that take a reader in the constructor, and manipulate the results somehow, for convenience. Using them is similar to the `java.io.InputStream/OutputStream` model: just layer whichever functionality you need by nesting the wrappers.
 - `BufferedImageReader`²² extends `IFormatReader`, and allows pixel data to be returned as `BufferedImages` instead of raw byte arrays.
 - `FileStitcher`²³ extends `IFormatReader`, and uses advanced pattern matching heuristics to group files that belong to the same dataset.

⁹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSeriesCount\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSeriesCount())

¹⁰[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getImageCount\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getImageCount())

¹¹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeZ\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeZ())

¹²[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeT\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeT())

¹³[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeC\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSizeC())

¹⁴[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getRGBChannelCount\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getRGBChannelCount())

¹⁵[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getDimensionOrder\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getDimensionOrder())

¹⁶[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isRGB\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isRGB())

¹⁷[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isLittleEndian\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isLittleEndian())

¹⁸[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isInterleaved\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isInterleaved())

¹⁹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getPixelType\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getPixelType())

²⁰[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getMetadataValue\(java.lang.String\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getMetadataValue(java.lang.String))

²¹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getMetadata\(\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getMetadata())

²²<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/gui/BufferedImageReader.java>

²³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/FileStitcher.java>

- [ChannelSeparator](#)²⁴ extends `IFormatReader`, and makes sure that all planes are grayscale - RGB images are split into 3 separate grayscale images.
- [ChannelMerger](#)²⁵ extends `IFormatReader`, and merges grayscale images to RGB if the number of channels is greater than 1.
- [ChannelFiller](#)²⁶ extends `IFormatReader`, and converts indexed color images to RGB images.
- [MinMaxCalculator](#)²⁷ extends `IFormatReader`, and provides an API for retrieving the minimum and maximum pixel values for each channel.
- [DimensionSwapper](#)²⁸ extends `IFormatReader`, and provides an API for changing the dimension order of a file.
- [ImageTools](#)²⁹ and `loci.formats.gui.AWTImageTools`³⁰ provide a number of methods for manipulating `BufferedImage`s and primitive type arrays. In particular, there are methods to split and merge channels in a `BufferedImage/array`, as well as converting to a specific data type (e.g. convert short data to byte data).

10.1.4 Writing files

The following file formats can be written using Bio-Formats:

- TIFF (uncompressed, LZW, JPEG, or JPEG-2000)
- OME-TIFF (uncompressed, LZW, JPEG, or JPEG-2000)
- JPEG
- PNG
- AVI (uncompressed)
- QuickTime (uncompressed is supported natively; additional codecs use QTJava)
- Encapsulated PostScript (EPS)
- OME-XML (not recommended)

The writer API (see `loci.formats.IFormatWriter`³¹) is very similar to the reader API, in that files are written one plane at time (rather than all at once).

All writers allow the output file to be changed before the last plane has been written. This allows you to write to any number of output files using the same writer and output settings (compression, frames per second, etc.), and is especially useful for formats that do not support multiple images per file.

Please see `loci.formats.tools.ImageConverter`³² and *this guide to exporting to OME-TIFF files* for examples of how to write files.

10.1.5 Arcane notes and implementation details

Known oddities:

²⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ChannelSeparator.java>

²⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ChannelMerger.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ChannelFiller.java>

²⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/MinMaxCalculator.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/DimensionSwapper.java>

²⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ImageTools.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/gui/AWTImageTools.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/IFormatWriter.java>

³²<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio-tools/src/loci/formats/tools/ImageConverter.java>

- Importing multi-file formats (Leica LEI, PerkinElmer, FV1000 OIF, ICS, and Prairie TIFF, to name a few) can fail if any of the files are renamed. There are “best guess” heuristics in these readers, but they are not guaranteed to work in general. So please do not rename files in these formats.
- If you are working on a Macintosh, make sure that the data and resource forks of your image files are stored together. Bio-Formats does not handle separated forks (the native QuickTime reader tries, but usually fails).

10.2 Generating test images

Sometimes it is nice to have a file of a specific size or pixel type for testing. To generate a file (that contains gradient images):

```
touch "my-special-test-file&pixelType=uint8&sizeX=8192&sizeY=8192.fake"
```

Whatever is before the & is the image name; remaining key value pairs should be pretty self-explanatory. Just replace the values with whatever you need for testing.

There are a few other keys that can be added as well:

Key	Value
sizeZ	number of Z sections
sizeC	number of channels
sizeT	number of timepoints
bitsPerPixel	number of valid bits (<= number of bits implied by pixel type)
rgb	number of channels that are merged together
dimOrder	dimension order (e.g. XYZCT)
little	whether or not the pixel data should be little-endian
interleaved	whether or not merged channels are interleaved
indexed	whether or not a color lookup table is present
falseColor	whether or not the color lookup table is just for making the image look pretty
series	number of series (Images)
lutLength	number of entries in the color lookup table

You can often work with the .fake file directly, but in some cases support for those files is disabled and so you will need to convert the file to something else. Make sure that you have Bio-Formats built and the JARs in your CLASSPATH (individual JARs or just loci_tools.jar):

```
bfconvert test&pixelType=uint8&sizeX=8192&sizeY=8192.fake test.tiff
```

If you do not have the command line tools installed, substitute `loci.formats.tools.ImageConverter`³³ for `bfconvert`.

³³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio-tools/src/loci/formats/tools/ImageConverter.java>

BIO-FORMATS AS A JAVA LIBRARY

11.1 API documentation

11.1.1 Using Bio-Formats as a Java library

If you wish to make use of Bio-Formats within your own software, you can [download `bio-formats.jar`](#)¹ to use it as a library. Just add `bio-formats.jar` to your CLASSPATH or build path. You will also need `loci-common.jar` for common I/O functions, `ome-xml.jar` for metadata standardization, and `SLF4J`² for logging.

Beyond `bio-formats.jar`, `loci-common.jar`, `ome-xml.jar`, and `SLF4J`³, no additional libraries are required. However, there are certain packages that if present will be utilized to provide additional functionality. To include one, just place it in the same folder.

Package	Filename	License	Notes
Apache Jakarta POI ⁴ library, LOCI fork	<code>poi-loci.jar</code> ⁵	Apache	For OLE-based formats (zvi, oib, ipw, cxd)
MDB Tools project ⁶ Java port, LOCI fork	<code>mdbtools-java.jar</code> ⁷	LGPL	For Olympus CellR and Zeiss LSM metadata (mdb)
JAI Image I/O Tools ⁸ pure Java implementation, LOCI fork	<code>jai_imageio.jar</code> ⁹	BSD	For JPEG2000-based formats (nd2, jp2)
NetCDF Java library ¹⁰	<code>netcdf-4.0.jar</code> ¹¹	LGPL	For HDF5-based formats (Imaris 5.5, MINC MRI)
QuickTime for Java ¹²	QTJava.zip	Commercial	For additional QuickTime codecs

See the list in the [Bio-Formats toplevel build file](#)¹³ for a complete and up-to-date list of all optional libraries, which can all be found in our [Git repository](#)¹⁴.

¹<http://www.openmicroscopy.org/site/products/bio-formats/downloads/>

²<http://slf4j.org/>

³<http://slf4j.org/>

⁴<http://jakarta.apache.org/poi/>

⁵<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/lastSuccessfulBuild/artifact/artifacts/poi-loci.jar>

⁶<http://sourceforge.net/projects/mdbtools>

⁷<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/lastSuccessfulBuild/artifact/artifacts/mdbtools-java.jar>

⁸<http://java.net/projects/jai-imageio>

⁹http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/lastSuccessfulBuild/artifact/artifacts/jai_imageio.jar

¹⁰<http://www.unidata.ucar.edu/software/netcdf-java/>

¹¹<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/lastSuccessfulBuild/artifact/artifacts/netcdf-4.0.jar>

¹²<http://www.apple.com/quicktime/download/standalone.html>

¹³<https://github.com/openmicroscopy/bioformats/blob/develop/build.xml>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/develop/jar>

Examples of usage

`ImageConverter`¹⁵ - A simple command line tool for converting between formats.

`ImageInfo`¹⁶ - A more involved command line utility for thoroughly reading an input file, printing some information about it, and displaying the pixels onscreen using the Bio-Formats viewer.

`MinimumWriter`¹⁷ - A command line utility demonstrating the minimum amount of metadata needed to write a file.

`PrintTimestamps`¹⁸ - A command line example demonstrating how to extract timestamps from a file.

`Simple_Read`¹⁹ - A simple ImageJ plugin demonstrating how to use Bio-Formats to read files into ImageJ (see *ImageJ*).

`Read_Image`²⁰ - An ImageJ plugin that uses Bio-Formats to build up an image stack, reading image planes one by one (see *ImageJ*).

`Mass_Importer`²¹ - A simple plugin for ImageJ that demonstrates how to open all image files in a directory using Bio-Formats, grouping files with similar names to avoiding opening the same dataset more than once (see *ImageJ*).

A Note on Java Web Start (`loci_tools.jar` vs. `bio-formats.jar`)

To use Bio-Formats with your Java Web Start application, we recommend using **bio-formats.jar** rather than **loci_tools.jar**—the latter is merely a bundle of **bio-formats.jar** plus all its optional dependencies.

The **loci_tools.jar** bundle is intended as a convenience (e.g. to simplify installation as an ImageJ plugin), but is by no means the only solution for developers. We recommend using **bio-formats.jar** as a separate entity depending on your needs as a developer.

The bundle is quite large because we have added support for several formats that need large helper libraries (e.g. Imaris' HDF-based format). However, these additional libraries are optional; Bio-Formats has been coded using reflection so that it can both compile and run without them.

When deploying a JNLP-based application, using **loci_tools.jar** directly is not the best approach, since every time Bio-Formats is updated, the server would need to feed another 8+ MB JAR file to the client. Rather, Web Start is a case where you should keep the JARs separate, since JNLP was designed to make management of JAR dependencies trivial for the end user. By keeping **bio-formats.jar** and the optional dependencies separate, only a <1 MB JAR needs to be updated when **bio-formats.jar** changes.

As a developer, you have the option of packaging **bio-formats.jar** with as many or as few optional libraries as you wish, to cut down on file size as needed. You are free to make whatever kind of “stripped down” version you require. You could even build a custom **bio-formats.jar** that excludes certain classes, if you like.

For an explicit enumeration of all the optional libraries included in **loci_tools.jar**, see the `loci-tools.libraries` variable of the `ant/toplevel.properties`²² file of the distribution. You can also read our notes about each in the source distribution's Ant `build.xml`²³ script.

Also see [Bio-Formats Javadocs](#)²⁴

¹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio-tools/src/loci/formats/tools/ImageConverter.java>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio-tools/src/loci/formats/tools/ImageInfo.java>

¹⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/utills/MinimumWriter.java>

¹⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/utills/PrintTimestamps.java>

¹⁹https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/Simple_Read.java

²⁰https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/Read_Image.java

²¹https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utills/Mass_Importer.java

²²<https://github.com/openmicroscopy/bioformats/blob/develop/ant/toplevel.properties>

²³<https://github.com/openmicroscopy/bioformats/blob/develop/build.xml#L240>

²⁴<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

11.2 Examples

11.2.1 Exporting files using Bio-Formats

This guide pertains to version 4.2 and later.

Basic conversion

The first thing we need to do is set up a reader:

```
// create a reader that will automatically handle any supported format
IFormatReader reader = new ImageReader();
// tell the reader where to store the metadata from the dataset
reader.setMetadataStore(MetadataTools.createOMEXMLMetadata());
// initialize the dataset
reader.setId("/path/to/file");
```

Now, we set up our writer:

```
// create a writer that will automatically handle any supported output format
IFormatWriter writer = new ImageWriter();
// give the writer a MetadataRetrieve object, which encapsulates all of the
// dimension information for the dataset (among many other things)
writer.setMetadataRetrieve(MetadataTools.asRetrieve(reader.getMetadataStore()));
// initialize the writer
writer.setId("/path/to/output/file");
```

Note that the extension of the file name passed to 'writer.setId(...)' determines the file format of the exported file.

Now that everything is set up, we can start writing planes:

```
for (int series=0; series<reader.getSeriesCount(); series++) {
    reader.setSeries(series);
    writer.setSeries(series);

    for (int image=0; image<reader.getImageCount(); image++) {
        writer.saveBytes(image, reader.openBytes(image));
    }
}
```

Finally, make sure to close both the reader and the writer. Failure to do so can cause:

- file handle leaks
- memory leaks
- truncated output files

Fortunately, closing the files is very easy:

```
reader.close();
writer.close();
```

Converting large images

The flaw in the previous example is that it requires an image plane to be fully read into memory before it can be saved. In many cases this is fine, but if you are working with very large images (especially > 4 GB) this is problematic.

The solution is to break each image plane into a set of reasonably-sized tiles and save each tile separately - thus substantially reducing the amount of memory required for conversion.

For now, we'll assume that your tile size is 1024 x 1024, though in practice you will likely want to adjust this. Assuming you have an IFormatReader and IFormatWriter set up as in the previous example, let's start writing planes:

```
int tileWidth = 1024;
int tileHeight = 1024;

for (int series=0; series<reader.getSeriesCount(); series++) {
    reader.setSeries(series);
    writer.setSeries(series);

    // determine how many tiles are in each image plane
    // for simplicity, we'll assume that the image width and height are
    // multiples of 1024

    int tileRows = reader.getSizeY() / tileHeight;
    int tileColumns = reader.getSizeX() / tileWidth;

    for (int image=0; image<reader.getImageCount(); image++) {
        for (int row=0; row<tileRows; row++) {
            for (int col=0; col<tileColumns; col++) {
                // open a tile - in addition to the image index, we need to specify
                // the (x, y) coordinate of the upper left corner of the tile,
                // along with the width and height of the tile

                int xCoordinate = col * tileWidth;
                int yCoordinate = row * tileHeight;
                byte[] tile =
                    reader.openBytes(image, xCoordinate, yCoordinate, tileWidth, tileHeight);
                writer.saveBytes(
                    image, tile, xCoordinate, yCoordinate, tileWidth, tileHeight);
            }
        }
    }
}
```

As noted, the example assumes that the width and height of the image are multiples of the tile dimensions. Be careful, as this is not always the case; the last column and/or row may be smaller than preceding columns/rows. An exception will be thrown if you attempt to read or write a tile that is not completely contained by the original image plane. Most writers perform best if the tile width is equal to the image width, although specifying any valid width should work.

As before, you need to close the reader and writer.

Converting to multiple files

The recommended method of converting to multiple files is to use a single IFormatWriter, like so:

```
// you should have set up a reader as in the first example
ImageWriter writer = new ImageWriter();
writer.setMetadataRetrieve(MetadataTools.asRetrieve(reader.getMetadataStore()));
// replace this with your own filename definitions
// in this example, we're going to write half of the planes to one file
// and half of the planes to another file
String[] outputFiles =
    new String[] {"/path/to/file/1.tiff", "/path/to/file/2.tiff"};
writer.setId(outputFiles[0]);
```

```

int planesPerFile = reader.getImageCount() / outputFiles.length;
for (int file=0; file<outputFiles.length; file++) {
    writer.changeOutputFile(outputFiles[file]);
    for (int image=0; image<planesPerFile; image++) {
        int index = file * planesPerFile + image;
        writer.saveBytes(image, reader.openBytes(index));
    }
}

reader.close();
writer.close();

```

The advantage here is that the relationship between the files is preserved when converting to formats that support multi-file datasets internally (namely OME-TIFF). If you are only converting to graphics formats (e.g. JPEG, AVI, MOV), then you could also use a separate IFormatWriter for each file, like this:

```

// again, you should have set up a reader already
String[] outputFiles = new String[] {"/path/to/file/1.avi", "/path/to/file/2.avi"};
int planesPerFile = reader.getImageCount() / outputFiles.length;
for (int file=0; file<outputFiles.length; file++) {
    ImageWriter writer = new ImageWriter();
    writer.setMetadataRetrieve(MetadataTools.asRetrieve(reader.getMetadataStore()));
    writer.setId(outputFiles[file]);
    for (int image=0; image<planesPerFile; image++) {
        int index = file * planesPerFile + image;
        writer.saveBytes(image, reader.openBytes(index));
    }
    writer.close();
}

```

Known issues

List of Trac tickets²⁵

11.2.2 Further details on exporting raw pixel data to OME-TIFF files

This document explains how to export pixel data to OME-TIFF using Bio-Formats version 4.2 and later.

The first thing that must happen is we must create the object that stores OME-XML metadata. This is done as follows:

```

ServiceFactory factory = new ServiceFactory();
OMEXMLService service = factory.getInstance(OMEXMLService.class);
IMetadata omexml = service.createOMEXMLMetadata();

```

The ‘omexml’ object can now be used in our code to store OME-XML metadata, and by the file format writer to retrieve OME-XML metadata.

Now that we have somewhere to put metadata, we need to populate as much metadata as we can. The minimum amount of metadata required is:

- endianness of the pixel data
- the order in which dimensions are stored
- the bit depth of the pixel data

²⁵<http://trac.openmicroscopy.org.uk/ome/query?status=accepted&status=new&status=reopened&keywords=export&component=Bio-Formats&col=id&col=summary&col=status&col=type&col=priority&col=milestone&col=component&order=priority>

- the number of channels
- the number of timepoints
- the number of Z sections
- the width (in pixels) of an image
- the height (in pixels) of an image
- the number of samples per channel (3 for RGB images, 1 otherwise)

We populate that metadata as follows:

```
omexml.setImageID("Image:0", 0);
omexml.setPixelsID("Pixels:0", 0);

// specify that the pixel data is stored in big-endian order
// replace 'TRUE' with 'FALSE' to specify little-endian order
omexml.setPixelsBinDataBigEndian(Boolean.TRUE, 0, 0);

omexml.setPixelsDimensionOrder(DimensionOrder.XYCZT, 0);
omexml.setPixelsType(PixelType.UINT16, 0);
omexml.setPixelsSizeX(new PositiveInteger(width), 0);
omexml.setPixelsSizeY(new PositiveInteger(height), 0);
omexml.setPixelsSizeZ(new PositiveInteger(zSectionCount), 0);
omexml.setPixelsSizeC(new PositiveInteger(channelCount *
samplesPerChannel), 0);
omexml.setPixelsSizeT(new PositiveInteger(timepointCount), 0);

for (int channel=0; channel<channelCount; channel++) {
    omexml.setChannelID("Channel:0:" + channel, 0, channel);
    omexml.setChannelSamplesPerPixel(new PositiveInteger(samplesPerChannel),
0, channel);
}
```

There is much more metadata that can be stored; please see the Javadoc for `loci.formats.meta.MetadataStore` for a complete list.

Now that we have defined all of the metadata, we need to create a file writer:

```
ImageWriter writer = new ImageWriter();
```

Now we must associate the ‘omexml’ object with the file writer:

```
writer.setMetadataRetrieve(omexml);
```

The writer now knows to retrieve any metadata that it needs from ‘omexml’.

We now tell the writer which file it should write to:

```
writer.setId("output-file.ome.tiff");
```

It is critical that the file name given to the writer ends with “.ome.tiff” or “.ome.tif”, as it is the file name extension that determines which format will be written.

Now that everything is set up, we can save the image data. This is done plane by plane, and we assume that the pixel data is stored in a 2D byte array ‘pixelData’:

```
int sizeC = omexml.getPixelsSizeC(0).getValue();
int sizeZ = omexml.getPixelsSizeZ(0).getValue();
int sizeT = omexml.getPixelsSizeT(0).getValue();
int samplesPerChannel = omexml.getChannelSamplesPerPixel(0).getValue();
```

```

sizeC /= samplesPerChannel;

int imageCount = sizeC * sizeZ * sizeT;

for (int image=0; image<imageCount; image++) {
    writer.saveBytes(image, pixelData[image]);
}
}

```

Finally, we must tell the writer that we are finished, so that the output file can be properly closed:

```
writer.close();
```

There should now be a complete OME-TIFF file at whichever path was specified above.

11.2.3 Converting files from FV1000 OIB/OIF to OME-TIFF

This document explains how to convert a file from FV1000 OIB/OIF to OME-TIFF using Bio-Formats version 4.2 and later.

The first thing that must happen is we must create the object that stores OME-XML metadata. This is done as follows:

```

ServiceFactory factory = new ServiceFactory();
OMEXMLService service = factory.getInstance(OMEXMLService.class);
IMetadata omexml = service.createOMEXMLMetadata();

```

The ‘omexml’ object can now be used by both a file format reader and a file format writer for storing and retrieving OME-XML metadata.

Now that we have somewhere to put metadata, we need to create a file reader and writer:

```

ImageReader reader = new ImageReader();
ImageWriter writer = new ImageWriter();

```

Now we must associate the ‘omexml’ object with the file reader and writer:

```

reader.setMetadataStore(omexml);
writer.setMetadataRetrieve(omexml);

```

The reader now knows to store all of the metadata that it parses into ‘omexml’, and the writer knows to retrieve any metadata that it needs from ‘omexml’.

We now tell the reader and writer which files will be read from and written to, respectively:

```

reader.setId("input-file.oib");
writer.setId("output-file.ome.tiff");

```

It is critical that the file name given to the writer ends with “.ome.tiff” or “.ome.tif”, as it is the file name extension that determines which format will be written.

Now that everything is set up, we can convert the image data. This is done plane by plane:

```

for (int series=0; series<reader.getSeriesCount(); series++) {
    reader.setSeries(series);
    writer.setSeries(series);

    byte[] plane = new byte[FormatTools.getPlaneSize(reader)];
    for (int image=0; image<reader.getImageCount(); image++) {
        reader.openBytes(image, plane);
        writer.saveBytes(image, plane);
    }
}

```

```

    }
}

```

The body of the outer ‘for’ loop may also be replaced with the following:

```

reader.setSeries(series);
writer.setSeries(series);

for (int image=0; image<reader.getImageCount(); image++) {
    byte[] plane = reader.openBytes(image);
    writer.saveBytes(image, plane);
}

```

But note that this will be a little slower.

Finally, we must tell the reader and writer that we are finished, so that the input and output files can be properly closed:

```

reader.close();
writer.close();

```

There should now be a complete OME-TIFF file at whichever path was specified above.

11.2.4 Using Bio-Formats in Matlab

This section assumes that you have installed the **bfopen.m script** and **loci_tools.jar**, as instructed [here](#).

The first thing to do is initialize a file:

```
data = bfopen('/path/to/data/file');
```

‘data’ is an array whose structure is a bit complicated. It is an n-by-4 array, where n is the number of series in the dataset:

- The {s, 1} element (if s is the series index between 1 and n) is an m-by-2 array, where m is the number of planes in the series:
 - The {s, 1, t, 1} element (where t is the image index between 1 and m) contains the pixel data for the t-th image in the s-th series.
 - The {s, 1, t, 2} element contains the label for said image.
- The {s, 2} element of ‘data’ contains original metadata key/value pairs that apply to the s-th series.
- The {s, 3} element of ‘data’ contains color lookup tables for each image in the series.
- The {s, 4} element of ‘data’ contains a standardized OME metadata structure, which is the same regardless of the input file format, and contains common metadata values such as physical pixel sizes—see “Accessing OME metadata” below for examples.

Accessing planes

Here is an example of how to unwrap specific image planes for easy access:

```

data = bfopen('/path/to/data/file');
seriesCount = size(data, 1);
series1 = data{1, 1};
series2 = data{2, 1};
series3 = data{3, 1};
metadataList = data{1, 2};

```

```
% ...etc.
series1_planeCount = size(series1, 1);
series1_plane1 = series1{1, 1};
series1_label1 = series1{1, 2};
series1_plane2 = series1{2, 1};
series1_label2 = series1{2, 2};
series1_plane3 = series1{3, 1};
series1_label3 = series1{3, 2};
% ...etc.
```

Displaying images

If you want to display one of the images, you can do so as follows:

```
data = b fopen('/path/to/data/file');
% plot the 1st series's 1st image plane in a new figure
series1 = data{1, 1};
series1_plane1 = series1{1, 1};
series1_label1 = series1{1, 2};
series1_colorMaps = data{1, 3};
figure('Name', series1_label1);
if (isempty(series1_colorMaps{1}))
    colorMap(gray);
else
    colorMap(series1_colorMaps{1});
end
imagesc(series1_plane1);
```

This will display the first image of the first series with its associated color map (if present). If you would prefer not to apply the color maps associated with each image, simply comment out the calls to 'colorMap'.

Using the image processing toolbox

If you have the image processing toolbox, you could instead use:

```
imshow(series1_plane1, []);
```

Displaying an animation

Here is an example that animates as a movie (assumes 8-bit unsigned data):

```
v = linspace(0, 1, 256)';
cmap = [v v v];
for p = 1:series1_numPlanes
    M(p) = im2frame(uint8(series1{p, 1}), cmap);
end
movie(M);
```

Retrieving metadata

There are two kinds of metadata:

- **Original metadata** is a set of key/value pairs specific to the input format of the data. It is stored in the [s, 2] element of the data structure returned by `b fopen`.

- **OME metadata** is a standardized metadata structure, which is the same regardless of input file format. It is stored in the [s, 4] element of the data structure returned by `bfopen`, and contains common metadata values such as physical pixel sizes, instrument settings, and much more. See the [OME Model and Formats](#)²⁶ pages for full details.

Accessing original metadata

To retrieve the metadata value for specific keys:

```
data = bfopen('/path/to/data/file');
% Query some metadata fields (keys are format-dependent)
metadata = data{1, 2};
subject = metadata.get('Subject');
title = metadata.get('Title');
```

To print out all of the metadata key/value pairs for the first series:

```
data = bfopen('/path/to/data/file');
metadata = data{1, 2};
metadataKeys = metadata.keySet().iterator();
for i=1:metadata.size()
    key = metadataKeys.nextElement();
    value = metadata.get(key);
    fprintf('%s = %s\n', key, value)
end
```

Accessing OME metadata

Conversion of metadata to the OME standard is one of Bio-Formats' primary features. The OME metadata is always stored the same way, regardless of input file format.

To access physical voxel and stack sizes of the data:

```
data = bfopen('/path/to/data/file');
omeMeta = data{1, 4};
stackSizeX = omeMeta.getPixelsSizeX(0).getValue(); % image width, pixels
stackSizeY = omeMeta.getPixelsSizeY(0).getValue(); % image height, pixels
stackSizeZ = omeMeta.getPixelsSizeZ(0).getValue(); % number of Z slices
voxelSizeX = omeMeta.getPixelsPhysicalSizeX(0).getValue(); % in µm
voxelSizeY = omeMeta.getPixelsPhysicalSizeY(0).getValue(); % in µm
voxelSizeZ = omeMeta.getPixelsPhysicalSizeZ(0).getValue(); % in µm
```

Saving files

First, make sure that you have **loci_tools.jar** installed in your MATLAB work folder.

Now, here is the basic code for saving planes (2 channels x 2 timepoints) to a file:

```
javaaddpath(fullfile(fileparts(mfilename('fullpath')), 'loci_tools.jar'));
writer = loci.formats.ImageWriter();
metadata = loci.formats.MetadataTools.createOMEXMLMetadata();
metadata.createRoot();
metadata.setImageID('Image:0', 0);
metadata.setPixelsID('Pixels:0', 0);
```

²⁶<http://www.openmicroscopy.org/site/support/ome-model/>


```

metadata.setPixelsBinDataBigEndian(java.lang.Boolean.TRUE, 0, 0);
metadata.setPixelsDimensionOrder(ome.xml.model.enums.DimensionOrder.XYZCT, 0);
metadata.setPixelsType(ome.xml.model.enums.PixelType.UINT8, 0);

imageWidth = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(64))
imageHeight = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(64))
numZSections = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(1))
numChannels = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(2))
numTimepoints = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(2))
samplesPerPixel = ome.xml.model.primitives.PositiveInteger(java.lang.Integer(1))

metadata.setPixelsSizeX(imageWidth, 0);
metadata.setPixelsSizeY(imageHeight, 0);
metadata.setPixelsSizeZ(numZSections, 0);
metadata.setPixelsSizeC(numChannels, 0);
metadata.setPixelsSizeT(numTimepoints, 0);
metadata.setChannelID('Channel:0:0', 0, 0);
metadata.setChannelSamplesPerPixel(samplesPerPixel, 0, 0);
metadata.setChannelID('Channel:0:1', 0, 1);
metadata.setChannelSamplesPerPixel(samplesPerPixel, 0, 1);

writer.setMetadataRetrieve(metadata);
writer.setId("my-file.ome.tiff");
writer.saveBytes(0, plane); % channel 0, timepoint 0
writer.saveBytes(1, plane); % channel 1, timepoint 0
writer.saveBytes(2, plane); % channel 0, timepoint 1
writer.saveBytes(3, plane); % channel 1, timepoint 1
writer.close();

```

This example will write a single plane to an OME-TIFF file. It assumes that there are 8 unsigned bits per pixel, and that the image is 64 pixels x 64 pixels. In your own code, you will need to adjust the dimensions and pixel type accordingly. Also, ‘plane’ is an array constructed like so:

```
plane = zeros(1, 64 * 64, 'uint8');
```

There is also a script that can save MATLAB arrays to supported formats:

[bfsave.m](#)²⁷

11.2.5 Source code

If you are interested in the latest Bio-Formats source code from our [Git](#)²⁸ repository, you can access it using the repository path:

```
git@github.com:openmicroscopy/bioformats.git
```

You can also browse the [Bio-Formats source on GitHub](#)²⁹

To build the code, you can use our Ant build script—try “ant -p” for a list of targets. In general, “ant jars” or “ant tools” is the correct command.

Lastly, you can browse the [Bio-Formats Javadocs online](#)³⁰, or generate them yourself using the “docs” Ant target.

²⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/matlab/bfsave.m>

²⁸<http://git-scm.com/>

²⁹<https://github.com/openmicroscopy/bioformats>

³⁰<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

INTERFACING FROM NON-JAVA CODE

12.1 Solutions for interfacing from non-Java code

Bio-Formats is written in Java, and is easiest to use with other Java code. However, it is possible to call Bio-Formats from a program written in another language. But how to do so depends on your program's needs.

Technologically, there are two broad categories of solutions: **in-process** approaches, and **inter-process** communication. See below for discussion and examples of each. For further reading, check out [Codemesh's technology comparison](#)¹.

Recommended **in-process solution**: *Bio-Formats C++ bindings*

Recommended **inter-process solution**: *Subimager*

12.1.1 In-process approaches

With an in-process approach, your application directly invokes Java code, either by spawning its own internal Java Virtual Machine (JVM) and passing data across a bridge, or otherwise executing the Java code within a single environment.

Strengths	Weaknesses
Tight (API-level) integration	No shared state between processes
Minimal performance overhead	Limited portability
Few security considerations	

Paradigms:

- *JNI* – The most common paradigm is the [Java Native Interface](#)², an API for interfacing Java programs with [native](#)³ C/C++ code. Functionality exists to 1) call C/C++ methods from Java, and 2) spawn a Java Virtual Machine and execute Java instructions from C/C++. The latter direction, known as [Java Invocation](#)⁴, is the relevant one for calling Bio-Formats from C++. Because using the JNI directly involves writing a lot of tedious glue code, several projects have emerged for autogenerating such code. *See below: raw JNI, Jace, JunC++ion, JiggerNET*
- *Compilers* – The dominant paradigm in Java is to compile Java source to Java bytecode, then execute the bytecode in a Java interpreter. However, an alternative is to compile the Java source directly to native code so that it can link with other native programs. Such an approach requires that the compiler provide correct support for all necessary Java standard library features. It may also exhibit much different performance (for better or for worse) than Sun's Java implementation does. *See below: GCJ*

¹<http://codemesh.com/technology.html>

²http://en.wikipedia.org/wiki/Java_Native_Interface

³http://en.wikipedia.org/wiki/Native_mode

⁴<http://java.sun.com/javase/6/docs/technotes/guides/jni/spec/invocation.html>

- *Runtimes* – The safest way to guarantee correct program behavior is to execute Java bytecode using the Java interpreter(s) with which it has been tested (which in the case of Bio-Formats is Sun’s implementation). However, a Java runtime written using a specific framework (e.g., .NET) could enable seamless integration with other (non-Java) programs within the same framework. Like the compiler-based paradigm above, though, it is reliant on the correctness, completeness and performance of the Java implementation in question. *See below: IKVM.NET*

12.1.2 Inter-process communication

The other approach is [inter-process communication](#)⁵, a broad collection of techniques for exchanging data between multiple running programs. Such techniques take many forms in computing; one ubiquitous example is web browsers and web servers. Most solutions in this category are some form of [middleware](#)⁶.

Strengths	Weaknesses
Share state between multiple processes on multiple machines	Object marshalling ⁷ incurs significant overhead
Broad portability and language support	Potentially vulnerable to security exploits

Paradigms:

- *Local communication* – Modern operating systems provide several ways to share information between processes, including shared memory, file system access, and passing data back and forth with [standard input and output streams](#)⁸. *See below: pipes, files*
- *Messaging* – Networking technology allows a process on one computer to send and receive messages from another process on a different machine. The [client-server](#)⁹ model is probably most applicable for Java/native integration, with the Java portion acting as a server that can be queried from the native code. *See below: sockets, XML-RPC*
- *ORB* – An [object request broker](#)¹⁰ (ORB) is a high-level form of middleware for transferring objects between multiple running programs. ORBs provide an abstraction that can reduce and simplify code written by providing access to a wealth of higher-level messaging features. *See below: Ice, CORBA, Codemesh Shared JVM*

12.1.3 List of solutions

It is a significant challenge to access a complex Java API from code written in another language, especially in a cross-platform and high performance way. The table below provides an overview of viable approaches, further details are provided below it with links to source code and instructions where appropriate. Which approach to use depends on your application’s target platforms and languages, and the interaction model between your application and the Java code—see the discussion of in-process solutions versus inter-process communication above for details.

A note about SWIG. The [Simplified Wrapper and Interface Generator](#)¹¹ (SWIG) is an excellent tool for exposing C++ functionality to higher level languages such as Java. Unfortunately, calling native code from Java is the wrong direction for our purposes. However, when combined with an integration solution specific to C++, SWIG could be used to extend that solution into other languages (see [SWIG’s list of supported languages](#)¹² for a complete list).

⁵http://en.wikipedia.org/wiki/Inter-process_communication

⁶<http://en.wikipedia.org/wiki/Middleware>

⁷http://en.wikipedia.org/wiki/Marshalling_%28computer_science%29

⁸http://en.wikipedia.org/wiki/Standard_streams

⁹<http://en.wikipedia.org/wiki/Client-server>

¹⁰http://en.wikipedia.org/wiki/Object_request_broker

¹¹<http://www.swig.org/>

¹²<http://www.swig.org/compat.html#SupportedLanguages>

Summary table

Solution	Type	Languages
Raw JNI	In-process (JNI)	C/C++
Jace	In-process (JNI)	C/C++
JunC++ion	In-process (JNI)	C/C++
JuggerNET	In-process (JNI)	.NET
GCJ	In-process (compiler)	C/C++ (GCC only)
IKVM.NET	In-process (runtime)	.NET/Mono
Pipes	Inter-process (local)	Any
Files	Inter-process (local)	Any
Sockets	Inter-process (messaging)	Any
XML-RPC	Inter-process (messaging)	Many ¹³
Ice	Inter-process (ORB)	Several
CORBA	Inter-process (ORB)	Many
Codemesh Shared JVM	Inter-process (ORB)	C++/.NET

Further details

Raw JNI¹⁴

- You can code your integration layer using pure JNI calls (but we don't recommend it).
- Low-level JNI offers full control over the interface between Java and native code.
- Raw JNI solutions are **time-consuming and error-prone**¹⁵ to implement.
- We have coded a **simple example**¹⁶ for calling Bio-Formats this way.
- We recommend a higher level integration solution such as Jace instead.

Jace¹⁷

- Jace generates C++ proxy classes, one per Java class, mirroring the original functionality as much as possible.
- The C++ proxy classes use JNI under the hood but handle most of the usual JNI pitfalls.
- We provide a set of *Bio-Formats C++ bindings* using Jace.

JunC++ion¹⁸

- JunC++ion is a commercial in-process integration solution for C/C++ available from [Codemesh, Inc.](#)¹⁹

JuggerNET²⁰

- JuggerNET is a commercial in-process integration solution for .NET available from [Codemesh, Inc.](#)²¹

GCJ²²

- GCJ can compile Java code into machine code.

¹³<http://en.wikipedia.org/wiki/XML-RPC#Implementations>

¹⁴<http://java.sun.com/javase/6/docs/technotes/guides/jni/spec/invocation.html>

¹⁵<http://codemesh.com/technology.html#jni>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/utils/showinfJNI.cpp>

¹⁷<http://sourceforge.net/projects/jace/>

¹⁸<http://codemesh.com/products/junction/>

¹⁹<http://www.codemesh.com/>

²⁰<http://codemesh.com/products/juggernet/>

²¹<http://www.codemesh.com/>

²²<http://gcc.gnu.org/java/>

- Instead of JNI, GCJ uses its [Compiler Native Interface](#)²³ (CNI) to enable access to Java code from C++.
- Works with GCC only (i.e., not with Microsoft Visual C++ or other compilers).
- Correctness and performance is dependent on the compiler implementation.

IKVM.NET²⁴

- IKVM.NET interprets Java byte code on the fly into the .NET/Mono framework.
- Interoperability is limited to applications in the .NET/Mono framework.
- Correctness and performance is dependent on the runtime implementation.

Pipes²⁵

- Pipes can work well when quantity of data being transferred is limited.
- Be careful about blocking operations causing deadlock.
- The [OME Perl server](#)²⁶ uses a combination of pipes and files to interface with Bio-Formats.

Files²⁷

- Communication via files is slower than pipes, since messages go through disk.
- The size of the communication buffer is limited only by available disk space.
- The [OME Perl server](#)²⁸ uses a combination of pipes and files to interface with Bio-Formats.

Sockets²⁹

- You can use a sockets API directly to create a custom solution (but we don't recommend it).
- [JVMLink](#)³⁰ was our first cut at such a solution, before we realized that we were essentially inventing our own middleware.
- We recommend using Ice or CORBA instead.

XML-RPC³¹

- XML-RPC is a cross-platform [remote procedure call](#)³² (RPC) technology using XML.
- XML-RPC is a human readable, but inefficient, means of transporting information.
- See also: [SOAP](#)³³

Ice³⁴

- Ice is high-performance middleware for cross-platform client/server communication.
- [ZeroC](#)³⁵ argues that Ice is superior to [CORBA](#)³⁶.

CORBA³⁷

²³<http://gcc.gnu.org/java/papers/cni/t1.html>

²⁴<http://www.ikvm.net/>

²⁵http://en.wikipedia.org/wiki/Pipeline_%28Unix%29

²⁶<http://www.openmicroscopy.org/site/products/legacy/ome-server>

²⁷http://en.wikipedia.org/wiki/Computer_file

²⁸<http://www.openmicroscopy.org/site/products/legacy/ome-server>

²⁹http://en.wikipedia.org/wiki/Unix_domain_socket

³⁰<http://www.loci.wisc.edu/software/jvmlink>

³¹<http://en.wikipedia.org/wiki/XML-RPC>

³²http://en.wikipedia.org/wiki/Remote_procedure_call

³³http://en.wikipedia.org/wiki/SOAP_%28protocol%29

³⁴<http://www.zeroc.com>

³⁵<http://www.zeroc.com>

³⁶<http://www.zeroc.com/iceVsCorba.html>

³⁷<http://java.sun.com/j2ee/corba/>

- [Java RMI over IIOP](#)³⁸ enables communication between Java and other CORBA-supported languages.
- CORBA is a mature technology with widespread use in the enterprise community.
- Support for CORBA is built in to the Java 2 platform.
- Nonetheless, where possible we suggest you use Ice instead.

Codemesh Shared JVM³⁹

- The Codemesh Shared JVM is a commercial inter-process integration solution available from [Codemesh, Inc.](#)⁴⁰

Know a great integration solution that we missed? [Let us know](#)⁴¹!

12.2 Bio-Formats C++ bindings

To make Bio-Formats accessible to software written in C++, we have created a Bio-Formats C++ interface (BF-CPP for short). It uses LOCI's [jar2lib](#)⁴² program to generate a C++ proxy class for each equivalent Bio-Formats Java class. The resulting proxies are then compiled into a library, which represents the actual interface from C++ to Bio-Formats. Using this library in your projects gives you access to the image support of Bio-Formats.

BF-CPP comes with some standalone examples which you can use as a starting point in your own project:

- [showinf](#)⁴³
- [minimum_writer](#)⁴⁴

Other projects using BF-CPP include:

- [WiscScan](#)⁴⁵ which uses BF-CPP to write [OME-TIFF](#)⁴⁶ files.
- [XuvTools](#) which uses an adapted version of BF-CPP called [BlitzBioFormats](#)⁴⁷.

See the *build instructions (Windows, Mac OS X, Linux)* for details on compiling BF-CPP from source. Once this is done, simply include it in your project as you would any other external library.

12.3 Build instructions for C++ bindings

This package provides language bindings for calling into the Bio-Formats Java library from C++ in a cross-platform manner. As of this writing the bindings are functional with GCC on Linux and Mac OS X systems, as well as with Visual C++ 2005 and Visual C++ 2008 on Windows.

12.3.1 Compile-time dependencies

To build the Bio-Formats C++ bindings from source, the following modules are required:

³⁸<http://java.sun.com/products/rmi-iiop/>

³⁹http://codemesh.com/shared_jvm.html

⁴⁰<http://www.codemesh.com/>

⁴¹<http://www.openmicroscopy.org/site/community/mailing-lists>

⁴²<http://loci.wisc.edu/software/jar2lib>

⁴³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/cppwrap/showinf.cpp>

⁴⁴https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/cppwrap/minimum_writer.cpp

⁴⁵<http://loci.wisc.edu/software/wiscscan>

⁴⁶<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

⁴⁷<http://www.xuvtools.org/devel:libblitzbioformats>

- **Apache Maven**⁴⁸ Maven is a software project management and comprehension tool. Along with Ant, it is one of the supported build systems for the Bio-Formats Java library, and is used to generate the Bio-Formats C++ bindings.
- **CMake**⁴⁹ CMake is a cross-platform, open source build system generator, commonly used to build C++ projects in a platform-independent manner. CMake supports GNU make as well as Microsoft Visual Studio, allowing the Bio-Formats C++ bindings to be compiled on Windows, Mac OS X, Linux and potentially other platforms.
- **Boost Thread**⁵⁰ Boost is a project providing open source portable C++ source libraries. It has become a suite of de facto standard libraries for C++. The Bio-Formats C++ bindings require the Boost Thread module in order to handle C++ threads in a platform independent way.
- **Java Development Kit**⁵¹ At runtime, only the Java Runtime Environment (JRE) is necessary to execute the Bio-Formats code. However, the full J2SE development kit is required at compile time on some platforms (Windows in particular), since it comes bundled with the JVM shared library (jvm.lib) necessary to link with Java.

For information on installing these dependencies, refer to the page for your specific platform: [Windows](#), [Mac OS X](#), [Linux](#).

12.3.2 How to build

The process of building the Bio-Formats C++ bindings is divided into two steps:

1. Generate a C++ project consisting of “proxies” which wrap the Java code. This step utilizes the Maven project management tool, specifically a Maven plugin called cppwrap.
2. Compile this generated C++ project. This step utilizes the cross-platform CMake build system.

For details on executing these build steps, refer to the page for your specific platform: [Windows](#), [Mac OS X](#), [Linux](#).

12.3.3 Build results

If all goes well, the build system will:

1. Generate the Bio-Formats C++ proxy classes;
2. Build the Jace C++ library;
3. Build the Java Tools C++ library;
4. Build the Bio-Formats C++ shared library;
5. Build the `showinf` and `minimum_writer` command line tools, for testing the functionality.

Please be patient, as the build may require several minutes to complete.

Afterwards, the `dist/scifio` subdirectory will contain the following files:

1. `libjace.so` / `libjace.jnilib` / `jace.dll` : Jace shared library
2. `libscifio.so` / `libscifio.dylib` / `scifio.dll` : SCIFIO C++ shared library
3. `jace-runtime.jar` : Jace Java classes needed at runtime
4. `loci_tools.jar` : Bio-Formats Java library needed at runtime
5. `libjtools.so` / `libjtools.jnilib` / `jtools.dll` : Java Tools shared library
6. `showinf` / `showinf.exe` : Example command line application
7. `minimum_writer` / `minimum_writer.exe` : Example command line application

Items 1-4 are necessary and required to deploy Bio-Formats with your C++ application. Item 5 (jtools) is a useful helper library for managing the Java virtual machine from C++, but is not strictly necessary to use Bio-Formats. All other files, including the example programs and various build files generated by CMake, are not needed.

If you prefer, instead of using the `loci_tools.jar` bundle, you can provide individual JAR files as appropriate for your application. For details, see *using Bio-Formats as a Java library*.

Please direct any questions to the OME team on the [forums](#)⁵² or [mailing lists](#)⁵³.

12.4 Building C++ bindings in Windows

12.4.1 Compile-time dependencies – Windows

Windows users will need to visit the appropriate web sites and download and install the relevant binaries for all the dependencies.

To configure the tools, you will need to edit or create several environment variables on your system. Access them by clicking the “Environment Variables” button from Control Panel, System, Advanced tab. Use semicolons to separate multiple directories in the PATH variable.

12.4.2 Compile-time dependencies – Windows – Maven

Download [Maven](#)⁵⁴.

Unpack the Maven archive into your Program Files, then add the folder’s bin subdirectory to your PATH environment variable; e.g.:

```
C:\Program Files\apache-maven-3.0.4\bin
```

Once set, new Command Prompts will recognize “mvn” as a valid command.

12.4.3 Compile-time dependencies – Windows – CMake

Download and run the [CMake installer](#)⁵⁵.

During installation, select the “Add CMake to the system PATH for all users” option to ensure that Bio-Formats build system can find your CMake executable.

Once installed, new Command Prompts will recognize “cmake” and “cmake-gui” as valid commands.

12.4.4 Compile-time dependencies – Windows – Boost

The easiest way to install the Boost Thread library on Windows is to use the free installer from [BoostPro](#)⁵⁶.

When running the installer:

- Under “Compilers,” check the version of Visual C++ matching your system.
- Under “Variants,” check all eight boxes.

⁵²<http://www.openmicroscopy.org/community/>

⁵³<http://lists.openmicroscopy.org.uk/mailman/listinfo/>

⁵⁴<http://maven.apache.org/>

⁵⁵<http://cmake.org/>

⁵⁶<http://www.boostpro.com/download/>

- When choosing components, check “Boost DateTime” and “Boost Thread.”

12.4.5 Compile-time dependencies – Windows – Java Development Kit

Download and install the [JDK](#)⁵⁷.

After the installation is complete, create a new environment variable called `JAVA_HOME` pointing to your Java installation; e.g.:

```
C:\Program Files\Java\jdk1.6.0_25
```

Setting `JAVA_HOME` is the easiest way to ensure that Maven can locate Java.

You will also need to append your JDK’s client or server VM folder to the `PATH`; e.g.:

```
%JAVA_HOME%\jre\bin\client
```

This step ensures that a directory containing `jvm.dll` is present in the `PATH`. If you do not perform this step, you will receive a runtime error when attempting to initialize a JVM from native code.

Optionally, you can add the `bin` subdirectory to the `PATH`; e.g.:

```
%JAVA_HOME%\bin
```

Once set, new Command Prompts will recognize (e.g.) “`javac`” as a valid command.

12.4.6 Compile-time dependencies – Windows – Visual C++

In addition to the other prerequisites, you will also need a working copy of Visual C++. We have tested compilation with Visual C++ 2005 Professional and Visual C++ 2008 Express; other versions may or may not work.

You can download [Visual C++ Express for free](#)⁵⁸.

You must launch the environment at least once before you will be able to compile the Bio-Formats C++ bindings.

12.4.7 How to build - Windows

Run Command Prompt and change to your Bio-Formats working copy. Then run:

```
# generate the Bio-Formats C++ bindings
cd components\scifio
mvn -DskipTests package dependency:copy-dependencies cppwrap:wrap

# build the Bio-Formats C++ bindings
cd target\cppwrap
mkdir build
cd build
cmake-gui ..
```

The CMake GUI will open. Click the Configure button, and a dialog will appear. Select your installed version of Visual Studio, and click Finish.

When configuring, you can use the `J2L_WIN_BUILD_DEBUG` flag to indicate if this will be a Debug or Release build. If the flag is checked it will build as Debug, unchecked will build as Release.

Once configuration is complete, click Configure again, repeating as necessary until the Generate button becomes available. Then click Generate. Once generation is complete, close the CMake window.

⁵⁷<http://www.oracle.com/technetwork/java/javase/downloads/>

⁵⁸<http://www.microsoft.com/express/>

Back at the Command Prompt, type:

```
start jace.sln
```

The solution will then open in Visual Studio. Select Release or Debug as appropriate from the drop-down menu. Press F7 to compile (or select Build Solution from the Build menu).

12.5 Building C++ bindings in Mac OS X

12.5.1 Compile-time dependencies – Mac OS X

To install dependencies on Mac OS X, we advise using [Homebrew](#)⁵⁹:

```
brew install maven cmake boost
```

Unless otherwise configured, this will install binaries into `/usr/local/`.

12.5.2 How to build – Mac OS X

The following commands will generate and build the Bio-Formats C++ bindings:

```
# generate the C++ bindings
cd components/scifio
mvn -DskipTests package dependency:copy-dependencies cppwrap:wrap

# compile the C++ bindings
cd target/cppwrap
mkdir build
cd build
cmake ..
make
```

12.6 Building C++ bindings in Linux

12.6.1 Compile-time dependencies – Linux

The following directions are specific to Ubuntu Linux. Other Linux distributions may have similar packages available; check your package manager.

To install dependencies on Ubuntu Linux, execute:

```
# install code generation prerequisites
sudo aptitude install maven2

# install build prerequisites
sudo aptitude install build-essential cmake libboost-thread-dev

# install Java Development Kit
sudo aptitude install sun-java6-jdk
sudo update-alternatives --config java
```

⁵⁹<http://mxcl.github.com/homebrew/>

Then select Sun's Java implementation as the system default.

It may be possible to use a different Java compiler (i.e., omit the sun-java6-jdk package and update-alternatives step), but we have only tested the compilation process with Sun's Java compiler.

12.6.2 How to build – Linux

The following commands will generate and build the Bio-Formats C++ bindings:

```
# generate the Bio-Formats C++ bindings
cd components/scifio
mvn -DskipTests package dependency:copy-dependencies cppwrap:wrap

# build the Bio-Formats C++ bindings
cd target/cppwrap
mkdir build
cd build
cmake ..
make
```

SCIFIO provides the core architecture of the Bio-Formats library and also includes reader and writer implementations for open file formats. The more permissive BSD license enables non-GPL third party software to read and write OME-TIFF using SCIFIO alone.

13.1 SCientific Imaging Formats Input and Output

13.1.1 Motivation

SCIFIO is a refactoring of *Bio-Formats*. Classic Bio-Formats uses OME-XML¹ to model the metadata for a given image, standardizing all supported formats to this schema. This tight integration, along with the naming itself of Bio-Formats, discourages potential users from outside the life sciences (if their imaging requirements include metadata outside the OME-XML specification). Furthermore, the steps of processing image formats are obfuscated by their consolidation into a single **Reader** class; this increases the entry barrier for 3rd party developers to add support for additional formats. Finally, the GPL licensing of Bio-Formats precludes its inclusion in non-GPL software packages such as ImageJ, ITK, VCell and VisAD.

SCIFIO aims to resolve these issues by reversing the OME-XML dependency and teasing apart the stages of image format conversion and processing. SCIFIO will define the core components of flexible image format support. OME-XML will become one type of metadata, which Bio-Formats will still use to standardize the metadata of a wide variety of image formats. Thus Bio-Formats will become an extension to SCIFIO, but the underlying structure will allow any number of such extensions to coexist. Dynamic discovery mechanisms will allow these modules to be used as needed, as long as the underlying program incorporates the SCIFIO core. Further, the SCIFIO core will include support only for the open source formats currently supported by Bio-Formats, allowing distribution under the BSD license (though individual modules can fall under any licensing framework, and Bio-Formats will continue to have a dual GPL + commercial license).

For further information, see the [SCIFIOGrant.pdf](http://loci.wisc.edu/files/loci/software/SCIFIOGrant.pdf)².

13.1.2 Components

Metadata

Metadata is the currency of SCIFIO. Practically every component will either create a Metadata object, take one as input, or both. It is the tangible representation of how a particular format structures its image metadata. One immediate improvement in this representation of the metadata is the opportunity for a dramatic speedup in performance: by serializing and writing a Metadata object to disk, we can eliminate the need to parse an image more than once. Come

¹<http://www.openmicroscopy.org/site/support/ome-model/ome-xml>

²<http://loci.wisc.edu/files/loci/software/SCIFIOGrant.pdf>

back after a week or a month to reanalyze a dataset and one of the most significant performance bottlenecks in Bio-Formats will be gone.

Checker

The Checker series of classes will encapsulate the functionality represented in the current Bio-Formats Reader classes by the `isThisType` method. A Checker for a given image format takes as input a file name and tests whether or not it is recognized, and thus supported, returning the result of the test. This separation lightens the process of finding an appropriate Parser for the image and helps to elucidate the flow of image I/O.

Parser

The first step of actually interacting with an image file will be determining its metadata. A Parser must be created for each supported image format. If its corresponding Checker indicates the current image file matches a Parser's type, the Parser examines the image's header and returns a Metadata object with information specific to its type. This Metadata object can then be passed to a Translator for continued analysis, written to disk for future use, and/or passed directly to a Reader.

Translator

Once the Metadata is isolated, a Translator can be used to convert the original Metadata format to a new format. Each Translator encodes a 1:1 conversion between formats of Metadata objects. In general, the goal of each Translator is to convert from a specific Metadata format to something more general, allowing format-agnostic components to accept the Metadata object even if it originated from a PFF image.

Reader

A Reader takes in an appropriate format-specific Metadata object and uses it to interpret the raw pixels of the original image. The final output is a set of byte arrays, which can be interpreted by a Writer and/or the parent software.

Writer

Writers will likely be very similar to their current form in Bio-Formats. Each Writer will take a Metadata object (often, but not necessarily, format-agnostic) and byte array as input, and write to a random access output stream (e.g. a file on disk).

13.1.3 Additional Improvements

LOCI Common

With a tighter integration of the random access streams from the `loci.common` library, it made sense to migrate these parts to SCIFIO. As this removed some significant functionality from `loci.common`, the entire library was incorporated into sub-packages of SCIFIO.

Multi-dimensionality

As classic Bio-Formats was bound to the OME-XML schema, any image processed by Bio-Formats was forced to a five-dimensional format. However, there is nothing inherently tied to dimensionality in SCIFIO. Thus, SCIFIO will support full N-dimensionality in data and leave any restrictions to the dictation of individual modules.

WRITING NEW BIO-FORMATS FILE FORMAT READERS

14.1 Bio-Formats file format reader guide

This document is a brief guide to writing new Bio-Formats file format readers.

All format readers should extend either `loci.formats.FormatReader`¹ or a reader in `loci.formats.in`².

14.1.1 Methods to override

- `boolean isSingleFile(String id)`³ Whether or not the named file is expected to be the only file in the dataset. This only needs to be overridden for formats whose datasets can contain more than one file.
- `boolean isThisType(RandomAccessInputStream)`⁴ Check the first few bytes of a file to determine if the file can be read by this reader. You can assume that index 0 in the stream corresponds to the index 0 in the file. Return true if the file can be read; false if not (or if there is no way of checking).
- `int fileGroupOption(String id)`⁵ Returns an indication of whether or not the files in a multi-file dataset can be handled individually. The return value should be one of the following:
 - `FormatTools.MUST_GROUP`: the files cannot be handled separately
 - `FormatTools.CAN_GROUP`: the files may be handled separately or as a single unit
 - `FormatTools.CANNOT_GROUP`: the files must be handled separately

This method only needs to be overridden for formats whose datasets can contain more than one file.

- `String[] getSeriesUsedFiles(boolean noPixels)`⁶ You only need to override this if your format uses multiple files in a single dataset. This method should return a list of all files associated with the given file name and the current series (i.e. every file needed to display the current series). If the `noPixels` flag is set, then none of the files returned should contain pixel data. For an example of how this works, see `loci.formats.in.PerkinElmerReader`⁷. It is recommended that the first line of this method be `FormatTools.assertId(currentId, true, 1)` - this ensures that the file name is non-null.
- `byte[] openBytes(int, byte[], int, int, int, int)`⁸ Returns a byte array containing the pixel data for a subimage specified image from the given file. The dimensions of the subimage (upper left X coordinate, upper left Y coordinate, width, and height) are specified in the final four int parameters. This should throw a

¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/FormatReader.java>

²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/>

³[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isSingleFile\(java.lang.String\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isSingleFile(java.lang.String))

⁴[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isThisType\(loci.common.RandomAccessInputStream\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#isThisType(loci.common.RandomAccessInputStream))

⁵[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#fileGroupOption\(java.lang.String\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#fileGroupOption(java.lang.String))

⁶[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSeriesUsedFiles\(boolean\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#getSeriesUsedFiles(boolean))

⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PerkinElmerReader.java>

⁸[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#openBytes\(int, byte\[\], int, int, int, int\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#openBytes(int, byte[], int, int, int, int))

`FormatException` if the image number is invalid (less than 0 or \geq the number of images). The ordering of the array returned by `openBytes` should correspond to the values returned by `isLittleEndian()` and `isInterleaved()`. Also, the length of the byte array should be [image width * image height * bytes per pixel]. Extra bytes will generally be truncated. It is recommended that the first line of this method be `FormatTools.checkPlaneParameters(this, no, buf.length, x, y, w, h)` - this ensures that all of the parameters are valid.

- `protected void initFile(String)`⁹ The majority of the file parsing logic should be placed in this method. The idea is to call this method once (and only once!) when the file is first opened. Generally, you will want to start by calling `super.initFile(String)`. You will also need to set up the stream for reading the file, as well as initializing any dimension information and metadata. Most of this logic is up to you; however, you should populate the ‘core’ variable (see `loci.formats.CoreMetadata`¹⁰).

Note that each variable is initialized to 0 or null when `super.initFile(String)` is called. Also, `super.initFile(String)` constructs a `Hashtable` called “metadata” where you should store any relevant metadata.

- `public void close(boolean fileOnly)`¹¹ Cleans up any resources used by the reader. Global variables should be reset to their initial state, and any open files or delegate readers should be closed.

Note that if the new format is a variant of a format currently supported by Bio-Formats, it is more efficient to make the new reader a subclass of the existing reader (rather than subclassing `FormatReader`¹²). In this case, it is usually sufficient to override `initFile(String)` and `isThisType(byte[])`.

Every reader also has an instance of `loci.formats.CoreMetadata`¹³. All readers should populate the fields in `CoreMetadata`, which are essential to reading image planes.

If you read from a file using something other than `RandomAccessInputStream`¹⁴ or `Location`¹⁵, you *must* use the file name returned by `Location.getMappedId(String)`, not the file name passed to the reader. Thus, a stub for `initFile(String)` might look like this:

```
protected void initFile(String id) throws FormatException, IOException {
    super.initFile(id);

    RandomAccessInputStream in = new RandomAccessInputStream(id);
    // alternatively,
    //FileInputStream in = new FileInputStream(Location.getMappedId(id));

    // read basic file structure and metadata from stream
}
```

For more details, see the `Bio-Formats Javadocs`¹⁶ for `Location.mapId(String, String)` and `Location.getMappedId(String)`.

14.1.2 Variables to populate

There are a number of global variables defined in `loci.formats.FormatReader`¹⁷ that should be populated in the constructor of any implemented reader.

These variables are:

⁹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/FormatReader.html#initFile\(java.lang.String\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/FormatReader.html#initFile(java.lang.String))

¹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/CoreMetadata.java>

¹¹[http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#close\(boolean\)](http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/loci/formats/IFormatReader.html#close(boolean))

¹²<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/FormatReader.java>

¹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/CoreMetadata.java>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/RandomAccessInputStream.java>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/Location.java>

¹⁶<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

¹⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/FormatReader.java>

- `boolean suffixNecessary` Indicates whether or not a file name suffix is required; true by default
- `boolean suffixSufficient` Indicates whether or not a specific file name suffix guarantees that this reader can open a particular file; true by default
- `boolean hasCompanionFiles` Indicates whether or not there is at least one file in a dataset of this format that contains only metadata (no images); false by default
- `String datasetDescription` A brief description of the layout of files in datasets of this format; only necessary for multi-file datasets
- `String[] domains` An array of imaging domains for which this format is used. Domains are defined in `loci.formats.FormatTools`¹⁸.

14.1.3 Other useful things

- `loci.common.RandomAccessInputStream`¹⁹ is a hybrid `RandomAccessFile/InputStream` class that is generally more efficient than either `RandomAccessFile` or `InputStream`, and implements the `DataInput` interface. It is recommended that you use this for reading files.
- `loci.formats.Location`²⁰ provides an API similar to `java.io.File`, and supports File-like operations on URLs. It is highly recommended that you use this instead of `File`. See the `Javadocs`²¹ for additional information.
- `loci.common.DataTools`²² provides a number of methods for converting bytes to shorts, ints, longs, etc. It also supports reading most primitive types directly from a `RandomAccessInputStream` (or other `DataInput` implementation).
- `loci.formats.ImageTools`²³ provides several methods for manipulating primitive type arrays that represent images. Consult the source or `Javadocs` for more information.
- If your reader relies on third-party code which may not be available to all users, it is strongly suggested that you make a corresponding service class that interfaces with the third-party code. Please see *Bio-Formats service and dependency infrastructure* for a description of the service infrastructure, as well as the `loci.formats.services` package²⁴.
- Several common image compression types are supported through subclasses of `loci.formats.codec.BaseCodec`²⁵. These include JPEG, LZW, LZO, Base64, ZIP and RLE (`PackBits`).
- If you wish to convert a file's metadata to OME-XML (strongly encouraged), please see *Bio-Formats metadata processing* for further information.
- Utility methods for reading and writing individual bits from a byte array can be found in `loci.formats.codec.BitBuffer`²⁶ and `loci.formats.codec.BitWriter`²⁷.
- Once you have written your file format reader, add a line to the `readers.txt`²⁸ file with the fully qualified name of the reader, followed by a '#' and the file extensions associated with the file format. Note that `ImageReader`²⁹, the master file format reader, tries to identify which format reader to use according to the order given in `readers.txt`³⁰, so be sure to place your reader in an appropriate position within the list.

¹⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/FormatTools.java>

¹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/RandomAccessInputStream.java>

²⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/Location.java>

²¹<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

²²<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/DataTools.java>

²³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ImageTools.java>

²⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/services/>

²⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/codec/BaseCodec.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/codec/BitBuffer.java>

²⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/codec/BitWriter.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/readers.txt>

²⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ImageReader.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/readers.txt>

- The easiest way to test your new reader is by calling “java loci.formats.tools.ImageInfo <file name>”. If all goes well, you should see all of the metadata and dimension information, along with a window showing the images in the file. `ImageReader`³¹ can take additional parameters; a brief listing is provided below for reference, but it is recommended that you take a look at the contents of `loci.formats.tools.ImageInfo`³² to see exactly what each one does.

Argument	Action
-version	print the library version and exit
file	the image file to read
-nopix	read metadata only, not pixels
-nocore	do not output core metadata
-nometa	do not parse format-specific metadata table
-nofilter	do not filter metadata fields
-thumbs	read thumbnails instead of normal pixels
-minmax	compute min/max statistics
-merge	combine separate channels into RGB image
-nogroup	force multi-file datasets to be read as individual files
-stitch	stitch files with similar names
-separate	split RGB image into separate channels
-expand	expand indexed color to RGB
-omexml	populate OME-XML metadata
-normalize	normalize floating point images*
-fast	paint RGB images as quickly as possible*
-debug	turn on debugging output
-range	specify range of planes to read (inclusive)
-series	specify which image series to read
-swap	override the default input dimension order
-shuffle	override the default output dimension order
-map	specify file on disk to which name should be mapped
-preload	pre-read entire file into a buffer; significantly reduces the time required to read the images, but requires more memory
-crop	crop images before displaying; argument is ‘x,y,w,h’
-autoscale	used in combination with ‘-fast’ to automatically adjust brightness and contrast
-novalid	do not perform validation of OME-XML
-omexml-only	only output the generated OME-XML
-format	read file with a particular reader (e.g., ZeissZVI)

- = may result in loss of precision
- If you wish to test using TestNG, `loci.tests.testng.FormatReaderTest`³³ provides several basic tests that work with all Bio-Formats readers. See the `FormatReaderTest` source code for additional information.
- For more details, please look at the source code and `Javadocs`³⁴. Studying existing readers is probably the best way to get a feel for the API; we would recommend first looking at `loci.formats.in.ImarisReader`³⁵ (this is the most straightforward one). `loci.formats.in.LIFReader`³⁶ and `InCellReader`³⁷ are also good references that show off some of the nicer features of Bio-Formats.

If you have questions about Bio-Formats, please contact the OME team³⁸.

³¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/ImageReader.java>

³²<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio-tools/src/loci/formats/tools/ImageInfo.java>

³³<https://github.com/openmicroscopy/bioformats/blob/develop/components/test-suite/src/loci/tests/testng/FormatReaderTest.java>

³⁴<http://hudson.openmicroscopy.org.uk/job/BIOFORMATS-stable/javadoc/>

³⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImarisReader.java>

³⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LIFReader.java>

³⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/InCellReader.java>

³⁸<http://www.openmicroscopy.org/site/community>

CONTRIBUTING TO BIO-FORMATS

15.1 Developing Bio-Formats

If you are interested in working on the Bio-Formats source code itself, you can load it into your favorite IDE, or develop with your favorite text editor.

The Bio-Formats code is divided into several projects. Core components are located in subfolders of the `components`¹ folder, with some components further classified into `components/forks`², `components/legacy`³, `components/native`⁴ or `components/stubs`⁵, depending on the nature of the project.

Each project has a corresponding Maven POM file, which can be used to work with the project in your favorite IDE, or from the command line, once you have cloned the source. Instructions for several popular options follow.

15.1.1 NetBeans

NetBeans comes with Maven support built in. To import the Bio-Formats source, perform the following steps:

1. Choose File > Open Project from the menu
2. Select the top-level folder of your Bio-Formats working copy
3. Expand the Modules folder and double-click desired project(s) to work with them

Alternately, you can clone the source directly from NetBeans into a project by selecting “Team > Git > Clone Other...” from the menu.

15.1.2 Eclipse

Eclipse uses the M2E plugin to work with Maven projects. It is more flexible than Eclipse’s built-in project management because M2E transparently converts between project dependencies and JAR dependencies (stored in the Maven repository in `~/.m2/repository`) on the build path, depending which projects are currently open.

To import the Bio-Formats source into Eclipse 3.7 (Indigo), you must first install the M2E plugin:

1. From the Eclipse menu, choose Help > Install New Software...
2. In the “Work with:” dropdown, choose “–All Available Sites–”
3. In the filter box, type “m2e”

¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/>

²<https://github.com/openmicroscopy/bioformats/blob/develop/components/forks/>

³<https://github.com/openmicroscopy/bioformats/blob/develop/components/legacy/>

⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/native/>

⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/stubs/>

4. Check the box next to “m2e - Maven Integration for Eclipse” under “Collaboration”
5. Click Next, then Finish

You can then import the Bio-Formats source by choosing “File > Import > Existing Maven Projects” from the menu and browsing to the top-level folder of your Bio-Formats working copy.

15.1.3 Command line

If you prefer developing code with a text editor such as vim or emacs, you can use the Ant or Maven command line tools to compile Bio-Formats. The Bio-Formats source tree provides parallel build systems for both Ant and Maven, so you can use either one to build the code.

For a list of Ant targets, run:

```
ant -p
```

When using Maven, Bio-Formats is configured to run the “install” target by default, so all JARs will be copied into your local Maven repository in `~/.m2/repository`. Simply run:

```
mvn
```

With either Ant or Maven, you can use similar commands in any subproject folder to build just that component.

15.2 Testing individual commits (internal developers)

At the bottom of many commit messages in <https://github.com/openmicroscopy/bioformats>, you will find a few lines similar to this:

To test, please run:

```
ant -Dtestng.directory=$DATA/metamorph test-automated
```

This shows the command(s) necessary to run automated tests against the files likely to be affected by that commit. If you want to run these tests, you will need to do the following:

Clone `bioformats.git` and checkout the appropriate branch (by following the directions on the [Git usage⁶](#) page). Run this command to build all of the JAR files:

```
$ ant clean jars
```

Switch to the test-suite component:

```
$ cd components/test-suite
```

Run the tests, where `$DATA` is the path to the full data repository:

```
$ ant -Dtestng.directory=$DATA/metamorph test-automated
```

By default, 512 MB of memory are allocated to the JVM. You can increase this by adding the `'-Dtestng.memory=XXXm'` option. You should now see output similar to this:

```
Buildfile: build.xml
```

```
init-title:
  [echo] ===== loci-testing-framework =====
```

⁶<http://www.openmicroscopy.org/site/support/omero4/developers/using-git.html>

```

init-timestamp:

init-version:

init-manifest-cp:

init:

copy-source:

compile:

test-automated:
[testng] [Parser] Running:
[testng]   LOCI software test suite
[testng]
[testng] Scanning for files...
[testng] Building list of tests...
[testng] Ready to test 490 files
[testng] .....

```

and then eventually:

```

[testng] =====
[testng] LOCI software test suite
[testng] Total tests run: 19110, Failures: 0, Skips: 0
[testng] =====
[testng]

```

```

BUILD SUCCESSFUL
Total time: 16 minutes 42 seconds

```

Each of the dots represents a single passed test; a ‘-’ is a skipped test, and an ‘F’ is a failed test. This is mostly just for your amusement if you happen to be staring at the console while the tests run, as a more detailed report is logged to `loci-software-test-$DATE.log` (where “\$DATE” is the date on which the tests started in “yyyy-MM-dd_hh-mm-ss” format).

If Ant reports that the build was successful, then there is nothing that you need to do. Otherwise, it is helpful if you can provide the command, branch name, number of failures at the bottom of the Ant output, and the `loci-software-test-*.log` file.

15.3 Public test data

Most of the data-driven tests would benefit from having a comprehensive set of public sample data (see also [#4086⁷](#)).

Formats for which we already have public sample data:

A ‘*’ indicates that we could generate more public data in this format.

- ICS (*)
- Leica LEI
- IPLab
- BMP (*)

⁷<http://trac.openmicroscopy.org.uk/ome/ticket/4086>

- Image-Pro SEQ
- QuickTime (*)
- Bio-Rad PIC
- Image-Pro Workspace
- Fluoview/ABD TIFF (*)
- Perkin Elmer Ultraview
- Gatan DM3
- Zeiss LSM
- Openlab LIFF (*)
- Leica LIF (*)
- TIFF (*)
- Khoros (<http://netghost.narod.ru/gff/sample/images/viff/index.htm>)
- MNG (Download⁸) (*)

Formats for which we can definitely generate public sample data:

- PNG/APNG
- JPEG
- PGM
- FITS
- PCX
- GIF
- Openlab Raw
- OME-XML
- OME-TIFF
- AVI
- PICT
- LIM
- PSD
- Targa
- Bio-Rad Gel
- Fake
- ECAT-7 (minctoecat)
- NRRD
- JPEG-2000
- Micromanager
- Text

⁸http://sourceforge.net/projects/libmng/files/libmng-testsuites/Release-20030305/MNGsuite-20030305.zip/download?use_mirror=freefr&download=

- DICOM
- MINC (rawtominc)
- NIfTI (dicomnifti)
- Analyze 7.5 (medcon)
- SDT
- FV1000 .oib/.oif
- Zeiss ZVI
- Leica TCS
- Aperio SVS
- Imaris (raw)

Formats for which I need to check whether or not we can generate public sample data:

- IPLab Mac (Ivision)
- Deltavision
- MRC
- Gatan DM2
- Imaris (HDF)
- EPS
- Alicona AL3D
- Visitech
- InCell
- L2D
- FEI
- NAF
- MRW
- ARF
- LI-FLIM
- Oxford Instruments
- VG-SAM
- Hamamatsu HIS
- WA-TOP
- Seiko
- TopoMetrix
- UBM
- Quesant
- RHK
- Molecular Imaging

- JEOL
- Amira
- Unisoku
- Perkin Elmer Densitometer
- Nikon ND2
- SimplePCI .cxd
- Imaris (TIFF)
- Molecular Devices Gel
- Imacon .fff
- LEO
- JPK
- Nikon NEF
- Nikon TIFF
- Prairie
- Metamorph TIFF/STK/ND
- Improvision TIFF
- Photoshop TIFF
- FEI TIFF
- SimplePCI TIFF
- Burleigh
- SM-Camera
- SBIG

Formats for which we definitely cannot generate public sample data:

- TillVision
- Olympus CellR/APL
- Slidebook
- Cellomics
- CellWorX
- Olympus ScanR
- BD Pathway
- Opera Flex
- MIAS

15.4 Bio-Formats service and dependency infrastructure

15.4.1 Description

The Bio-Formats service infrastructure is an interface driven pattern for dealing with external and internal dependencies. The design goal was mainly to avoid the cumbersome usage of `ReflectedUniverse` where possible and to clearly define both service dependency and interface between components. This is generally referred to as [dependency injection](#)⁹, [dependency inversion](#)¹⁰ or [component based design](#)¹¹.

It was decided, at this point, to forgo the usage of potentially more powerful but also more complicated solutions such as:

- Spring (<http://www.springsource.org/>)
- Guice (<http://code.google.com/p/google-guice/>)
- ...

The Wikipedia page for [dependency injection](#)¹² contains many other implementations in many languages.

An added benefit is the potential code reuse possibilities as a result of decoupling of dependency and usage in Bio-Formats readers. Implementations of the initial Bio-Formats services were completed as part of BioFormatsCleanup and tickets #463¹³ and #464¹⁴.

15.4.2 Writing a service

- **Interface** – The basic form of a service is an interface which inherits from `loci.common.services.Service`¹⁵. Here is the very basic `OMENotesService`¹⁶ from the initial implementation in r5894:

```
public interface OMENotesService extends Service {

    /**
     * Creates a new OME Notes instance.
     * @param filename Path to the file to create a Notes instance for.
     */
    public void newNotes(String filename);

}
```

- **Implementation** – This service then has an implementation, which is usually located in the Bio-Formats component or package which imports classes from an external, dynamic or other dependency. Again looking at the `OMENotesService`, the implementation is this time in the legacy ome-notes component as `OMENotesServiceImpl`¹⁷:

```
public class OMENotesServiceImpl extends AbstractService
    implements OMENotesService {

    /**
     * Default constructor.
```

⁹http://en.wikipedia.org/wiki/Dependency_injection

¹⁰http://en.wikipedia.org/wiki/Dependency_inversion_principle

¹¹http://en.wikipedia.org/wiki/Component-based_software_engineering

¹²http://en.wikipedia.org/wiki/Dependency_injection

¹³<http://trac.openmicroscopy.org.uk/ome/ticket/463>

¹⁴<http://trac.openmicroscopy.org.uk/ome/ticket/464>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/services/Service.java>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/services/OMENotesService.java>

¹⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/legacy/ome-notes/src/loci/ome/notes/services/OMENotesServiceImpl.java>


```

    */
    public OMENotesServiceImpl() {
        checkClassDependency(Notes.class);
    }

    /* (non-Javadoc)
     * @see loci.formats.dependency.OMENotesService#newNotes()
     */
    public void newNotes(String filename) {
        new Notes(null, filename);
    }
}

```

- **Style**

- Extension of `AbstractService` to enable uniform runtime dependency checking is recommended. Java does not check class dependencies until classes are first instantiated so if you do not do this, you may end up with `ClassNotFoundException` or the like exceptions being emitted from your service methods. This is to be **strongly** discouraged. If a service has unresolvable classes on its CLASSPATH instantiation should fail, not service method invocation.
- Service methods should not burden the implementer with numerous checked exceptions. Also external dependency exception instances should not be allowed to directly leak from a service interface. Please wrap these using a `ServiceException`.
- By convention both the interface and implementation are expected to be in a package named `loci.*.services`. This is not a hard requirement but should be followed where possible.

- **Registration** – A service's interface and implementation must finally be *registered* with the `loci.common.services.ServiceFactory`¹⁸ via the `services.properties`¹⁹ file. Following the `OMENotesService` again, here is an example registration:

```

...
# OME notes service (implementation in legacy ome-notes component)
loci.common.services.OMENotesService=loci.ome.notes.services.OMENotesServiceImpl
...

```

15.4.3 Using a service

```

OMENotesService service = null;
try {
    ServiceFactory factory = new ServiceFactory();
    service = factory.getInstance(OMENotesService.class);
}
catch (DependencyException de) {
    LOGGER.info("", de);
}
...

```

See [open Trac tickets for Bio-Formats](#)²⁰ for information on work currently planned or in progress.

¹⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/services/ServiceFactory.java>

¹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/common/src/loci/common/services/Service.java>

²⁰<https://trac.openmicroscopy.org.uk/ome/report/44>

Part IV

Formats

Bio-Formats supports over 120 different file formats. The *Dataset Structure Table* explains the file extension you should choose to open/import a dataset in any of these formats, while the *Supported Formats* table lists all of the formats and gives an indication of how well they are supported and whether Bio-Formats can write, as well as read, each format. The *Summary of supported metadata fields* table shows an overview of the *OME data model* fields populated for each format.

We are always looking for examples of files to help us provide better support for different formats. If you would like to help, you can upload files using our [QA system uploader](#)²¹. If you have any questions, or would prefer not to use QA, please email the [ome-users mailing list](#)²². If your format is already supported, please refer to the ‘we would like to have’ section on the individual page for that format, to see if your dataset would be useful to us.

²¹<http://qa.openmicroscopy.org.uk/qa/upload/>

²²<http://www.openmicroscopy.org/site/community/mailing-lists>

DATASET STRUCTURE TABLE

This table shows the extension of the file that you should choose if you want to open/import a dataset in a particular format.

Format name	File to choose	Structure of files
AIM	.aim	Single file
ARF	.arf	Single file
Adobe Photoshop	.psd	Single file
Adobe Photoshop TIFF	.tif, .tiff	Single file
Alicona AL3D	.al3d	Single file
Amersham Biosciences GEL	.gel	Single file
Amira	.am, .amiramesh, .grey, .hx, .labels	Single file
Analyze 7.5	.img, .hdr	One .img file and one similarly-named .hdr file
Andor SIF	.sif	Single file
Animated PNG	.png	Single file
Aperio SVS	.svs	Single file
Audio Video Interleave	.avi	Single file
BD Pathway	.exp, .tif	Multiple files (.exp, .dye, .ltp, ...) plus one or more directories containing .tif and .bmp files
Bio-Rad GEL	.lsc	Single file
Bio-Rad PIC	.pic, .xml, .raw	One or more .pic files and an optional lse.xml file
Bitplane Imaris	.ims	Single file
Bitplane Imaris 3 (TIFF)	.ims	Single file
Bitplane Imaris 5.5 (HDF)	.ims	Single file
Bruker	(no extension)	One 'fid' and one 'acqp' plus several other metadata files and a 'pdata' directory
Burleigh	.img	Single file
Canon RAW	.cr2, .crw, .jpg, .thm, .wav	Single file
CellSens VSI	.vsi, .ets	One .vsi file and an optional directory with a similar name that contains at least one subdirectory with .ets files
CellWorx	.pnl, .htd, .log	One .htd file plus one or more .pnl or .tif files and optionally one or more .log files
Cellomics C01	.c01, .dib	One or more .c01 files
Compix Simple-PCI	.cxd	Single file
DICOM	.dic, .dcm, .dicom, .jp2, .j2ki, .j2kr, .raw, .ima	One or more .dcm or .dicom files

Continued on next page

Table 16.1 – continued from previous page

Format name	File to choose	Structure of files
DNG	.cr2, .crw, .jpg, .thm, .wav, .tif, .tiff	Single file
Deltavision	.dv, .r3d, .r3d_d3d, .dv.log, .r3d.log	One .dv, .r3d, or .d3d file and up to two optional .log files
ECAT7	.v	Single file
Encapsulated PostScript	.eps, .epsi, .ps	Single file
Evotec Flex	.flex, .mea, .res	One directory containing one or more .flex files, and an optional directory containing an .mea and .res file. The .mea and .res files may also be in the same directory as the .flex file(s).
FEI TIFF	.tif, .tiff	Single file
FEI/Philips	.img	Single file
Flexible Image Transport System	.fits, .fts	Single file
Fuji LAS 3000	.img, .inf	Single file
Gatan DM2	.dm2	Single file
Gatan Digital Micrograph	.dm3	Single file
Graphics Interchange Format	.gif	Single file
Hamamatsu Aquacosmos	.naf	Single file
Hamamatsu HIS	.his	Single file
Hamamatsu NDPI	.ndpi	Single file
Hamamatsu NDPIS	.ndpis	One .ndpis file and at least one .ndpi file
Hamamatsu VMS	.vms	One .vms file plus several .jpg files
Hitachi	.txt	One .txt file plus one similarly-named .tif, .bmp, or .jpg file
IMAGIC	.hed, .img	One .hed file plus one similarly-named .img file
IMOD	.mod	Single file
INR	.inr	Single file
IPLab	.ipl	Single file
IVision	.ipm	Single file
Imacon	.fff	Single file
Image Cytometry Standard	.ics, .ids	One .ics and possibly one .ids with a similar name
Image-Pro Sequence	.seq	Single file
Image-Pro Workspace	.ipw	Single file
Improvision TIFF	.tif, .tiff	Single file
InCell 1000/2000	.xdce, .xml, .tiff, .tif, .xlog	One .xdce file with at least one .tif/.tiff or .im file
InCell 3000	.frm	Single file
JEOL	.dat, .img, .par	A single .dat file or an .img file with a similarly-named .par file
JPEG	.jpg, .jpeg, .jpe	Single file
JPEG-2000	.jp2, .j2k, .jpf	Single file
JPK Instruments	.jpk	Single file
JPX	.jpx	Single file
Khoros XV	.xv	Single file
Kodak Molecular Imaging	.bip	Single file
LEO	.sxm, .tif, .tiff	Single file
LI-FLIM	.fli	Single file

Continued on next page

Table 16.1 – continued from previous page

Format name	File to choose	Structure of files
Laboratory Imaging	.lim	Single file
Leica	.lei, .tif, .tiff, .raw	One .lei file with at least one .tif/.tiff file and an optional .txt file
Leica Image File Format	.lif	Single file
Leica SCN	.scn	Single file
Leica TCS TIFF	.tif, .tiff, .xml	Single file
Li-Cor L2D	.l2d, .scn, .tif	One .l2d file with one or more directories containing .tif/.tiff files
MIAS	.tif, .tiff, .txt	One directory per plate containing one directory per well, each with one or more .tif/.tiff files
MINC MRI	.mnc	Single file
Medical Research Council	.mrc, .st, .ali, .map, .rec	Single file
Metamorph STK	.stk, .nd, .tif, .tiff	One or more .stk or .tif/.tiff files plus an optional .nd file
Metamorph TIFF	.tif, .tiff	One or more .tif/.tiff files
Micro-Manager	.tif, .tiff, .txt, .xml	A 'metadata.txt' file plus or or more .tif files
Minolta MRW	.mrw	Single file
Molecular Imaging	.stp	Single file
Multiple Network Graphics	.mng	Single file
NifTI	.nii, .img, .hdr	A single .nii file or one .img file and a similarly-named .hdr file
NOAA-HRD Gridded Data Format	(no extension)	Single file
NRRD	.nrrd, .nhdr	A single .nrrd file or one .nhdr file and one other file containing the pixels
Nikon Elements TIFF	.tif, .tiff	Single file
Nikon ND2	.nd2	Single file
Nikon NEF	.nef, .tif, .tiff	Single file
Nikon TIFF	.tif, .tiff	Single file
OME-TIFF	.ome.tif, .ome.tiff	One or more .ome.tif files
OME-XML	.ome	Single file
Olympus APL	.apl, .tnb, .mtb, .tif	One .apl file, one .mtb file, one .tnb file, and a directory containing one or more .tif files
Olympus FV1000	.oib, .oif, .pty, .lut	Single .oib file or one .oif file and a similarly-named directory containing .tif/.tiff files
Olympus Fluoview/ABD TIFF	.tif, .tiff	One or more .tif/.tiff files, and an optional .txt file
Olympus SIS TIFF	.tif, .tiff	Single file
Olympus ScanR	.dat, .xml, .tif	One .xml file, one 'data' directory containing .tif/.tiff files, and optionally two .dat files
Olympus Slidebook	.sld, .spl	Single file
Openlab LIFF	.liff	Single file
Openlab RAW	.raw	Single file
Oxford Instruments	.top	Single file
PCX	.pcx	Single file
PICT	.pict, .pct	Single file
POV-Ray	.df3	Single file
Perkin Elmer Densitometer	.hdr, .img	One .hdr file and a similarly-named .img file
Continued on next page		

Table 16.1 – continued from previous page

Format name	File to choose	Structure of files
PerkinElmer	.ano, .cfg, .csv, .htm, .rec, .tim, .zpo, .tif	One .htm file, several other metadata files (.tim, .ano, .csv, ...) and either .tif files or .2, .3, .4, etc. files
PerkinElmer Operetta	.tif, .tiff, .xml	Directory with XML file and one .tif/.tiff file per plane
Portable Gray Map	.pgm	Single file
Prairie TIFF	.tif, .tiff, .cfg, .xml	One .xml file, one .cfg file, and one or more .tif/.tiff files
Pyramid TIFF	.tif, .tiff	Single file
Quesant AFM	.afm	Single file
QuickTime	.mov	Single file
RHK Technologies	.sm2, .sm3	Single file
SBIG	(no extension)	Single file
SM Camera	(no extension)	Single file
SPCImage Data	.sdt	Single file
SPIDER	.spi	Single file
Seiko	.xqd, .xqf	Single file
SimplePCI TIFF	.tif, .tiff	Single file
Simulated data	.fake	Single file
Tagged Image File Format	.tif, .tiff, .tf2, .tf8, .btf	Single file
Text	.txt, .csv	Single file
TillVision	.vws, .pst, .inf	One .vws file and possibly one similarly-named directory
TopoMetrix	.tfr, .ffr, .zfr, .zfp, .2fl	Single file
Trestle	.tif	One .tif file plus several other similarly-named files (e.g. <i>FocalPlane-</i> , .sld, .slx, .ROI)
Truevision Targa	.tga	Single file
UBM	.pr3	Single file
Unisoku STM	.hdr, .dat	One .HDR file plus one similarly-named .DAT file
VG SAM	.dti	Single file
Varian FDF	.fdf	Single file
Visitech XY5	.xys, .html	One .html file plus one or more .xys files
Volocity Library	.mvd2, .aisf, .aiix, .dat, .atsf	One .mvd2 file plus a 'Data' directory
Volocity Library Clipping	.acff	Single file
WA Technology TOP	.wat	Single file
Windows Bitmap	.bmp	Single file
Zeiss AxioVision TIFF	.tif, .xml	Single file
Zeiss CZI	.czi	Single file
Zeiss Laser-Scanning Microscopy	.lsm, .mdb	One or more .lsm files; if multiple .lsm files are present, an .mdb file should also be present
Zeiss Vision Image (ZVI)	.zvi	Single file
Zip	.zip	Single file

16.1 Flex Support

OMERO.importer supports importing analyzed Flex files from an Opera system.

Basic configuration is done via the `importer.ini`. Once the user has run the Importer once, this file will be in the following location:

- `C:\Documents and Settings\\omero\importer.ini`

The user will need to modify or add the `[FlexReaderServerMaps]` section of the INI file as follows:

```
...
[FlexReaderServerMaps]
CIA-1 = \\hostname1\mount;\\archivehost1\mount
CIA-2 = \\hostname2\mount;\\archivehost2\mount
```

where the *key* of the INI file line is the value of the “Host” tag in the `.mea` measurement XML file (here: `<Host name="CIA-1">`) and the value is a semicolon-separated list of *escaped* UNC path names to the Opera workstations where the Flex files reside.

Once this resolution has been encoded in the configuration file **and** you have restarted the importer, you will be able to select the `.mea` measurement XML file from the Importer user interface as the import target.

SUPPORTED FORMATS

Ratings legend and definitions

Format	Extensions							
<i>3i SlideBook</i>	.sld							
<i>Andor Bio-Imaging Division (ABD) TIFF</i>	.tif							
<i>AIM</i>	.aim							
<i>Alicona 3D</i>	.al3d							
<i>Amersham Bio-sciences Gel</i>	.gel							
<i>Amira Mesh</i>	.am, .ami- ramesh, .grey, .hx, .labels							
<i>Analyze 7.5</i>	.img, .hdr							
<i>Animated PNG</i>	.png							
<i>Aperio SVS TIFF</i>	.svs							
<i>Applied Precision CellWorX</i>	.htd, .pnl							
<i>AVI (Audio Video Interleave)</i>	.avi							
<i>Axon Raw Format</i>	.arf							
<i>BD Pathway</i>	.exp, .tif							
<i>Becker & Hickl SPCImage</i>	.sdt							
<i>Bio-Rad Gel</i>	.lsc							
<i>Bio-Rad PIC</i>	.pic, .raw, .xml							
<i>Bitplane Imaris</i>	.ims							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
<i>Bruker MRI</i>	.ims							
<i>Burleigh</i>	.img							
<i>Canon DNG</i>	.cr2, .crw							
<i>Cellomics</i>	.c01							
<i>cellSens VSI</i>	.vsi							
<i>DeltaVision</i>	.dv, .r3d							
<i>DICOM</i>	.dcm, .dicom							
<i>ECAT7</i>	.v							
<i>EPS (Encapsulated PostScript)</i>	.eps, .epsi, .ps							
<i>Evotec/PerkinElmer Opera Flex</i>	.flex, .mea, .res							
<i>FEI</i>	.img							
<i>FEI TIFF</i>	.tiff							
<i>FITS (Flexible Image Transport System)</i>	.fits							
<i>Gatan Digital Micrograph</i>	.dm3							
<i>Gatan Digital Micrograph 2</i>	.dm2							
<i>GIF (Graphics Interchange Format)</i>	.gif							
<i>Hamamatsu Aquacosmos NAF</i>	.naf							
<i>Hamamatsu HIS</i>	.his							
<i>Hamamatsu ndpi</i>	.ndpi							
<i>Hamamatsu VMS</i>	.vms							
<i>Hitachi S-4800</i>	.txt, .tif, .bmp, .jpg							
<i>ICS (Image Cytometry Standard)</i>	.ics, .ids							
<i>Imacon</i>	.fff							
<i>ImagePro Sequence</i>	.seq							
<i>ImagePro Workspace</i>	.ipw							
<i>IMAGIC</i>	.hed, .img							
<i>IMOD</i>	.mod							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
<i>Improvisation Openlab LIFF</i>	.liff							
<i>Improvisation Openlab Raw</i>	.raw							
<i>Improvisation TIFF</i>	.tif							
<i>InCell 1000</i>	.xdce, .tif							
<i>InCell 3000</i>	.frm							
<i>INR</i>	.inr							
<i>IPLab</i>	.ipl							
<i>IPLab-Mac</i>	.ipm							
<i>JEOL</i>	.dat, .img, .par							
<i>JPEG</i>	.jpg							
<i>JPEG 2000</i>	.jp2							
<i>JPK</i>	.jpk							
<i>JPX</i>	.jpx							
<i>Khoros VIFF (Visualization Image File Format) Bitmap</i>	.xv							
<i>Kodak BIP</i>	.bip							
<i>Lambert Instruments FLIM</i>	.fli							
<i>Leica LCS LEI</i>	.lei, .tif							
<i>Leica LAS AF LIF (Leica Image File Format)</i>	.lif							
<i>Leica SCN</i>	.scn							
<i>LEO</i>	.sxm							
<i>Li-Cor L2D</i>	.l2d, .tif, .scn							
<i>LIM (Laboratory Imaging/Nikon)</i>	.lim							
<i>MetaMorph 7.5 TIFF</i>	.tiff							
<i>MetaMorph Stack (STK)</i>	.stk, .nd							
<i>MIAS (Maia Scientific)</i>	.tif							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
<i>Micro-Manager</i>	.tif, .txt, .xml							
<i>MINC MRI</i>	.mnc							
<i>Minolta MRW</i>	.mrw							
<i>MNG (Multiple-image Network Graphics)</i>	.mng							
<i>Molecular Imaging</i>	.stp							
<i>MRC (Medical Research Council)</i>	.mrc							
<i>NEF (Nikon Electronic Format)</i>	.nef, .tif							
<i>NIFTI</i>	.img, .hdr							
<i>Nikon Elements TIFF</i>	.tiff							
<i>Nikon EZ-C1 TIFF</i>	.tiff							
<i>Nikon NIS-Elements ND2</i>	.nd2							
<i>NRRD (Nearly Raw Raster Data)</i>	.nrrd, .nhdr, .raw, .txt							
<i>Olympus CellR/APL</i>	.apl, .mtb, .tnb, .tif, .obsep							
<i>Olympus FluoView FV1000</i>	.oib, .oif							
<i>Olympus FluoView TIFF</i>	.tif							
<i>Olympus ScanR</i>	.xml, .dat, .tif							
<i>Olympus SIS TIFF</i>	.tiff							
<i>OME-TIFF</i>	.ome.tif							
<i>OME-XML</i>	.ome							
<i>Oxford Instruments</i>	.top							
<i>PCX (PC Paintbrush)</i>	.pcx							
<i>Perkin Elmer Densitometer</i>	.pds							
<i>PerkinElmer Operetta</i>	.tiff, .xml							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
<i>PerkinElmer Ultra-View</i>	.tif, .2, .3, .4							
<i>PGM (Portable Gray Map)</i>	.pgm							
<i>Adobe Photoshop PSD</i>	.psd							
<i>Photoshop TIFF</i>	.tif, .tiff							
<i>PICT (Macintosh Picture)</i>	.pict							
<i>PNG (Portable Network Graphics)</i>	.png							
<i>Prairie Technologies TIFF</i>	.tif, .xml, .cfg							
<i>Quesant</i>	.afm							
<i>QuickTime Movie</i>	.mov							
<i>RHK</i>	.sm2, .sm3							
<i>SBIG</i>	.sm2, .sm3							
<i>Seiko</i>	.xqd, .xqf							
<i>SimplePCI & HClmage</i>	.xcd							
<i>SimplePCI & HClmage TIFF</i>	.tiff							
<i>SM Camera</i>	.tiff							
<i>SPIDER</i>	.spi, .stk							
<i>Targa</i>	.tga							
<i>Text</i>	.txt							
<i>TIFF (Tagged Image File Format)</i>	.tif							
<i>TillPhotonics TillVision</i>	.vws							
<i>Topometrix</i>	.tfr, .ffr, .zfr, .zfp, .2fl							
<i>Trestle</i>	.tif, .sld, .jpg							
<i>UBM</i>	.pr3							
<i>Unisoku</i>	.dat, .hdr							
<i>Varian FDF</i>	.fdf							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
<i>VG SAM</i>	.dti							
<i>VisiTech XYS</i>	.xys, .html							
<i>Volocity</i>	.mvd2							
<i>Volocity Library Clipping</i>	.acff							
<i>WA-TOP</i>	.wat							
<i>Windows Bitmap</i>	.bmp							
<i>Zeiss AxioVision TIFF</i>	.xml, .tiff							
<i>Zeiss AxioVision ZVI (Zeiss Vision Image)</i>	.zvi							
<i>Zeiss CZI</i>	.czi							
<i>Zeiss LSM (Laser Scanning Microscope) 510/710</i>	.lsm, .mdb							

Bio-Formats currently supports **127** formats

Ratings legend and definitions

	Outstanding
	Very good
	Good
	Fair
	Poor

Pixels Our estimation of Bio-Formats’ ability to reliably extract complete and accurate pixel values from files in that format. The better this score, the more confident we are that Bio-Formats will successfully read your file without displaying an error message or displaying an erroneous image.

Metadata Our certainty in the thoroughness and correctness of Bio-Formats’ metadata extraction and conversion from files of that format into standard OME-XML. The better this score, the more confident we are that all meaningful metadata will be parsed and populated as OME-XML.

Openness This is not a direct expression of Bio-Formats’ performance, but rather indicates the level of cooperation the format’s controlling interest has demonstrated toward the scientific community with respect to the format. The better this score, the more tools (specification documents, source code, sample files, etc.) have been made available.

Presence This is also not directly related to Bio-Formats, but instead represents our understanding of the format’s popularity, and is also as a measure of compatibility between applications. The better this score, the more common the format and the more software packages include support for it.

Utility Our opinion of the format’s suitability for storing metadata-rich microscopy image data. The better this score, the wider the variety of information that can be effectively stored in the format.

Export This indicates whether Bio-Formats is capable of writing the format (Bio-Formats can read every format on this list).

SCIFIO This indicates whether format is supported by the *SCIFIO* core library (See the license section on the *Bio-Formats documentation* page for why this matters).

17.1 3i SlideBook

Extensions: .sld

Developer: [Intelligent Imaging Innovations](#)¹

Owner: [Intelligent Imaging Innovations](#)²

Support

SCIFIO:

Export:

Officially Supported Versions: 4.1, 4.2

Supported Metadata Fields: *3i SlideBook*

We currently have:

- Numerous SlideBook datasets

We would like to have:

- A SlideBook specification document
- More SlideBook datasets (preferably acquired with the most recent SlideBook software)

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [SlidebookReader.java](#)³

Notes:

We strongly encourage users to export their .sld files to OME-TIFF using the SlideBook software. Bio-Formats is not likely to support the full range of metadata that is included in .sld files, and so exporting to OME-TIFF from SlideBook is the best way to ensure that all metadata is preserved.

See also:

[Slidebook software overview](#)⁴

¹<http://www.intelligent-imaging.com/>

²<http://www.intelligent-imaging.com/>

³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SlidebookReader.java>

⁴<https://www.slidebook.com>

17.2 Andor Bio-Imaging Division (ABD) TIFF

Extensions: .tif

Developer: Andor Bioimaging Department

Owner: Andor Technology⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Andor Bio-Imaging Division (ABD) TIFF*

We currently have:

- an ABD-TIFF specification document (from 2005 November, in PDF)
- a few ABD-TIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [FluoviewReader.java](#)⁶

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

With a few minor exceptions, the ABD-TIFF format is identical to the Fluoview TIFF format.

17.3 AIM

Extensions: .aim

Developer: [SCANCO Medical AG](#)⁷

Support

SCIFIO:

Export:

⁵<http://www.andor.com/>

⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FluoviewReader.java>

⁷<http://www.scanco.ch>

Officially Supported Versions:

Supported Metadata Fields: *AIM*

We currently have:

- one .aim file

We would like to have:

- an .aim specification document
- more .aim files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [AIMReader.java](#)⁸

Notes:

17.4 Alicona 3D

Extensions: .al3d

Owner: [Alicona Imaging](#)⁹

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0

Supported Metadata Fields: *Alicona 3D*

We currently have:

- an [AL3D specification document](#)¹⁰ (v1.0, from 2003, in PDF)
- a few AL3D datasets

We would like to have:

- more AL3D datasets (Z series, T series, 16-bit)

⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/AIMReader.java>

⁹<http://www.alicon.com/>

¹⁰<http://www.alicon.com/home/fileadmin/alicon/downloads/AL3DFormat.pdf>

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [AliconaReader.java](#)¹¹

Notes:

Known deficiencies:

- Support for 16-bit AL3D images is present, but has never been tested.
- Texture data is currently ignored.

17.5 Amersham Biosciences Gel

Extensions: .gel

Developer: Molecular Dynamics

Owner: [GE Healthcare Life Sciences](#)¹²**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Amersham Biosciences Gel*

We currently have:

- a GEL specification document (Revision 2, from 2001 Mar 15, in PDF)
- a few GEL datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

¹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/AliconaReader.java>¹²<http://www.gelifesciences.com/>

Additional Information

Source Code: [GelReader.java](#)¹³

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

See also:

[GEL Technical Overview](#)¹⁴

17.6 Amira Mesh

Extensions: .am, .amiramesh, .grey, .hx, .labels

Developer: [Visage Imaging](#)¹⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Amira Mesh*

We currently have:

- a few Amira Mesh datasets

We would like to have:

- more Amira Mesh datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [AmiraReader.java](#)¹⁶

Notes:

¹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/GelReader.java>

¹⁴<http://www.awaresystems.be/imaging/tiff/tifftags/docs/gel.html>

¹⁵<http://www.amiravis.com/>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/AmiraReader.java>

17.7 Analyze 7.5

Extensions: .img, .hdr

Developer: Mayo Foundation Biomedical Imaging Resource¹⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Analyze 7.5*

We currently have:

- an *Analyze 7.5* specification document¹⁸
- several *Analyze 7.5* datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *AnalyzeReader.java*¹⁹

Notes:

17.8 Animated PNG

Extensions: .png

Developer: The Animated PNG Project²⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Animated PNG*

Freely Available Software:

¹⁷<http://www.mayo.edu/bir>

¹⁸http://analyzedirect.com/support/10.0Documents/Analyze_Resource_01.pdf

¹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/AnalyzeReader.java>

²⁰<http://www.animatedpng.com/>

- Firefox 3+²¹
- Opera 9.5+²²
- KSquirrel²³

We currently have:

- a specification document²⁴
- several APNG files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [APNGReader.java](#)²⁵

Notes:

17.9 Aperio SVS TIFF

Extensions: .svs

Owner: [Aperio](#)²⁶

Support

SCIFIO:

Export:

Officially Supported Versions: 8.0, 8.2, 9.0

Supported Metadata Fields: *Aperio SVS TIFF*

We currently have:

- many SVS datasets
- an SVS specification document
- the ability to generate additional SVS datasets

²¹<http://www.mozilla.com/firefox>

²²<http://www.opera.com/download>

²³<http://ksquirrel.sourceforge.net/download.php>

²⁴http://wiki.mozilla.org/APNG_Specification

²⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/APNGReader.java>

²⁶<http://www.aperio.com/>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [SVSReader.java](#)²⁷

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

See also:

[Aperio ImageScope](#)²⁸

17.10 Applied Precision CellWorX

Extensions: .htd, .pnl

Developer: [Applied Precision](#)²⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Applied Precision CellWorX*

We currently have:

- a few CellWorX datasets

We would like to have:

- a CellWorX specification document
- more CellWorX datasets

Ratings

Pixels:

Metadata:

Openness:

²⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SVSReader.java>

²⁸<http://www.aperio.com/#imagescope-request>

²⁹<http://www.api.com>

Presence:

Utility:

Additional Information

Source Code: [CellWorxReader.java](#)³⁰

Notes:

17.11 AVI (Audio Video Interleave)

Extensions: .avi

Developer: [Microsoft](#)³¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *AVI (Audio Video Interleave)*

Freely Available Software:

- [AVI Reader plugin for ImageJ](#)³²
- [AVI Writer plugin for ImageJ](#)³³

We currently have:

- several AVI datasets

We would like to have:

- more AVI datasets, including:
 - files with audio tracks and/or multiple video tracks
 - files compressed with a common unsupported codec
 - 2+ GB files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/CellWorxReader.java>

³¹<http://www.microsoft.com/>

³²<http://rsb.info.nih.gov/ij/plugins/avi-reader.html>

³³<http://rsb.info.nih.gov/ij/plugins/avi.html>

Source Code: [AVIReader.java](#)³⁴

Notes:

- Bio-Formats can save image stacks as AVI (uncompressed).
- The following codecs are supported for reading:
 - Microsoft Run-Length Encoding (MSRLE)
 - Microsoft Video (MSV1)
 - Raw (uncompressed)
 - JPEG

See also:

[AVI RIFF File Reference](#)³⁵ [AVI on Wikipedia](#)³⁶

17.12 Axon Raw Format

Extensions: .arf

Owner: INDEC BioSystems³⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Axon Raw Format*

We currently have:

- one ARF dataset
- a [specification document](#)³⁸

We would like to have:

- more ARF datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

³⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/AVIReader.java>

³⁵<http://msdn2.microsoft.com/en-us/library/ms779636.aspx>

³⁶http://en.wikipedia.org/wiki/Audio_Video_Interleave

³⁷<http://www.indecbiosystems.com/>

³⁸http://www.indecbiosystems.com/imagingworkbench/ApplicationNotes/IWAppNote11-ARF_File_Format.pdf

Source Code: [ARFReader.java](#)³⁹

Notes:

17.13 BD Pathway

Extensions: .exp, .tif

Owner: [BD Biosciences](#)⁴⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *BD Pathway*

We currently have:

- a few BD Pathway datasets

We would like to have:

- more BD Pathway datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [BDReader.java](#)⁴¹

Notes:

17.14 Becker & Hickl SPImage

Extensions: .sdt

Owner: [Becker-Hickl](#)⁴²

Support

SCIFIO:

Export:

³⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ARFReader.java>

⁴⁰<http://www.bdbiosciences.com>

⁴¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/BDReader.java>

⁴²<http://www.becker-hickl.de/>

Officially Supported Versions:

Supported Metadata Fields: *Becker & Hickl SPCImage*

We currently have:

- an SDT specification document (from 2008 April, in PDF)
- an SDT specification document (from 2006 June, in PDF)
- Becker & Hickl's *SPCImage*⁴³ software
- a large number of SDT datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *SDTReader.java*⁴⁴

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

17.15 Bio-Rad Gel

Extensions: *.lsc*

Owner: *Bio-Rad*⁴⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Bio-Rad Gel*

We currently have:

- software that can read Bio-Rad Gel files
- several Bio-Rad Gel files

We would like to have:

⁴³<http://www.becker-hickl.de/software/tcspc/softwaretcspcspecial.htm>

⁴⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SDTReader.java>

⁴⁵<http://www.bio-rad.com>

- a Bio-Rad Gel specification
- more Bio-Rad Gel files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [BioRadGelReader.java](#)⁴⁶

Notes:

17.16 Bio-Rad PIC

Extensions: .pic, .raw, .xml

Developer: Bio-Rad

Owner: [Carl Zeiss, Inc.](#)⁴⁷**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Bio-Rad PIC*

Freely Available Software:

- [Bio-Rad PIC reader plugin for ImageJ](#)⁴⁸

We currently have:

- a PIC specification document (v4.5, in PDF)
- an older PIC specification document (v4.2, from 1996 December 16, in DOC)
- a large number of PIC datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels:

Metadata:

⁴⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/BioRadGelReader.java>⁴⁷<http://www.zeiss.com/>⁴⁸<http://rsb.info.nih.gov/ij/plugins/biorad.html>

Openness:

Presence:

Utility:

Additional Information

Source Code: [BioRadReader.java](#)⁴⁹

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

- Commercial applications that support this format include:
 - [Bitplane Imaris](#)⁵⁰
 - [SVI Huygens](#)⁵¹

17.17 Bitplane Imaris

Extensions: .ims

Owner: [Bitplane](#)⁵²

Support

SCIFIO:

Export:

Officially Supported Versions: 2.7, 3.0, 5.5

Supported Metadata Fields: *Bitplane Imaris*

We currently have:

- an [Imaris \(RAW\) specification document](#)⁵³ (from no later than 1997 November 11, in HTML)
- an Imaris 5.5 (HDF) specification document
- Bitplane's `bfFileReaderImaris3N` code (from no later than 2005, in C++)
- several older Imaris (RAW) datasets
- one Imaris 3 (TIFF) dataset
- several Imaris 5.5 (HDF) datasets

We would like to have:

- an Imaris 3 (TIFF) specification document
- more Imaris 3 (TIFF) datasets

⁴⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/BioRadReader.java>

⁵⁰<http://www.bitplane.com/>

⁵¹<http://svi.nl/>

⁵²<http://www.bitplane.com/>

⁵³<http://flash.bitplane.com/support/faqs/faqsview.cfm?inCat=6&inQuestionID=104>

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [ImarisHDFReader.java](#)⁵⁴, [ImarisTiffReader.java](#)⁵⁵, [ImarisReader.java](#)⁵⁶

Notes:

- **There are three distinct Imaris formats:**
 1. the old binary format (introduced in Imaris version 2.7)
 2. Imaris 3, a TIFF variant (introduced in Imaris version 3.0)
 3. Imaris 5.5, an HDF variant (introduced in Imaris version 5.5)

17.18 Bruker MRI

Developer: [Bruker](#)⁵⁷**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Bruker MRI*

Freely Available Software:

- [Bruker plugin for ImageJ](#)⁵⁸

We currently have:

- a few Bruker MRI datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

⁵⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImarisHDFReader.java>⁵⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImarisTiffReader.java>⁵⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImarisReader.java>⁵⁷<http://www.bruker.com/>⁵⁸<http://rsbweb.nih.gov/ij/plugins/bruker.html>

Presence:

Utility:

Additional Information

Source Code: [BrukerReader.java](#)⁵⁹

Notes:

17.19 Burleigh

Extensions: .img

Owner: Burleigh Instruments

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Burleigh*

We currently have:

- Pascal code that can read Burleigh files (from ImageSXM)
- a few Burleigh files

We would like to have:

- a Burleigh file format specification
- more Burleigh files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [BurleighReader.java](#)⁶⁰

Notes:

⁵⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/BrukerReader.java>

⁶⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/BurleighReader.java>

17.20 Canon DNG

Extensions: .cr2, .crw

Developer: [Canon](#)⁶¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Canon DNG*

Freely Available Software:

- [IrfanView](#)⁶²

We currently have:

- a few example datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [DNGReader.java](#)⁶³

Notes:

17.21 Cellomics

Extensions: .c01

Developer: [Thermo Fisher Scientific](#)⁶⁴

Support

SCIFIO:

Export:

Officially Supported Versions:

⁶¹<http://canon.com>

⁶²<http://www.irfanview.com/>

⁶³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/DNGReader.java>

⁶⁴<http://www.thermofisher.com/>

Supported Metadata Fields: *Cellomics*

We currently have:

- a few Cellomics .c01 datasets

We would like to have:

- a Cellomics .c01 specification document
- more Cellomics .c01 datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [CellomicsReader.java](#)⁶⁵

Notes:

17.22 cellSens VSI

Extensions: .vsi

Developer: [Olympus](#)⁶⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *cellSens VSI*

We currently have:

- a few example datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

⁶⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/CellomicsReader.java>

⁶⁶<http://www.olympus.com/>

Utility:

Additional Information

Source Code: [CellSensReader.java](#)⁶⁷

Notes:

17.23 DeltaVision

Extensions: .dv, .r3d

Owner: [Applied Precision](#)⁶⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *DeltaVision*

Freely Available Software:

- [DeltaVision Opener plugin for ImageJ](#)⁶⁹

Sample Datasets:

- [Applied Precision Datasets](#)⁷⁰

We currently have:

- a DV specification document (v2.10 or newer, in HTML)
- numerous DV datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [DeltavisionReader.java](#)⁷¹

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

⁶⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/CellSensReader.java>

⁶⁸<http://www.api.com/>

⁶⁹<http://rsb.info.nih.gov/ij/plugins/track/delta.html>

⁷⁰<http://www.api.com/downloads/software/softworxexplorer2.0/SampleImages.zip>

⁷¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/DeltavisionReader.java>

- The Deltavision format is based on the Medical Research Council (MRC) file format.
- Commercial applications that support DeltaVision include:
 - Bitplane Imaris⁷²
 - SVI Huygens⁷³
 - Image-Pro Plus⁷⁴

See also:

DeltaVision system description⁷⁵

17.24 DICOM

Extensions: .dcm, .dicom

Developer: National Electrical Manufacturers Association⁷⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *DICOM*

Freely Available Software:

- OsiriX Medical Imaging Software⁷⁷
- ezDICOM⁷⁸
- Wikipedia's list of freeware health software⁷⁹

Sample Datasets:

- MRI Chest from FreeVol-3D web site⁸⁰
- Medical Image Samples from Sebastien Barre's Medical Imaging page⁸¹
- DICOM sample image sets from OsiriX web site⁸²

We currently have:

- DICOM specification documents⁸³ (PS 3 - 2007, from 2006 December 28, in DOC and PDF)
- numerous DICOM datasets

⁷²<http://www.bitplane.com/>

⁷³<http://svi.nl/>

⁷⁴<http://www.mediacy.com/>

⁷⁵<http://api.com/deltavision.asp>

⁷⁶<http://www.nema.org/>

⁷⁷<http://www.osirix-viewer.com/>

⁷⁸<http://www.sph.sc.edu/comd/rorden/ezdicom.html>

⁷⁹http://en.wikipedia.org/wiki/List_of_freeware_health_software#Imaging.2FVisualization

⁸⁰http://members.tripod.com/%7Eclunis_immensus/free3d/hk-40.zip

⁸¹<http://www.barre.nom.fr/medical/samples/>

⁸²<http://osirix-viewer.com/datasets/>

⁸³<http://medical.nema.org/dicom/2007/>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [DicomReader.java](#)⁸⁴

Notes:

- DICOM stands for “Digital Imaging and Communication in Medicine”.
- Bio-Formats supports both compressed and uncompressed DICOM files.

See also:

[DICOM homepage](#)⁸⁵

17.25 ECAT7

Extensions: .v

Developer: [Siemens](#)⁸⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: [ECAT7](#)

We currently have:

- a few ECAT7 files

We would like to have:

- an ECAT7 specification document
- more ECAT7 files

Ratings

Pixels:

Metadata:

Openness:

⁸⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/DicomReader.java>

⁸⁵<http://medical.nema.org/>

⁸⁶<http://www.siemens.com>

Presence:

Utility:

Additional Information

Source Code: [Ecat7Reader.java](#)⁸⁷

Notes:

17.26 EPS (Encapsulated PostScript)

Extensions: .eps, .epsi, .ps

Developer: [Adobe](#)⁸⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *EPS (Encapsulated PostScript)*

Freely Available Software:

- [EPS Writer plugin for ImageJ](#)⁸⁹

We currently have:

- a few EPS datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [EPSReader.java](#)⁹⁰ Source Code: [EPSWriter.java](#)⁹¹

Notes:

- Bio-Formats can save individual planes as EPS.
- Certain types of compressed EPS files are not supported.

⁸⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/Ecat7Reader.java>

⁸⁸<http://www.adobe.com/>

⁸⁹<http://rsb.info.nih.gov/ij/plugins/eps-writer.html>

⁹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/EPSReader.java>

⁹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/EPSWriter.java>

17.27 Evotec/PerkinElmer Opera Flex

Extensions: .flex, .mea, .res

Developer: Evotec Technologies, now PerkinElmer⁹²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Evotec/PerkinElmer Opera Flex*

We currently have:

- many Flex datasets

We would like to have:

- a freely redistributable LuraWave LWF decoder

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `FlexReader.java`⁹³

Notes:

The LuraWave LWF decoder library (i.e. `lwf_jsdk2.6.jar`) with license code is required to decode wavelet-compressed Flex files.

See also:

LuraTech (developers of the proprietary LuraWave LWF compression used for Flex image planes)⁹⁴

17.28 FEI

Extensions: .img

Developer: FEI⁹⁵

Support

SCIFIO:

⁹²<http://www.perkinelmer.com/>

⁹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FlexReader.java>

⁹⁴<http://www.luratech.com/>

⁹⁵<http://www.fei.com/>

Export:

Officially Supported Versions:

Supported Metadata Fields: *FEI*

We currently have:

- a few FEI files

We would like to have:

- a specification document
- more FEI files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [FEIReader.java](#)⁹⁶

Notes:

17.29 FEI TIFF

Extensions: .tiff

Developer: [FEI](#)⁹⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *FEI TIFF*

We currently have:

- a few FEI TIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

⁹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FEIReader.java>

⁹⁷<http://www.fei.com>

Presence:

Utility:

Additional Information

Source Code: [FEITiffReader.java](#)⁹⁸

Notes:

17.30 FITS (Flexible Image Transport System)

Extensions: .fits

Developer: [National Radio Astronomy Observatory](#)⁹⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *FITS (Flexible Image Transport System)*

We currently have:

- a [FITS specification document](#)¹⁰⁰ (NOST 100-2.0, from 1999 March 29, in HTML)
- several FITS datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [FitsReader.java](#)¹⁰¹

Notes:

See also:

[MAST:FITS homepage](#)¹⁰² [FITS Support Office](#)¹⁰³

⁹⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FEITiffReader.java>

⁹⁹<http://www.nrao.edu/>

¹⁰⁰http://archive.stsci.edu/fits/fits_standard/

¹⁰¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/FitsReader.java>

¹⁰²<http://archive.stsci.edu/fits/>

¹⁰³<http://fits.gsfc.nasa.gov/>

17.31 Gatan Digital Micrograph

Extensions: .dm3

Owner: Gatan¹⁰⁴

Support

SCIFIO:

Export:

Officially Supported Versions: 3

Supported Metadata Fields: *Gatan Digital Micrograph*

Freely Available Software:

- DM3 Reader plugin for ImageJ¹⁰⁵
- EMAN¹⁰⁶

We currently have:

- Gatan's ImageReader2003 code (from 2003, in C++)
- numerous DM3 datasets

We would like to have:

- a DM3 specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `GatanReader.java`¹⁰⁷

Notes:

Commercial applications that support .dm3 files include *Datasqueeze*¹⁰⁸.

17.32 Gatan Digital Micrograph 2

Extensions: .dm2

Developer: Gatan¹⁰⁹

¹⁰⁴<http://www.gatan.com/>

¹⁰⁵http://rsb.info.nih.gov/ij/plugins/DM3_Reader.html

¹⁰⁶<http://blake.bcm.edu/EMAN/>

¹⁰⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/GatanReader.java>

¹⁰⁸<http://www.datasqueezesoftware.com/>

¹⁰⁹<http://www.gatan.com>

Support

SCIFIO:

Export:

Officially Supported Versions: 2

Supported Metadata Fields: *Gatan Digital Micrograph 2*

We currently have:

- Pascal code that can read DM2 files (from ImageSXM)
- a few DM2 files

We would like to have:

- an official DM2 specification document
- more DM2 files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [GatanDM2Reader.java](#)¹¹⁰

Notes:

17.33 GIF (Graphics Interchange Format)

Extensions: .gif

Developer: [CompuServe](#)¹¹¹Owner: [Unisys](#)¹¹²**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *GIF (Graphics Interchange Format)*

Freely Available Software:

- [Animated GIF Reader plugin for ImageJ](#)¹¹³

¹¹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/GatanDM2Reader.java>¹¹¹<http://www.compuserve.com/>¹¹²<http://www.unisys.com/>¹¹³<http://rsb.info.nih.gov/ij/plugins/agr.html>

- GIF Stack Writer plugin for ImageJ¹¹⁴

We currently have:

- a GIF specification document¹¹⁵ (Version 89a, from 1990, in HTML)
- numerous GIF datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [GIFReader.java](#)¹¹⁶

Notes:

17.34 Hamamatsu Aquacosmos NAF

Extensions: .naf

Developer: [Hamamatsu](#)¹¹⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu Aquacosmos NAF*

We currently have:

- a few NAF files

We would like to have:

- a specification document
- more NAF files

Ratings

Pixels:

Metadata:

¹¹⁴<http://rsb.info.nih.gov/ij/plugins/gif-stack-writer.html>

¹¹⁵<http://tronche.com/computer-graphics/gif/>

¹¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/GIFReader.java>

¹¹⁷<http://www.hamamatsu.com/>

Openness:

Presence:

Utility:

Additional Information

Source Code: [NAFReader.java](#)¹¹⁸

Notes:

17.35 Hamamatsu HIS

Extensions: .his

Owner: [Hamamatsu](#)¹¹⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu HIS*

We currently have:

- Pascal code that can read HIS files (from ImageSXM)
- several HIS files

We would like to have:

- an HIS specification
- more HIS files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [HISReader.java](#)¹²⁰

Notes:

¹¹⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NAFReader.java>

¹¹⁹<http://www.hamamatsu.com>

¹²⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/HISReader.java>

17.36 Hamamatsu ndpi

Extensions: .ndpi

Developer: [Hamamatsu](#)¹²¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu ndpi*

Freely Available Software:

- [NDP.view](#)¹²²

Sample Datasets:

- [OpenSlide](#)¹²³

We currently have:

- many example datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [NDPIReader.java](#)¹²⁴

Notes:

17.37 Hamamatsu VMS

Extensions: .vms

Developer: [Hamamatsu](#)¹²⁵

Support

¹²¹<http://www.hamamatsu.com>

¹²²http://www.olympusamerica.com/seg_section/seg_vm_downloads.asp

¹²³<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu/>

¹²⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NDPIReader.java>

¹²⁵<http://www.hamamatsu.com>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu VMS*

Sample Datasets:

- [OpenSlide](#)¹²⁶

We currently have:

- a few example datasets
- [developer documentation from the OpenSlide project](#)¹²⁷

We would like to have:

- an official specification document
- more example datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [HamamatsuVMSReader.java](#)¹²⁸

Notes:

17.38 Hitachi S-4800

Extensions: .txt, .tif, .bmp, .jpg

Developer: [Hitachi](#)¹²⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Hitachi S-4800*

We currently have:

- several Hitachi S-4800 datasets

¹²⁶<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu-vms/>

¹²⁷<http://openslide.org/Hamamatsu%20format/>

¹²⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/HamamatsuVMSReader.java>

¹²⁹http://www.hitachi-hta.com/sites/default/files/technotes/Hitachi_4800_STEM.pdf

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [HitachiReader.java](#)¹³⁰

Notes:

17.39 ICS (Image Cytometry Standard)

Extensions: .ics, .ids

Developer: P. Dean et al.

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *ICS (Image Cytometry Standard)*

Freely Available Software:

- [Libics \(ICS reference library\)](#)¹³¹
- [ICS Opener plugin for ImageJ](#)¹³²
- [IrfanView](#)¹³³

We currently have:

- numerous ICS datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

¹³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/HitachiReader.java>

¹³¹<http://libics.sourceforge.net/>

¹³²http://valelab.ucsf.edu/%7Enico/IJplugins/Ics_Opener.html

¹³³<http://www.irfanview.com/>

Utility:

Additional Information

Source Code: [ICSReader.java](#)¹³⁴ Source Code: [ICSWriter.java](#)¹³⁵

Notes:

- ICS version 1.0 datasets have two files - an .ics file that contains all of the metadata in plain-text format, and an .ids file that contains all of the pixel data.
- ICS version 2.0 datasets are a single .ics file that contains both pixels and metadata.

Commercial applications that can support ICS include:

- [Bitplane Imaris](#)¹³⁶
- [SVI Huygens](#)¹³⁷

17.40 Imacon

Extensions: .fff

Owner: [Hasselblad](#)¹³⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Imacon*

We currently have:

- one Imacon file

We would like to have:

- more Imacon files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [ImaconReader.java](#)¹³⁹

¹³⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/ICSReader.java>

¹³⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/ICSWriter.java>

¹³⁶<http://www.bitplane.com/>

¹³⁷<http://svi.nl/>

¹³⁸<http://www.hasselbladusa.com/>

¹³⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImaconReader.java>

Notes:

17.41 ImagePro Sequence

Extensions: .seq

Owner: Media Cybernetics¹⁴⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *ImagePro Sequence*

We currently have:

- the *Image-Pro Plus*¹⁴¹ software
- a few SEQ datasets
- the ability to produce more datasets

We would like to have:

- an official SEQ specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *SEQReader.java*¹⁴²

Notes:

17.42 ImagePro Workspace

Extensions: .ipw

Owner: Media Cybernetics¹⁴³

Support

SCIFIO:

¹⁴⁰<http://www.mediacy.com/>

¹⁴¹<http://www.mediacy.com/index.aspx?page=IPP>

¹⁴²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SEQReader.java>

¹⁴³<http://www.mediacy.com/>

Export:

Officially Supported Versions:

Supported Metadata Fields: *ImagePro Workspace*

We currently have:

- the *Image-Pro Plus*¹⁴⁴ software
- a few IPW datasets
- the ability to produce more datasets

We would like to have:

- an official IPW specification document
- more IPW datasets:
 - multiple datasets in one file
 - 2+ GB files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *IPWReader.java*¹⁴⁵

Notes:

Bio-Formats uses a modified version of the *Apache Jakarta POI*¹⁴⁶ library to read IPW files.

17.43 IMAGIC

Extensions: *.hed, .img*

Developer: *Image Science*¹⁴⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *IMAGIC*

Freely Available Software:

¹⁴⁴<http://www.mediacy.com/index.aspx?page=IPP>

¹⁴⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/IPWReader.java>

¹⁴⁶<http://jakarta.apache.org/poi/>

¹⁴⁷<http://www.imagescience.de>

- [em2em](#)¹⁴⁸

We currently have:

- one example dataset
- official file format documentation

We would like to have:

- more example datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [ImagicReader.java](#)¹⁴⁹

Notes:

See also:

[IMAGIC specification](#)¹⁵⁰

17.44 IMOD

Extensions: .mod

Developer: [Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells](#)¹⁵¹

Owner: [Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells](#)¹⁵²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *IMOD*

Freely Available Software:

- [IMOD](#)¹⁵³

We currently have:

- a few sample datasets

¹⁴⁸<http://www.imagescience.de/em2em.html>

¹⁴⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImagicReader.java>

¹⁵⁰<http://www.imagescience.de/em2em.html>

¹⁵¹<http://bio3d.colorado.edu>

¹⁵²<http://bio3d.colorado.edu>

¹⁵³<http://bio3d.colorado.edu/imod/>

- [official documentation](#)¹⁵⁴

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [IMODReader.java](#)¹⁵⁵

Notes:

17.45 Improvion Openlab LIFF

Extensions: .liff

Developer: [Improvion](#)¹⁵⁶

Owner: [PerkinElmer](#)¹⁵⁷

Support

SCIFIO:

Export:

Officially Supported Versions: 2.0, 5.0

Supported Metadata Fields: *Improvion Openlab LIFF*

We currently have:

- an Openlab specification document (from 2000 February 8, in DOC)
- Improvion's XLIFFFileImporter code for reading Openlab LIFF v5 files (from 2006, in C++)
- several Openlab datasets

We would like to have:

- more Openlab datasets (preferably with 32-bit integer data)

Ratings

Pixels:

Metadata:

Openness:

¹⁵⁴<http://bio3d.colorado.edu/imod/doc/binspec.html>

¹⁵⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/IMODReader.java>

¹⁵⁶<http://www.improvion.com/>

¹⁵⁷<http://www.perkinelmer.com/>

Presence:

Utility:

Additional Information

Source Code: [OpenlabReader.java](#)¹⁵⁸

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

See also:

[Openlab software review](#)¹⁵⁹

17.46 Improvion Openlab Raw

Extensions: .raw

Developer: [Improvion](#)¹⁶⁰

Owner: [PerkinElmer](#)¹⁶¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Improvion Openlab Raw*

We currently have:

- an [Openlab Raw specification document](#)¹⁶² (from 2004 November 09, in HTML)
- a few Openlab Raw datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [OpenlabRawReader.java](#)¹⁶³

¹⁵⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/OpenlabReader.java>

¹⁵⁹<http://www.improvion.com/products/openlab/>

¹⁶⁰<http://www.improvion.com/>

¹⁶¹<http://www.perkinelmer.com/>

¹⁶²http://cellularimaging.perkinelmer.com/support/technical_notes/detail.php?id=344

¹⁶³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/OpenlabRawReader.java>

Notes:

See also:

[Openlab software review](#)¹⁶⁴

17.47 Improvition TIFF

Extensions: .tif

Developer: [Improvition](#)¹⁶⁵

Owner: [PerkinElmer](#)¹⁶⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Improvition TIFF*

We currently have:

- an Improvition TIFF specification document
- a few Improvition TIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [ImprovitionTiffReader.java](#)¹⁶⁷

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

See also:

[Openlab software overview](#)¹⁶⁸

¹⁶⁴<http://www.improvition.com/products/openlab/>

¹⁶⁵<http://www.improvition.com/>

¹⁶⁶<http://www.perkinelmer.com/>

¹⁶⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImprovitionTiffReader.java>

¹⁶⁸<http://www.improvition.com/products/openlab/>

17.48 InCell 1000

Extensions: .xdce, .tif

Developer: GE¹⁶⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *InCell 1000*

We currently have:

- a few InCell 1000 datasets

We would like to have:

- an InCell 1000 specification document
- more InCell 1000 datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *InCellReader.java*¹⁷⁰

Notes:

17.49 InCell 3000

Extensions: .frm

Developer: GE¹⁷¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *InCell 3000*

Sample Datasets:

¹⁶⁹<http://gelifesciences.com/>

¹⁷⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/InCellReader.java>

¹⁷¹<http://gelifesciences.com/>

- [Broad Bioimage Benchmark Collection](#)¹⁷²

We currently have:

- a few example datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [InCell3000Reader.java](#)¹⁷³

Notes:

17.50 INR

Extensions: .inr

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *INR*

We currently have:

- several sample .inr datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

¹⁷²<http://www.broadinstitute.org/bbbc/BBBC013/>

¹⁷³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/InCell3000Reader.java>

Source Code: [INRRReader.java](#)¹⁷⁴

Notes:

17.51 IPLab

Extensions: .ipl

Developer: Scanalytics

Owner: was BD Biosystems¹⁷⁵, now BioVision Technologies¹⁷⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *IPLab*

Freely Available Software:

- [IPLab Reader plugin for ImageJ](#)¹⁷⁷

We currently have:

- an IPLab specification document (v3.6.5, from 2004 December 1, in PDF)
- several IPLab datasets

We would like to have:

- more IPLab datasets (preferably with 32-bit integer or floating point data)

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [IPLabReader.java](#)¹⁷⁸

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Commercial applications that support IPLab include:

¹⁷⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/INRRReader.java>

¹⁷⁵<http://www.bdbiosciences.com/>

¹⁷⁶<http://www.biovis.com/iplab.htm>

¹⁷⁷<http://rsb.info.nih.gov/ij/plugins/iplab-reader.html>

¹⁷⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/IPLabReader.java>

- [Bitplane Imaris](#)¹⁷⁹
- [SVI Huygens](#)¹⁸⁰

See also:

[IPLab software review](#)¹⁸¹

17.52 IPLab-Mac

Extensions: .ipm

Owner: [BioVision Technologies](#)¹⁸²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *IPLab-Mac*

We currently have:

- a few IPLab-Mac datasets
- a specification document

We would like to have:

- more IPLab-Mac datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [IvisionReader.java](#)¹⁸³

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

¹⁷⁹<http://www.bitplane.com/>

¹⁸⁰<http://svi.nl/>

¹⁸¹<http://www.biovis.com/iplab.htm>

¹⁸²<http://biovis.com/>

¹⁸³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/IvisionReader.java>

17.53 JEOL

Extensions: .dat, .img, .par

Owner: [JEOL](#)¹⁸⁴

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *JEOL*

We currently have:

- Pascal code that reads JEOL files (from ImageSXM)
- a few JEOL files

We would like to have:

- an official specification document
- more JEOL files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [JEOLReader.java](#)¹⁸⁵

Notes:

17.54 JPEG

Extensions: .jpg

Developer: [Independent JPEG Group](#)¹⁸⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

¹⁸⁴<http://www.jeol.com>

¹⁸⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/JEOLReader.java>

¹⁸⁶<http://www.ijg.org/>

Supported Metadata Fields: *JPEG*

We currently have:

- a [JPEG specification document](#)¹⁸⁷ (v1.04, from 1992 September 1, in PDF)
- numerous JPEG datasets
- the ability to produce more datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [JPEGReader.java](#)¹⁸⁸ Source Code: [JPEGWriter.java](#)¹⁸⁹

Notes:

Bio-Formats can save individual planes as JPEG. Bio-Formats uses the [Java Image I/O](#)¹⁹⁰ API to read and write JPEG files. JPEG stands for “Joint Photographic Experts Group”.

See also:

[JPEG homepage](#)¹⁹¹

17.55 JPEG 2000

Extensions: .jp2

Developer: [Independent JPEG Group](#)¹⁹²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *JPEG 2000*

Freely Available Software:

- [JJ2000 \(JPEG 2000 library for Java\)](#)¹⁹³

We currently have:

¹⁸⁷<http://www.w3.org/Graphics/JPEG/jfif3.pdf>

¹⁸⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/JPEGReader.java>

¹⁸⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/JPEGWriter.java>

¹⁹⁰<http://java.sun.com/j2se/1.4.2/docs/guide/imageio/index.html>

¹⁹¹<http://www.jpeg.org/jpeg/index.html>

¹⁹²<http://www.ijg.org/>

¹⁹³<http://code.google.com/p/jj2000/>

- a JPEG 2000 specification document¹⁹⁴ (final draft, from 2000, in PDF)
- a few .jp2 files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [JPEG2000Reader.java](#)¹⁹⁵ Source Code: [JPEG2000Writer.java](#)¹⁹⁶

Notes:

Bio-Formats uses the [JAI Image I/O Tools](#)¹⁹⁷ library to read JP2 files. JPEG stands for “Joint Photographic Experts Group”.

17.56 JPK

Extensions: .jpk

Developer: [JPK Instruments](#)¹⁹⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *JPK*

We currently have:

- Pascal code that can read JPK files (from ImageSXM)
- a few JPK files

We would like to have:

- an official specification document
- more JPK files

Ratings

Pixels:

¹⁹⁴<http://www.jpeg.org/jpeg2000/CDs15444.html>

¹⁹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/JPEG2000Reader.java>

¹⁹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/JPEG2000Writer.java>

¹⁹⁷<https://java.net/projects/jai-imageio>

¹⁹⁸<http://www.jpk.com>

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [JPKReader.java](#)¹⁹⁹

Notes:

17.57 JPX

Extensions: .jpx

Developer: [JPEG Committee](#)²⁰⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *JPX*

We currently have:

- a few .jpx files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [JPXReader.java](#)²⁰¹

Notes:

¹⁹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/JPKReader.java>

²⁰⁰<http://www.jpeg.org/jpeg2000/>

²⁰¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/JPXReader.java>

17.58 Khoros VIFF (Visualization Image File Format) Bitmap

Extensions: .xv

Developer: Khoral²⁰²

Owner: AccuSoft²⁰³

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Khoros VIFF (Visualization Image File Format) Bitmap*

Sample Datasets:

- VIFF Images²⁰⁴

We currently have:

- several VIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: KhorosReader.java²⁰⁵

Notes:

See also:

VisiQuest software overview (formerly known as KhorosPro)²⁰⁶

17.59 Kodak BIP

Extensions: .bip

Developer: Kodak/Carestream²⁰⁷

Support

²⁰²<http://www.khoral.com/company/>

²⁰³<http://www.accusoft.com/company/>

²⁰⁴<http://netghost.narod.ru/gff/sample/images/viff/index.htm>

²⁰⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/KhorosReader.java>

²⁰⁶<http://www.accusoft.com/products/visiquest/>

²⁰⁷<http://carestream.com>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Kodak BIP*

We currently have:

- a few .bip datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [KodakReader.java](#)²⁰⁸

Notes:

See also:

[Information on Image Station systems](#)²⁰⁹

17.60 Lambert Instruments FLIM

Extensions: .fli

Developer: [Lambert Instruments](#)²¹⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Lambert Instruments FLIM*

We currently have:

- an LI-FLIM specification document
- several example LI-FLIM datasets

²⁰⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/KodakReader.java>

²⁰⁹<http://carestream.com/PublicContent.aspx?langType=1033&id=448953>

²¹⁰<http://www.lambert-instruments.com>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [LiFlimReader.java](#)²¹¹

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

17.61 Leica LCS LEI

Extensions: .lei, .tif

Developer: [Leica Microsystems CMS GmbH](#)²¹²

Owner: [Leica](#)²¹³

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Leica LCS LEI*

Freely Available Software:

- [Leica LCS Lite](#)²¹⁴

We currently have:

- an LEI specification document (beta 2.000, from no later than 2004 February 17, in PDF)
- many LEI datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

²¹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LiFlimReader.java>

²¹²<http://www.leica-microsystems.com/>

²¹³<http://www.leica.com/>

²¹⁴<ftp://ftp.llt.de/softlib/LCSLite/LCSLite2611537.exe>

Presence:

Utility:

Additional Information

Source Code: [LeicaReader.java](#)²¹⁵

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

LCS stands for “Leica Confocal Software”. LEI presumably stands for “Leica Experimental Information”.

Commercial applications that support LEI include:

- [Bitplane Imaris](#)²¹⁶
- [SVI Huygens](#)²¹⁷
- [Image-Pro Plus](#)²¹⁸

17.62 Leica LAS AF LIF (Leica Image File Format)

Extensions: .lif

Developer: [Leica Microsystems CMS GmbH](#)²¹⁹

Owner: [Leica](#)²²⁰

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Leica LAS AF LIF (Leica Image File Format)*

Freely Available Software:

- [Leica LAS AF Lite](#)²²¹ (links at bottom of page)

We currently have:

- a LIF specification document (version 2, from no later than 2007 July 26, in PDF)
- a LIF specification document (version 1, from no later than 2006 April 3, in PDF)
- numerous LIF datasets

We would like to have:

Ratings

Pixels:

²¹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LeicaReader.java>

²¹⁶<http://www.bitplane.com/>

²¹⁷<http://svi.nl/>

²¹⁸<http://www.mediacy.com/>

²¹⁹<http://www.leica-microsystems.com/>

²²⁰<http://www.leica.com/>

²²¹<http://www.leica-microsystems.com/products/microscope-imaging-software/life-sciences/las-af-advanced-fluorescence/>

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [LIFReader.java](#)²²²

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

LAS stands for “Leica Application Suite”. AF stands for “Advanced Fluorescence”.

Commercial applications that support LIF include:

- [Bitplane Imaris](#)²²³
- [SVI Huygens](#)²²⁴
- [Amira](#)²²⁵

17.63 Leica SCN

Extensions: .scn

Developer: [Leica Microsystems](#)²²⁶

Support

SCIFIO:

Export:

Officially Supported Versions: 2012-03-10

Supported Metadata Fields: *Leica SCN*

We currently have:

- a few sample datasets

We would like to have:

- an official specification document
- sample datasets that cannot be opened

Ratings

Pixels:

Metadata:

Openness:

²²²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LIFReader.java>

²²³<http://www.bitplane.com/>

²²⁴<http://svi.nl/>

²²⁵<http://www.amira.com/>

²²⁶<http://www.leica-microsystems.com/>

Presence:

Utility:

Additional Information

Source Code: [LeicaSCNReader.java](#)²²⁷

Notes:

17.64 LEO

Extensions: .sxm

Owner: [Zeiss](#)²²⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *LEO*

We currently have:

- Pascal code that can read LEO files (from ImageSXM)
- a few LEO files

We would like to have:

- an official specification document
- more LEO files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [LEOReader.java](#)²²⁹

Notes:

²²⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LeicaSCNReader.java>

²²⁸<http://www.zeiss.de>

²²⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LEOReader.java>

17.65 Li-Cor L2D

Extensions: .l2d, .tif, .scn

Owner: LiCor Biosciences²³⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Li-Cor L2D*

We currently have:

- a few L2D datasets

We would like to have:

- an official specification document
- more L2D datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `L2DReader.java`²³¹

Notes:

L2D datasets cannot be imported into OME using server-side import. They can, however, be imported from ImageJ, or using the omeul utility.

17.66 LIM (Laboratory Imaging/Nikon)

Extensions: .lim

Owner: Laboratory Imaging²³²

Support

SCIFIO:

Export:

Officially Supported Versions:

²³⁰<http://www.licor.com/>

²³¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/L2DReader.java>

²³²<http://www.lim.cz/>

Supported Metadata Fields: *LIM (Laboratory Imaging/Nikon)*

We currently have:

- several LIM files
- the ability to produce more LIM files

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [LIMReader.java](#)²³³

Notes:

Bio-Formats only supports uncompressed LIM files.

Commercial applications that support LIM include:

- [NIS Elements](#)²³⁴

17.67 MetaMorph 7.5 TIFF

Extensions: .tiff

Owner: [Molecular Devices](#)²³⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MetaMorph 7.5 TIFF*

We currently have:

- a few Metamorph 7.5 TIFF datasets

We would like to have:

Ratings

Pixels:

²³³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/LIMReader.java>

²³⁴<http://www.nis-elements.com/>

²³⁵<http://www.moleculardevices.com/>

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MetamorphTiffReader.java](#)²³⁶

Notes:

17.68 MetaMorph Stack (STK)

Extensions: .stk, .nd

Owner: [Molecular Devices](#)²³⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MetaMorph Stack (STK)*

We currently have:

- an STK specification document (from 2006 November 21, in DOC)
- an older STK specification document (from 2005 March 25, in DOC)
- an ND specification document (from 2002 January 24, in PDF)
- a large number of datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MetamorphReader.java](#)²³⁸

Notes:

²³⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MetamorphTiffReader.java>

²³⁷<http://www.moleculardevices.com/>

²³⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MetamorphReader.java>

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Commercial applications that support STK include:

- Bitplane Imaris²³⁹
- SVI Huygens²⁴⁰
- DIMIN²⁴¹

See also:

Metamorph imaging system overview²⁴²

17.69 MIAS (Maia Scientific)

Extensions: .tif

Developer: Maia Scientific²⁴³

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MIAS (Maia Scientific)*

We currently have:

- several MIAS datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: MIASReader.java²⁴⁴

Notes:

²³⁹<http://www.bitplane.com/>

²⁴⁰<http://svi.nl/>

²⁴¹<http://dimin.net/>

²⁴²<http://www.metamorph.com/>

²⁴³<http://www.maia-scientific.com/>

²⁴⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MIASReader.java>

17.70 Micro-Manager

Extensions: .tif, .txt, .xml

Developer: [Vale Lab](#)²⁴⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Micro-Manager*

Freely Available Software:

- [Micro-Manager](#)²⁴⁶

We currently have:

- many Micro-manager datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MicromanagerReader.java](#)²⁴⁷

Notes:

17.71 MINC MRI

Extensions: .mnc

Developer: [McGill University](#)²⁴⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MINC MRI*

²⁴⁵<http://valelab.ucsf.edu/>

²⁴⁶<http://micro-manager.org/>

²⁴⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/MicromanagerReader.java>

²⁴⁸<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

Freely Available Software:

- [MINC](#)²⁴⁹

We currently have:

- a few MINC files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MINCReader.java](#)²⁵⁰

Notes:

17.72 Minolta MRW

Extensions: .mrw

Developer: [Minolta](#)²⁵¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Minolta MRW*

Freely Available Software:

- [dcraw](#)²⁵²

We currently have:

- several .mrw files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

²⁴⁹<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

²⁵⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MINCReader.java>

²⁵¹<http://www.konicaminolta.com/>

²⁵²<http://www.cybercom.net/%7Edcoffin/dcraw/>

Presence:

Utility:

Additional Information

Source Code: [MRWReader.java](#)²⁵³

Notes:

See also:

[Description of MRW format](#)²⁵⁴

17.73 MNG (Multiple-image Network Graphics)

Extensions: .mng

Developer: [MNG Development Group](#)²⁵⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MNG (Multiple-image Network Graphics)*

Freely Available Software:

- [libmng \(MNG reference library\)](#)²⁵⁶

Sample Datasets:

- [MNG sample files](#)²⁵⁷

We currently have:

- the [libmng-testsuites](#)²⁵⁸ package (from 2003 March 05, in C)
- a large number of MNG datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

²⁵³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MRWReader.java>

²⁵⁴<http://www.dalibor.cz/files/MRW%20File%20Format.txt>

²⁵⁵<http://www.libpng.org/pub/mng/mngnews.html>

²⁵⁶<http://sourceforge.net/projects/libmng/>

²⁵⁷<http://sourceforge.net/projects/libmng/files/libmng-testsuites/MNGsuite-1.0/MNGsuite.zip/download>

²⁵⁸<http://downloads.sourceforge.net/libmng/MNGsuite-20030305.zip>

Source Code: [MNGReader.java](#)²⁵⁹

Notes:

See also:

[MNG homepage](#)²⁶⁰ [MNG specification](#)²⁶¹

17.74 Molecular Imaging

Extensions: .stp

Owner: [Molecular Imaging](#)²⁶²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Molecular Imaging*

We currently have:

- Pascal code that reads Molecular Imaging files (from ImageSXM)
- a few Molecular Imaging files

We would like to have:

- an official specification document
- more Molecular Imaging files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MolecularImagingReader.java](#)²⁶³

Notes:

²⁵⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/MNGReader.java>

²⁶⁰<http://www.libpng.org/pub/mng/>

²⁶¹<http://www.libpng.org/pub/mng/spec>

²⁶²<http://www.molecularimagingcorp.com>

²⁶³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MolecularImagingReader.java>

17.75 MRC (Medical Research Council)

Extensions: .mrc

Developer: MRC Laboratory of Molecular Biology²⁶⁴

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MRC (Medical Research Council)*

Sample Datasets:

- [golgi.mrc](#)²⁶⁵

We currently have:

- an [MRC specification document](#)²⁶⁶ (in HTML)
- another [MRC specification document](#)²⁶⁷ (in TXT)
- a few MRC datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [MRCReader.java](#)²⁶⁸

Notes:

Commercial applications that support MRC include:

- [Bitplane Imaris](#)²⁶⁹

See also:

[MRC on Wikipedia](#)²⁷⁰

²⁶⁴<http://www2.mrc-lmb.cam.ac.uk/>

²⁶⁵http://bio3d.colorado.edu/imod/files/imod_data.tar.gz

²⁶⁶http://ami.scripps.edu/software/mrctools/mrc_specification.php

²⁶⁷http://bio3d.colorado.edu/imod/doc/mrc_format.txt

²⁶⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/MRCReader.java>

²⁶⁹<http://www.bitplane.com/>

²⁷⁰http://en.wikipedia.org/wiki/MRC_%28file_format%29

17.76 NEF (Nikon Electronic Format)

Extensions: .nef, .tif

Developer: Nikon²⁷¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *NEF (Nikon Electronic Format)*

Sample Datasets:

- [neffile1.zip](#)²⁷²
- [Sample NEF images](#)²⁷³

We currently have:

- a NEF specification document (v0.1, from 2003, in PDF)
- several NEF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [NikonReader.java](#)²⁷⁴

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

See also:

[NEF Conversion](#)²⁷⁵

²⁷¹<http://www.nikon.com/>

²⁷²http://www.outbackphoto.com/workshop/NEF_conversion/neffile1.zip

²⁷³http://www.nikondigital.org/articles/library/nikon_d2x_first_impressions.htm

²⁷⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NikonReader.java>

²⁷⁵http://www.outbackphoto.com/workshop/NEF_conversion/nefconversion.html

17.77 NIfTI

Extensions: .img, .hdr

Developer: National Institutes of Health²⁷⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *NIfTI*

Sample Datasets:

- Official test data²⁷⁷

We currently have:

- NIfTI specification documents²⁷⁸
- several NIfTI datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: NiftiReader.java²⁷⁹

Notes:

17.78 Nikon Elements TIFF

Extensions: .tiff

Developer: Nikon²⁸⁰

Support

SCIFIO:

Export:

²⁷⁶<http://www.nih.gov/>

²⁷⁷<http://nifti.nimh.nih.gov/nifti-1/data>

²⁷⁸<http://nifti.nimh.nih.gov/nifti-1/>

²⁷⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NiftiReader.java>

²⁸⁰<http://www.nikon.com>

Officially Supported Versions:

Supported Metadata Fields: *Nikon Elements TIFF*

We currently have:

- a few Nikon Elements TIFF files

We would like to have:

- more Nikon Elements TIFF files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [NikonElementsTiffReader.java](#)²⁸¹

Notes:

17.79 Nikon EZ-C1 TIFF

Extensions: .tiff

Developer: [Nikon](#)²⁸²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Nikon EZ-C1 TIFF*

We currently have:

- a few Nikon EZ-C1 TIFF files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

²⁸¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NikonElementsTiffReader.java>

²⁸²<http://www.nikon.com/>

Utility:

Additional Information

Source Code: [NikonTiffReader.java](#)²⁸³

Notes:

17.80 Nikon NIS-Elements ND2

Extensions: .nd2

Developer: [Nikon USA](#)²⁸⁴

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Nikon NIS-Elements ND2*

Freely Available Software:

- [NIS-Elements Viewer from Nikon](#)²⁸⁵

We currently have:

- many ND2 datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [NativeND2Reader.java](#)²⁸⁶

Notes:

There are two distinct versions of ND2: an old version, which uses JPEG-2000 compression, and a new version which is either uncompressed or Zip-compressed. We are not aware of the version number or release date for either format.

Bio-Formats uses the [JAI Image I/O Tools](#)²⁸⁷ library to read ND2 files compressed with JPEG-2000.

²⁸³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NikonTiffReader.java>

²⁸⁴<http://www.nikonusa.com/>

²⁸⁵<http://www.nis-elements.com/resources-downloads.html>

²⁸⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/NativeND2Reader.java>

²⁸⁷<http://java.net/projects/jai-imageio>

There is also an ND2 reader that uses Nikon's native libraries. To use it, you must be using Windows and have Nikon's [ND2 reader plugin for ImageJ](#)²⁸⁸ installed. Additionally, you will need to download [LegacyND2Reader.dll](#)²⁸⁹ and place it in your ImageJ plugin folder.

17.81 NRRD (Nearly Raw Raster Data)

Extensions: .nrrd, .nhdr, .raw, .txt

Developer: Teem developers²⁹⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *NRRD (Nearly Raw Raster Data)*

Freely Available Software:

- [nrrd \(NRRD reference library\)](#)²⁹¹

Sample Datasets:

- [Diffusion tensor MRI datasets](#)²⁹²

We currently have:

- an [nrrd specification document](#)²⁹³ (v1.9, from 2005 December 24, in HTML)
- a few nrrd datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [NRRDReader.java](#)²⁹⁴

Notes:

²⁸⁸<http://rsb.info.nih.gov/ij/plugins/nd2-reader.html>

²⁸⁹<https://github.com/openmicroscopy/bioformats/blob/develop/lib/LegacyND2Reader.dll?raw=true>

²⁹⁰<http://teem.sourceforge.net/>

²⁹¹<http://teem.sourceforge.net/nrrd/>

²⁹²<http://www.sci.utah.edu/~7Egk/DTI-data/>

²⁹³<http://teem.sourceforge.net/nrrd/format.html>

²⁹⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/NRRDReader.java>

17.82 Olympus CellR/APL

Extensions: .apl, .mtb, .tnb, .tif, .obsep

Owner: Olympus²⁹⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Olympus CellR/APL*

We currently have:

- a few CellR datasets

We would like to have:

- more CellR datasets
- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *APLReader.java*²⁹⁶

Notes:

17.83 Olympus FluoView FV1000

Extensions: .oib, .oif

Owner: Olympus²⁹⁷

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Olympus FluoView FV1000*

Freely Available Software:

²⁹⁵<http://www.olympus.com/>

²⁹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/APLReader.java>

²⁹⁷<http://www.olympus.com/>

- FV-Viewer from Olympus²⁹⁸

We currently have:

- an OIF specification document (v2.0.0.0, from 2008, in PDF)
- an FV1000 specification document (v1.0.0.0, from 2004 June 22, in PDF)
- older FV1000 specification documents (draft, in DOC and XLS)
- many FV1000 datasets

We would like to have:

- more OIB datasets (especially 2+ GB files)
- more FV1000 version 2 datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `FV1000Reader.java`²⁹⁹

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Bio-Formats uses a modified version of the [Apache Jakarta POI](#)³⁰⁰ library to read OIB files. OIF stands for “Original Imaging Format”. OIB stands for “Olympus Image Binary”. OIF is a multi-file format that includes an .oif file and a directory of .tif, .roi, .pty, .lut, and .bmp files. OIB is a single file format.

Commercial applications that support this format include:

- [Bitplane Imaris](#)³⁰¹
- [SVI Huygens](#)³⁰²

See also:

[Olympus FluoView Resource Center](#)³⁰³

17.84 Olympus FluoView TIFF

Extensions: .tif

Owner: [Olympus](#)³⁰⁴

²⁹⁸http://www.olympus.co.uk/microscopy/22_FluoView_FV1000__Confocal_Microscope.htm

²⁹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FV1000Reader.java>

³⁰⁰<http://jakarta.apache.org/poi/>

³⁰¹<http://www.bitplane.com/>

³⁰²<http://svi.nl/>

³⁰³<http://www.olympusfluoview.com>

³⁰⁴<http://www.olympus.com/>

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Olympus FluoView TIFF*

Freely Available Software:

- [DIMIN](#)³⁰⁵

We currently have:

- a FluoView specification document (from 2002 November 14, in DOC)
- Olympus' FluoView Image File Reference Suite (from 2002 March 1, in DOC)
- several FluoView datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [FluoviewReader.java](#)³⁰⁶

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Commercial applications that support this format include:

- [Bitplane Imaris](#)³⁰⁷
- [SVI Huygens](#)³⁰⁸

17.85 Olympus ScanR

Extensions: .xml, .dat, .tif

Developer: [Olympus](#)³⁰⁹

Owner: [Olympus](#)³¹⁰

³⁰⁵<http://www.dimin.net/>

³⁰⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/FluoviewReader.java>

³⁰⁷<http://www.bitplane.com/>

³⁰⁸<http://svi.nl/>

³⁰⁹<http://www.olympus.com/>

³¹⁰<http://www.olympus.com/>

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Olympus ScanR*

We currently have:

- several ScanR datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `ScanrReader.java`³¹¹

Notes:

17.86 Olympus SIS TIFF

Extensions: .tiff

Developer: *Olympus*³¹²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Olympus SIS TIFF*

We currently have:

- a few example SIS TIFF files

We would like to have:

Ratings

Pixels:

Metadata:

³¹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ScanrReader.java>

³¹²<http://www.olympus-sis.com/>

Openness:

Presence:

Utility:

Additional Information

Source Code: [SISReader.java](#)³¹³

Notes:

17.87 OME-TIFF

Extensions: .ome.tiff

Developer: [Open Microscopy Environment](#)³¹⁴

Support

SCIFIO:

Export:

Officially Supported Versions: 2003FC, 2007-06, 2008-02, 2008-09, 2009-09, 2010-04, 2010-06, 2011-06, 2012-06

Supported Metadata Fields: *OME-TIFF*

We currently have:

- an [OME-TIFF specification document](#)³¹⁵ (from 2006 October 19, in HTML)
- many OME-TIFF datasets
- the ability to produce additional datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [OMETiffReader.java](#)³¹⁶ Source Code: [OMETiffWriter.java](#)³¹⁷

Notes:

Bio-Formats can save image stacks as OME-TIFF.

Commercial applications that support OME-TIFF include:

³¹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SISReader.java>

³¹⁴<http://www.openmicroscopy.org/>

³¹⁵<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/specification.html>

³¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/OMETiffReader.java>

³¹⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/OMETiffWriter.java>

- Bitplane Imaris³¹⁸
- SVI Huygens³¹⁹

See also:

OME-TIFF technical overview³²⁰

17.88 OME-XML

Extensions: .ome

Developer: Open Microscopy Environment³²¹

Support

SCIFIO:

Export:

Officially Supported Versions: 2003FC, 2007-06, 2008-02, 2008-09, 2009-09, 2010-04, 2010-06, 2011-06, 2012-06

Supported Metadata Fields: *OME-XML*

We currently have:

- OME-XML specification documents³²²
- many OME-XML datasets
- the ability to produce more datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *OMEXMLReader.java*³²³ Source Code: *OMEXMLWriter.java*³²⁴

Notes:

Bio-Formats uses the *OME-XML Java library*³²⁵ to read OME-XML files.

Commercial applications that support OME-XML include:

³¹⁸<http://www.bitplane.com/>

³¹⁹<http://svi.nl/>

³²⁰<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

³²¹<http://www.openmicroscopy.org/>

³²²<http://www.openmicroscopy.org/Schemas/>

³²³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/OMEXMLReader.java>

³²⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/OMEXMLWriter.java>

³²⁵<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/java-library.html>

- Bitplane Imaris³²⁶
- SVI Huygens³²⁷

17.89 Oxford Instruments

Extensions: .top

Owner: Oxford Instruments³²⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Oxford Instruments*

We currently have:

- Pascal code that can read Oxford Instruments files (from ImageSXM)
- a few Oxford Instruments files

We would like to have:

- an official specification document
- more Oxford Instruments files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *OxfordInstrumentsReader.java*³²⁹

Notes:

17.90 PCX (PC Paintbrush)

Extensions: .pcx

Developer: ZSoft Corporation

Support

³²⁶<http://www.bitplane.com/>

³²⁷<http://svi.nl/>

³²⁸<http://www.oxinst.com>

³²⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/OxfordInstrumentsReader.java>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *PCX (PC Paintbrush)*

We currently have:

- several .pcx files
- the ability to generate additional .pcx files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PCXReader.java](#)³³⁰

Notes:

Commercial applications that support PCX include [Zeiss LSM Image Browser](#)³³¹.

17.91 Perkin Elmer Densitometer

Extensions: .pds

Developer: [Perkin Elmer](#)³³²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Perkin Elmer Densitometer*

We currently have:

- a few PDS datasets

We would like to have:

- an official specification document
- more PDS datasets

³³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/PCXReader.java>

³³¹[http://www.zeiss.de/C12567BE00472A5C/EmbedTitelIntern/LSMImageBrowser/\\$File/INST_IB.EXE](http://www.zeiss.de/C12567BE00472A5C/EmbedTitelIntern/LSMImageBrowser/$File/INST_IB.EXE)

³³²<http://www.perkinelmer.com>

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [PDSReader.java](#)³³³

Notes:

17.92 PerkinElmer Operetta

Extensions: .tiff, .xml

Developer: [PerkinElmer](#)³³⁴**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *PerkinElmer Operetta*

We currently have:

- a few sample datasets

We would like to have:

- an official specification document
- more sample datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [OperettaReader.java](#)³³⁵

Notes:

³³³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PDSReader.java>

³³⁴<http://www.perkinelmer.com/>

³³⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/OperettaReader.java>

17.93 PerkinElmer UltraView

Extensions: .tif, .2, .3, .4 , etc.

Owner: [PerkinElmer](#)³³⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *PerkinElmer UltraView*

We currently have:

- several UltraView datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PerkinElmerReader.java](#)³³⁷

Notes:

Other associated extensions include: .tim, .zpo, .csv, .htm, .cfg, .ano, .rec

Commercial applications that support this format include:

- [Bitplane Imaris](#)³³⁸
- [Image-Pro Plus](#)³³⁹

See also:

[PerkinElmer UltraView system overview](#)³⁴⁰

17.94 PGM (Portable Gray Map)

Extensions: .pgm

Developer: Netpbm developers

Support

³³⁶<http://www.perkinelmer.com/>

³³⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PerkinElmerReader.java>

³³⁸<http://www.bitplane.com/>

³³⁹<http://www.mediacy.com/>

³⁴⁰<http://www.perkinelmer.com/pages/020/cellularimaging/products/ultraviewvoxsysteoverview.xhtml>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *PGM (Portable Gray Map)*

Freely Available Software:

- [Netpbm graphics filter](#)³⁴¹

We currently have:

- a [PGM specification document](#)³⁴² (from 2003 October 3, in HTML)
- a few PGM files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PGMReader.java](#)³⁴³

Notes:

17.95 Adobe Photoshop PSD

Extensions: .psd

Developer: [Adobe](#)³⁴⁴

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0

Supported Metadata Fields: *Adobe Photoshop PSD*

We currently have:

- a PSD specification document (v3.0.4, 16 July 1995)
- a few PSD files

We would like to have:

³⁴¹<http://netpbm.sourceforge.net/>

³⁴²<http://netpbm.sourceforge.net/doc/pgm.html>

³⁴³<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/PGMReader.java>

³⁴⁴<http://www.adobe.com/>

- more PSD files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PSDReader.java](#)³⁴⁵

Notes:

17.96 Photoshop TIFF

Extensions: .tif, .tiff

Developer: [Adobe](#)³⁴⁶

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Photoshop TIFF*

We currently have:

- a Photoshop TIFF specification document
- a few Photoshop TIFF files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PhotoshopTiffReader.java](#)³⁴⁷

Notes:

³⁴⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PSDReader.java>

³⁴⁶<http://www.adobe.com>

³⁴⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PhotoshopTiffReader.java>

17.97 PICT (Macintosh Picture)

Extensions: .pict

Developer: Apple Computer³⁴⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *PICT (Macintosh Picture)*

We currently have:

- many PICT datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: `PictReader.java`³⁴⁹

Notes:

QuickTime for Java³⁵⁰ is required for reading vector files and some compressed files.

See also:

[PICT technical overview](#)³⁵¹ [Another PICT technical overview](#)³⁵²

17.98 PNG (Portable Network Graphics)

Extensions: .png

Developer: PNG Development Group³⁵³

Support

SCIFIO:

Export:

³⁴⁸<http://www.apple.com>

³⁴⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/PictReader.java>

³⁵⁰<http://www.apple.com/quicktime/download/standalone.html>

³⁵¹<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-107.html>

³⁵²<http://www.prepressure.com/formats/pict/fileformat.htm>

³⁵³<http://www.libpng.org/pub/png/pngnews.html>

Officially Supported Versions:

Supported Metadata Fields: *PNG (Portable Network Graphics)*

Freely Available Software:

- [PNG Writer plugin for ImageJ](#)³⁵⁴

We currently have:

- [a PNG specification document](#)³⁵⁵ (W3C/ISO/IEC version, from 2003 November 10, in HTML)
- several PNG datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [APNGReader.java](#)³⁵⁶

Notes:

Bio-Formats uses the [Java Image I/O](#)³⁵⁷ API to read and write PNG files.

See also:

[PNG technical overview](#)³⁵⁸

17.99 Prairie Technologies TIFF

Extensions: .tif, .xml, .cfg

Developer: [Prairie Technologies](#)³⁵⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Prairie Technologies TIFF*

We currently have:

- many Prairie datasets

³⁵⁴<http://rsb.info.nih.gov/ij/plugins/png-writer.html>

³⁵⁵<http://www.libpng.org/pub/png/spec/iso/>

³⁵⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/APNGReader.java>

³⁵⁷<http://java.sun.com/j2se/1.4.2/docs/guide/imageio/index.html>

³⁵⁸<http://www.libpng.org/pub/png/>

³⁵⁹<http://www.prairie-technologies.com/>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PrairieReader.java](#)³⁶⁰

Notes:

17.100 Quesant

Extensions: .afm

Developer: Quesant Instrument Corporation

Owner: [KLA-Tencor Corporation](#)³⁶¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Quesant*

We currently have:

- Pascal code that can read Quesant files (from ImageSXM)
- several Quesant files

We would like to have:

- an official specification document
- more Quesant files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

³⁶⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PrairieReader.java>

³⁶¹<http://www.kla-tencor.com/surface-profilometry-and-metrology.html>

Additional InformationSource Code: [QuesantReader.java](#)³⁶²

Notes:

17.101 QuickTime Movie

Extensions: .mov

Owner: [Apple Computer](#)³⁶³**Support**

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *QuickTime Movie*

Freely Available Software:

- [QuickTime Player](#)³⁶⁴

We currently have:

- a [QuickTime specification document](#)³⁶⁵ (from 2001 March 1, in HTML)
- several QuickTime datasets
- the ability to produce more datasets

We would like to have:

- more QuickTime datasets, including:
 - files compressed with a common, unsupported codec
 - files with audio tracks and/or multiple video tracks

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [NativeQTReader.java](#)³⁶⁶ Source Code: [QTWriter.java](#)³⁶⁷

Notes:

³⁶²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/QuesantReader.java>³⁶³<http://www.apple.com/>³⁶⁴<http://www.apple.com/quicktime/download/>³⁶⁵<http://developer.apple.com/documentation/Quicktime/QTFF/>³⁶⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/NativeQTReader.java>³⁶⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/QTWriter.java>

Bio-Formats has two modes of operation for QuickTime:

- QTJava mode requires [QuickTime](#)³⁶⁸ to be installed.
- Native mode works on systems with no QuickTime (e.g. Linux).

Bio-Formats can save image stacks as QuickTime movies. The following table shows supported codecs:

Codec	Description	Native	QTJava
raw	Full Frames (Uncompressed)	read & write	read & write
iraw	Intel YUV Uncompressed	read only	read & write
rle	Animation (run length encoded RGB)	read only	read & write
jpeg	Still Image JPEG DIB	read only	read only
rpza	Apple Video 16 bit “road pizza”	read only (partial)	read only
mjpb	Motion JPEG codec	read only	read only
cvid	Cinepak	•	read & write
svq1	Sorenson Video	•	read & write
svq3	Sorenson Video 3	•	read & write
mp4v	MPEG-4	•	read & write
h263	H.263	•	read & write

See also:

[QuickTime software overview](#)³⁶⁹

17.102 RHK

Extensions: .sm2, .sm3

Owner: [RHK Technologies](#)³⁷⁰

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *RHK*

We currently have:

- Pascal code that can read RHK files (from ImageSXM)
- a few RHK files

³⁶⁸<http://www.apple.com/quicktime/download/>

³⁶⁹<http://www.apple.com/quicktime/>

³⁷⁰<http://www.rhk-tech.com>

We would like to have:

- an official specification document
- more RHK files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [RHKReader.java](#)³⁷¹

Notes:

17.103 SBIG

Owner: Santa Barbara Instrument Group (SBIG)³⁷²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *SBIG*

We currently have:

- an official SBIG specification document³⁷³
- a few SBIG files

We would like to have:

- more SBIG files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

³⁷¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/RHKReader.java>

³⁷²<http://www.sbig.com>

³⁷³<http://sbig.impulse.net/pdffiles/file.format.pdf>

Source Code: [SBIGReader.java](#)³⁷⁴

Notes:

17.104 Seiko

Extensions: .xqd, .xqf

Owner: [Seiko](#)³⁷⁵

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Seiko*

We currently have:

- Pascal code that can read Seiko files (from ImageSXM)
- a few Seiko files

We would like to have:

- an official specification document
- more Seiko files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [SeikoReader.java](#)³⁷⁶

Notes:

17.105 SimplePCI & HImage

Extensions: .cxd

Developer: [Compix](#)³⁷⁷

Support

³⁷⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SBIGReader.java>

³⁷⁵<http://www.seiko.co.jp/en/index.php>

³⁷⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SeikoReader.java>

³⁷⁷<http://www.cimaging.net/>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *SimplePCI & HCImage*

We currently have:

- several SimplePCI files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [PCIReader.java](#)³⁷⁸

Notes:

Bio-Formats uses a modified version of the [Apache Jakarta POI library](#)³⁷⁹ to read CXD files.

See also:

[SimplePCI software overview](#)³⁸⁰

17.106 SimplePCI & HCImage TIFF

Extensions: .tiff

Developer: [Hamamatsu](#)³⁸¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *SimplePCI & HCImage TIFF*

We currently have:

- a few SimplePCI TIFF datasets

We would like to have:

- more SimplePCI TIFF datasets

³⁷⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/PCIReader.java>

³⁷⁹<http://jakarta.apache.org/poi/>

³⁸⁰<http://www.cimaging.net/simplepci.htm>

³⁸¹<http://www.cimaging.net/simplepci.htm>

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [SimplePCITiffReader.java](#)³⁸²

Notes:

17.107 SM Camera

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *SM Camera*

We currently have:

- Pascal code that can read SM-Camera files (from ImageSXM)
- a few SM-Camera files

We would like to have:

- an official specification document
- more SM-Camera files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [SMCameraReader.java](#)³⁸³

Notes:

³⁸²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SimplePCITiffReader.java>

³⁸³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SMCameraReader.java>

17.108 SPIDER

Extensions: .spi, .stk

Developer: Wadsworth Center³⁸⁴

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *SPIDER*

Freely Available Software:

- *SPIDER*³⁸⁵

We currently have:

- a few example datasets
- [official file format documentation](#)³⁸⁶

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *SpiderReader.java*³⁸⁷

Notes:

17.109 Targa

Extensions: .tga

Developer: Truevision³⁸⁸

Support

SCIFIO:

Export:

³⁸⁴http://www.wadsworth.org/spider_doc/spider/docs/spider.html

³⁸⁵http://www.wadsworth.org/spider_doc/spider/docs/spider.html

³⁸⁶http://www.wadsworth.org/spider_doc/spider/docs/image_doc.html

³⁸⁷<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/SpiderReader.java>

³⁸⁸<http://www.truevision.com>

Officially Supported Versions:

Supported Metadata Fields: *Targa*

We currently have:

- a Targa specification document
- a few Targa files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [TargaReader.java](#)³⁸⁹

Notes:

17.110 Text

Extensions: .txt

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Text*

We currently have:

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [TextReader.java](#)³⁹⁰

³⁸⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/TargaReader.java>

³⁹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/TextReader.java>

Notes:

Reads tabular pixel data produced by a variety of software.

17.111 TIFF (Tagged Image File Format)

Extensions: .tif

Developer: Aldus and Microsoft

Owner: Adobe³⁹¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *TIFF (Tagged Image File Format)*

Sample Datasets:

- [LZW TIFF data gallery](#)³⁹²
- [Big TIFF](#)³⁹³

We currently have:

- [a TIFF specification document](#)³⁹⁴ (v6.0, from 1992 June 3, in PDF)
- many TIFF datasets
- a few BigTIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [TiffReader.java](#)³⁹⁵ Source Code: [TiffWriter.java](#)³⁹⁶

Notes:

Bio-Formats can also read BigTIFF files (TIFF files larger than 4 GB). Bio-Formats can save image stacks as TIFF or BigTIFF.

³⁹¹<http://www.adobe.com>

³⁹²http://marlin.life.utsa.edu/Data_Gallery.html

³⁹³<http://tiffcentral.com/>

³⁹⁴<http://partners.adobe.com/asn/developer/PDFS/TN/TIFF6.pdf>

³⁹⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/TiffReader.java>

³⁹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/out/TiffWriter.java>

See also:

TIFF technical overview³⁹⁷ BigTIFF technical overview³⁹⁸

17.112 TillPhotonics TillVision

Extensions: .vws

Developer: TILL Photonics³⁹⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *TillPhotonics TillVision*

We currently have:

- several TillVision datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *TillVisionReader.java*⁴⁰⁰

Notes:

17.113 Topometrix

Extensions: .tfr, .ffr, .zfr, .zfp, .2fl

Owner: TopoMetrix (now Veeco)⁴⁰¹

Support

SCIFIO:

³⁹⁷<http://www.awaresystems.be/imaging/tiff/faq.html#q3>

³⁹⁸<http://www.awaresystems.be/imaging/tiff/bigtiff.html>

³⁹⁹<http://www.till-photonics.com/>

⁴⁰⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/TillVisionReader.java>

⁴⁰¹<http://www.veeco.com/>

Export:

Officially Supported Versions:

Supported Metadata Fields: *Topometrix*

We currently have:

- Pascal code that reads Topometrix files (from ImageSXM)
- a few Topometrix files

We would like to have:

- an official specification document
- more Topometrix files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [TopometrixReader.java](#)⁴⁰²

Notes:

17.114 Trestle

Extensions: .tif, .sld, .jpg

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Trestle*

Sample Datasets:

- [OpenSlide](#)⁴⁰³

We currently have:

- a few example datasets
- [developer documentation from the OpenSlide project](#)⁴⁰⁴

⁴⁰²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/TopometrixReader.java>

⁴⁰³<http://openslide.cs.cmu.edu/download/openslide-testdata/Trestle/>

⁴⁰⁴<http://openslide.org/Trestle%20format/>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [TrestleReader.java](#)⁴⁰⁵

Notes:

17.115 UBM

Extensions: .pr3

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *UBM*

We currently have:

- Pascal code that can read UBM files (from ImageSXM)
- one UBM file

We would like to have:

- an official specification document
- more UBM files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [UBMReader.java](#)⁴⁰⁶

Notes:

⁴⁰⁵<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/TrestleReader.java>

⁴⁰⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/UBMReader.java>

17.116 Unisoku

Extensions: .dat, .hdr

Owner: [Unisoku](#)⁴⁰⁷

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Unisoku*

We currently have:

- Pascal code that can read Unisoku files (from ImageSXM)
- a few Unisoku files

We would like to have:

- an official specification document
- more Unisoku files

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [UnisokuReader.java](#)⁴⁰⁸

Notes:

17.117 Varian FDF

Extensions: .fdf

Developer: [Varian, Inc.](#)⁴⁰⁹

Support

SCIFIO:

Export:

Officially Supported Versions:

⁴⁰⁷<http://www.unisoku.com>

⁴⁰⁸<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/UnisokuReader.java>

⁴⁰⁹<http://www.varianinc.com>

Supported Metadata Fields: *Varian FDF*

We currently have:

- a few Varian FDF datasets

We would like to have:

- an official specification document
- more Varian FDF datasets

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [VarianFDFReader.java](#)⁴¹⁰

Notes:

17.118 VG SAM

Extensions: .dti

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *VG SAM*

We currently have:

- a few VG-SAM files

We would like to have:

- an official specification document
- more VG-SAM files

Ratings

Pixels:

Metadata:

Openness:

Presence:

⁴¹⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/VarianFDFReader.java>

Utility:

Additional Information

Source Code: [VGSAMReader.java](#)⁴¹¹

Notes:

17.119 VisiTech XYS

Extensions: .xys, .html

Developer: [VisiTech International](#)⁴¹²

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *VisiTech XYS*

We currently have:

- several VisiTech datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [VisitechReader.java](#)⁴¹³

Notes:

17.120 Volocity

Extensions: .mvd2

Developer: [PerkinElmer](#)⁴¹⁴

Support

⁴¹¹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/VGSAMReader.java>

⁴¹²<http://www.visitech.co.uk/>

⁴¹³<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/VisitechReader.java>

⁴¹⁴<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.xhtml>

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Volocity*

Sample Datasets:

- [Volocity Demo](#)⁴¹⁵

We currently have:

- many example Volocity datasets

We would like to have:

- an official specification document
- any Volocity datasets that do not open correctly

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [VolocityReader.java](#)⁴¹⁶

Notes:

.mvd2 files are [Metakit database files](#)⁴¹⁷.

17.121 Volocity Library Clipping

Extensions: .acff

Developer: [PerkinElmer](#)⁴¹⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Volocity Library Clipping*

We currently have:

- several Volocity library clipping datasets

⁴¹⁵<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocitydemo.xhtml>

⁴¹⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/VolocityReader.java>

⁴¹⁷<http://equi4.com/metakit/>

⁴¹⁸<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.xhtml>

We would like to have:

- any datasets that do not open correctly
- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [VolocityClippingReader.java](#)⁴¹⁹

Notes:

RGB .acff files are not yet supported. See [#6413](#)⁴²⁰.

17.122 WA-TOP

Extensions: .wat

Developer: WA Technology

Owner: [Oxford Instruments](#)⁴²¹

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *WA-TOP*

We currently have:

- Pascal code that can read WA-TOP files (from ImageSXM)
- a few WA-TOP files

We would like to have:

- an official specification document
- more WA-TOP files

Ratings

Pixels:

Metadata:

⁴¹⁹<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/VolocityClippingReader.java>

⁴²⁰<http://trac.openmicroscopy.org.uk/ome/ticket/6413>

⁴²¹<http://www.oxinst.com>

Openness:

Presence:

Utility:

Additional Information

Source Code: [WATOPReader.java](#)⁴²²

Notes:

17.123 Windows Bitmap

Extensions: .bmp

Developer: Microsoft and IBM

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Windows Bitmap*

Freely Available Software:

- [BMP Writer plugin for ImageJ](#)⁴²³

We currently have:

- many BMP datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [BMPReader.java](#)⁴²⁴

Notes:

Compressed BMP files are currently not supported.

See also:

⁴²²<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/WATOPReader.java>

⁴²³<http://rsb.info.nih.gov/ij/plugins/bmp-writer.html>

⁴²⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/src/loci/formats/in/BMPReader.java>

[Technical Overview](#)⁴²⁵ [General Resources](#)⁴²⁶

17.124 Zeiss AxioVision TIFF

Extensions: .xml, .tiff

Developer: Carl Zeiss MicroImaging GmbH⁴²⁷

Owner: Carl Zeiss MicroImaging GmbH⁴²⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Zeiss AxioVision TIFF*

Freely Available Software:

- *Zeiss ZEN Lite*⁴²⁹

We currently have:

- many example datasets

We would like to have:

- an official specification document

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *ZeissTIFFReader.java*⁴³⁰

Notes:

17.125 Zeiss AxioVision ZVI (Zeiss Vision Image)

Extensions: .zvi

Developer: Carl Zeiss MicroImaging GmbH (AxioVision)⁴³¹

⁴²⁵<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-18.html>

⁴²⁶<http://people.sc.fsu.edu/~burkardt/data/bmp/bmp.html>

⁴²⁷<http://www.zeiss.com/micro>

⁴²⁸<http://www.zeiss.com/micro>

⁴²⁹http://microscopy.zeiss.com/microscopy/en_de/downloads/zen.html

⁴³⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ZeissTIFFReader.java>

⁴³¹<http://www.zeiss.com/axiovision>

Owner: Carl Zeiss MicroImaging GmbH⁴³²

Support

SCIFIO:

Export:

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Zeiss AxioVision ZVI (Zeiss Vision Image)*

Freely Available Software:

- [Zeiss Axiovision LE](#)⁴³³

We currently have:

- a ZVI specification document (v2.0.5, from 2010 August, in PDF)
- an older ZVI specification document (v2.0.2, from 2006 August 23, in PDF)
- an older ZVI specification document (v2.0.1, from 2005 April 21, in PDF)
- an older ZVI specification document (v1.0.26.01.01, from 2001 January 29, in DOC)
- Zeiss' `ZvImageReader` code (v1.0, from 2001 January 25, in C++)
- many ZVI datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [ZeissZVIReader.java](#)⁴³⁴

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Bio-Formats uses a modified version of the [Apache Jakarta POI library](#)⁴³⁵ to read ZVI files.

Commercial applications that support ZVI include [Bitplane Imaris](#)⁴³⁶.

See also:

[Axiovision software overview](#)⁴³⁷

⁴³²<http://www.zeiss.com/micro>

⁴³³<http://www.zeiss.de/c12567be0045acf1/Contents-Frame/cbe917247da02a1cc1256e0000491172>

⁴³⁴<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ZeissZVIReader.java>

⁴³⁵<http://jakarta.apache.org/poi/>

⁴³⁶<http://www.bitplane.com/>

⁴³⁷<http://www.zeiss.com/C12567BE0045ACF1/ContentsWWWIntern/668C9FDCBB18C6E2412568C10045A72E>

17.126 Zeiss CZI

Extensions: .czi

Developer: Carl Zeiss MicroImaging GmbH⁴³⁸

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Zeiss CZI*

Freely Available Software:

- Zeiss ZEN 2011⁴³⁹

We currently have:

- many example datasets
- official specification documents

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: *ZeissCZIReader.java*⁴⁴⁰

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

17.127 Zeiss LSM (Laser Scanning Microscope) 510/710

Extensions: .lsm, .mdb

Owner: Carl Zeiss MicroImaging GmbH⁴⁴¹

Support

SCIFIO:

⁴³⁸<http://www.zeiss.com/micro>

⁴³⁹<http://www.zeiss.de/C12567BE0045ACF1/Contents-Frame/A57B6AE510CE8FF1C12578FE002A725D>

⁴⁴⁰<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ZeissCZIReader.java>

⁴⁴¹<http://www.zeiss.com/micro>

Export:

Officially Supported Versions:

Supported Metadata Fields: *Zeiss LSM (Laser Scanning Microscope) 510/710*

Freely Available Software:

- [Zeiss LSM Image Browser](#)⁴⁴²
- [LSM Toolbox plugin for ImageJ](#)⁴⁴³
- [LSM Reader plugin for ImageJ](#)⁴⁴⁴
- [DIMIN](#)⁴⁴⁵

We currently have:

- LSM specification v3.2, from 2003 March 12, in PDF
- LSM specification v5.5, from 2009 November 23, in PDF
- LSM specification v6.0, from 2010 September 28, in PDF
- many LSM datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [ZeissLSMReader.java](#)⁴⁴⁶

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

Bio-Formats uses the [MDB Tools Java port](#)⁴⁴⁷

Commercial applications that support this format include:

- [SVI Huygens](#)⁴⁴⁸
- [Bitplane Imaris](#)⁴⁴⁹
- [Amira](#)⁴⁵⁰

⁴⁴²[http://www.zeiss.de/C12567BE00472A5C/EmbedTitelIntern/LSMImageBrowser/\\$File/INST_IB.EXE](http://www.zeiss.de/C12567BE00472A5C/EmbedTitelIntern/LSMImageBrowser/$File/INST_IB.EXE)

⁴⁴³<http://imagejdocu.tudor.lu/Members/ppirrotte/lsmtoolbox>

⁴⁴⁴<http://rsb.info.nih.gov/ij/plugins/lsm-reader.html>

⁴⁴⁵<http://www.dimin.net/>

⁴⁴⁶<https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ZeissLSMReader.java>

⁴⁴⁷<http://mdbtools.sourceforge.net/>

⁴⁴⁸<http://www2.svi.nl/>

⁴⁴⁹<http://www.bitplane.com/>

⁴⁵⁰<http://www.amira.com/>

- Image-Pro Plus⁴⁵¹

⁴⁵¹<http://www.mediacy.com/>

SUMMARY OF SUPPORTED METADATA FIELDS

18.1 Format readers

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>AIMReader</i>	20	0	0	453
<i>APLReader</i>	19	0	0	454
<i>APNGReader</i>	17	0	0	456
<i>ARFReader</i>	17	0	0	456
<i>AVIReader</i>	17	0	0	456
<i>AliconaReader</i>	31	0	0	442
<i>AmiraReader</i>	20	0	0	453
<i>AnalyzeReader</i>	22	0	0	451
<i>BDReader</i>	55	0	0	418
<i>BIFormatReader</i>	17	0	0	456
<i>BMPReader</i>	19	0	0	454
<i>BaseTiffReader</i>	25	0	0	448
<i>BaseZeissReader</i>	81	0	0	392
<i>BioRadGelReader</i>	19	0	0	454
<i>BioRadReader</i>	38	0	0	435
<i>BrukerReader</i>	21	0	0	452
<i>BurleighReader</i>	20	0	0	453
<i>CanonRawReader</i>	17	0	0	456
<i>CellSensReader</i>	17	0	0	456
<i>CellWorxReader</i>	41	0	0	432
<i>CellomicsReader</i>	29	0	0	444
<i>DNGReader</i>	17	0	0	456
<i>DeltavisionReader</i>	50	0	0	423
<i>DicomReader</i>	21	0	0	452
<i>EPSReader</i>	17	0	0	456
<i>Ecat7Reader</i>	21	0	0	452
<i>FEIReader</i>	17	0	0	456
<i>FEITiffReader</i>	37	0	0	436
<i>FV1000Reader</i>	107	0	0	366
<i>FakeReader</i>	17	0	0	456
<i>FitsReader</i>	17	0	0	456
<i>FlexReader</i>	67	0	0	406
<i>FluoviewReader</i>	47	0	0	426
<i>FujiReader</i>	21	0	0	452

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Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>GIFReader</i>	17	0	0	456
<i>GatanDM2Reader</i>	28	0	0	445
<i>GatanReader</i>	34	0	0	439
<i>GelReader</i>	19	0	0	454
<i>HISReader</i>	25	0	0	448
<i>HRDGDFReader</i>	19	0	0	454
<i>HamamatsuVMSReader</i>	24	0	0	449
<i>HitachiReader</i>	29	0	0	444
<i>ICSReader</i>	70	0	0	403
<i>IMODReader</i>	42	0	0	431
<i>INRReader</i>	20	0	0	453
<i>IPLabReader</i>	29	0	0	444
<i>IPWReader</i>	18	0	0	455
<i>ImaconReader</i>	21	0	0	452
<i>ImageIOReader</i>	17	0	0	456
<i>ImagicReader</i>	20	0	0	453
<i>ImarisHDFReader</i>	22	0	0	451
<i>ImarisReader</i>	30	0	0	443
<i>ImarisTiffReader</i>	21	0	0	452
<i>ImprovisationTiffReader</i>	23	0	0	450
<i>InCell3000Reader</i>	17	0	0	456
<i>InCellReader</i>	65	0	0	408
<i>IvisionReader</i>	32	0	0	441
<i>JEOLReader</i>	17	0	0	456
<i>JPEG2000Reader</i>	17	0	0	456
<i>JPEGReader</i>	17	0	0	456
<i>JKPReader</i>	17	0	0	456
<i>JPXReader</i>	17	0	0	456
<i>KhorosReader</i>	17	0	0	456
<i>KodakReader</i>	24	0	0	449
<i>L2DReader</i>	27	0	0	446
<i>LEOReader</i>	25	0	0	448
<i>LIFReader</i>	83	0	0	390
<i>LIMReader</i>	17	0	0	456
<i>LegacyND2Reader</i>	17	0	0	456
<i>LegacyQTRReader</i>	17	0	0	456
<i>LeicaReader</i>	54	0	0	419
<i>LeicaSCNReader</i>	31	0	0	442
<i>LiFlimReader</i>	23	0	0	450
<i>MIASReader</i>	62	0	0	411
<i>MINCReader</i>	21	0	0	452
<i>MNGReader</i>	17	0	0	456
<i>MRCReader</i>	20	0	0	453
<i>MRWReader</i>	17	0	0	456
<i>MetamorphReader</i>	41	0	0	432
<i>MetamorphTiffReader</i>	35	0	0	438
<i>MicromanagerReader</i>	36	0	0	437
<i>MinimalTiffReader</i>	17	0	0	456
<i>MolecularImagingReader</i>	19	0	0	454

Continued on next page

Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>NAFReader</i>	17	0	0	456
<i>ND2Reader</i>	17	0	0	456
<i>NDPIReader</i>	19	0	0	454
<i>NDPISReader</i>	17	0	0	456
<i>NRRDReader</i>	20	0	0	453
<i>NativeND2Reader</i>	50	0	0	423
<i>NativeQTReader</i>	17	0	0	456
<i>NiftiReader</i>	22	0	0	451
<i>NikonElementsTiffReader</i>	48	0	0	425
<i>NikonReader</i>	17	0	0	456
<i>NikonTiffReader</i>	45	0	0	428
<i>OMETiffReader</i>	17	0	0	456
<i>OMEXMLReader</i>	17	0	0	456
<i>OpenlabRawReader</i>	17	0	0	456
<i>OpenlabReader</i>	30	0	0	443
<i>OperettaReader</i>	41	0	0	432
<i>OxfordInstrumentsReader</i>	20	0	0	453
<i>PCIRReader</i>	27	0	0	446
<i>PCXReader</i>	17	0	0	456
<i>PDSReader</i>	21	0	0	452
<i>PGMReader</i>	17	0	0	456
<i>PSDReader</i>	17	0	0	456
<i>PerkinElmerReader</i>	28	0	0	445
<i>PhotoshopTiffReader</i>	17	0	0	456
<i>PictReader</i>	17	0	0	456
<i>PovrayReader</i>	17	0	0	456
<i>PrairieReader</i>	43	0	0	430
<i>PyramidTiffReader</i>	17	0	0	456
<i>QTReader</i>	17	0	0	456
<i>QuesantReader</i>	20	0	0	453
<i>RHKReader</i>	20	0	0	453
<i>SBIGReader</i>	20	0	0	453
<i>SDTReader</i>	17	0	0	456
<i>SEQReader</i>	17	0	0	456
<i>SIFReader</i>	18	0	0	455
<i>SISReader</i>	31	0	0	442
<i>SMCameraReader</i>	17	0	0	456
<i>SVSReader</i>	18	0	0	455
<i>ScanrReader</i>	41	0	0	432
<i>ScreenReader</i>	32	0	0	441
<i>SeikoReader</i>	20	0	0	453
<i>SimplePCITiffReader</i>	31	0	0	442
<i>SlidebookReader</i>	32	0	0	441
<i>SlidebookTiffReader</i>	28	0	0	445
<i>SpiderReader</i>	19	0	0	454
<i>TCSReader</i>	20	0	0	453
<i>TargaReader</i>	18	0	0	455
<i>TextReader</i>	17	0	0	456
<i>TiffDelegateReader</i>	17	0	0	456

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Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>TiffJAIReader</i>	17	0	0	456
<i>TiffReader</i>	20	0	0	453
<i>TileJPEGReader</i>	17	0	0	456
<i>TillVisionReader</i>	20	0	0	453
<i>TopometrixReader</i>	20	0	0	453
<i>TrestleReader</i>	24	0	0	449
<i>UBMReader</i>	17	0	0	456
<i>UnisokuReader</i>	20	0	0	453
<i>VGSAMReader</i>	17	0	0	456
<i>VarianFDFReader</i>	23	0	0	450
<i>VisitechReader</i>	17	0	0	456
<i>VolocityClippingReader</i>	17	0	0	456
<i>VolocityReader</i>	35	0	0	438
<i>WATOPReader</i>	20	0	0	453
<i>ZeissCZIRReader</i>	149	0	0	324
<i>ZeissLSMReader</i>	99	0	0	374
<i>ZeissTIFFReader</i>	17	0	0	456
<i>ZeissZVIRReader</i>	17	0	0	456
<i>ZipReader</i>	17	0	0	456

18.2 Metadata fields

Field	Supported	Unsupported	Partial	Unknown/Missing
Arc - ID ¹	0	0	0	151
Arc - LotNumber ²	1	0	0	150
Arc - Manufacturer ³	1	0	0	150
Arc - Model ⁴	1	0	0	150
Arc - Power ⁵	1	0	0	150
Arc - SerialNumber ⁶	1	0	0	150
Arc - Type ⁷	0	0	0	151
BooleanAnnotation - AnnotationRef ⁸	0	0	0	151
BooleanAnnotation - Description ⁹	0	0	0	151
BooleanAnnotation - ID ¹⁰	0	0	0	151
BooleanAnnotation - Namespace ¹¹	0	0	0	151

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¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Arc_Type

⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
BooleanAnnotation - Value ¹²	0	0	0	151
Channel - AcquisitionMode ¹³	3	0	0	148
Channel - AnnotationRef ¹⁴	0	0	0	151
Channel - Color ¹⁵	7	0	0	144
Channel - Contrast-Method ¹⁶	0	0	0	151
Channel - Emission-Wavelength ¹⁷	14	0	0	137
Channel - Excitation-Wavelength ¹⁸	15	0	0	136
Channel - FilterSetRef ¹⁹	0	0	0	151
Channel - Fluor ²⁰	0	0	0	151
Channel - ID ²¹	151	0	0	0
Channel - IlluminationType ²²	2	0	0	149
Channel - Light-SourceSettingsAttenuation ²³	1	0	0	150
Channel - Light-SourceSettingsID ²⁴	5	0	0	146
Channel - Light-SourceSettingsWavelength ²⁵	2	0	0	149
Channel - NDFilter ²⁶	2	0	0	149
Channel - Name ²⁷	29	0	0	122
Channel - Pinhole-Size ²⁸	9	0	0	142
Channel - Pockel-CellSetting ²⁹	0	0	0	151

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¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#BooleanAnnotation_Value

¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode

¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ContrastMethod

¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSetRef_ID

²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Fluor

²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType

²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation

²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength

²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter

²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PockelCellSetting

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Channel - Samples-PerPixel ³⁰	151	0	0	0
CommentAnnotation - AnnotationRef ³¹	0	0	0	151
CommentAnnotation - Description ³²	0	0	0	151
CommentAnnotation - ID ³³	0	0	0	151
CommentAnnotation - Namespace ³⁴	0	0	0	151
CommentAnnotation - Value ³⁵	0	0	0	151
Dataset - AnnotationRef ³⁶	0	0	0	151
Dataset - Description ³⁷	0	0	0	151
Dataset - ExperimenterGroupRef ³⁸	0	0	0	151
Dataset - ExperimenterRef ³⁹	0	0	0	151
Dataset - ID ⁴⁰	0	0	0	151
Dataset - ImageRef ⁴¹	0	0	0	151
Dataset - Name ⁴²	0	0	0	151
Detector - AmplificationGain ⁴³	2	0	0	149
Detector - Gain ⁴⁴	5	0	0	146
Detector - ID ⁴⁵	32	0	0	119
Detector - LotNumber ⁴⁶	1	0	0	150
Detector - Manufacturer ⁴⁷	4	0	0	147
Detector - Model ⁴⁸	13	0	0	138
Detector - Offset ⁴⁹	5	0	0	146

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³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#CommentAnnotation_Value

³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_Description

³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID

³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_ID

⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_Name

⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain

⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Detector - Serial-Number ⁵⁰	2	0	0	149
Detector - Type ⁵¹	27	0	0	124
Detector - Voltage ⁵²	2	0	0	149
Detector - Zoom ⁵³	4	0	0	147
DetectorSettings - Binning ⁵⁴	15	0	0	136
DetectorSettings - Gain ⁵⁵	18	0	0	133
DetectorSettings - ID ⁵⁶	30	0	0	121
DetectorSettings - Offset ⁵⁷	8	0	0	143
DetectorSettings - ReadOutRate ⁵⁸	5	0	0	146
DetectorSettings - Voltage ⁵⁹	6	0	0	145
Dichroic - ID ⁶⁰	6	0	0	145
Dichroic - LotNumber ⁶¹	1	0	0	150
Dichroic - Manufacturer ⁶²	1	0	0	150
Dichroic - Model ⁶³	6	0	0	145
Dichroic - Serial-Number ⁶⁴	1	0	0	150
DoubleAnnotation - AnnotationRef ⁶⁵	0	0	0	151
DoubleAnnotation - Description ⁶⁶	0	0	0	151
DoubleAnnotation - ID ⁶⁷	0	0	0	151
DoubleAnnotation - Namespace ⁶⁸	0	0	0	151

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⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage

⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom

⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
DoubleAnnotation - Value ⁶⁹	0	0	0	151
Ellipse - FillColor ⁷⁰	0	0	0	151
Ellipse - FillRule ⁷¹	0	0	0	151
Ellipse - FontFamily ⁷²	0	0	0	151
Ellipse - FontSize ⁷³	2	0	0	149
Ellipse - FontStyle ⁷⁴	0	0	0	151
Ellipse - ID ⁷⁵	5	0	0	146
Ellipse - LineCap ⁷⁶	0	0	0	151
Ellipse - Locked ⁷⁷	0	0	0	151
Ellipse - RadiusX ⁷⁸	5	0	0	146
Ellipse - RadiusY ⁷⁹	5	0	0	146
Ellipse - StrokeColor ⁸⁰	0	0	0	151
Ellipse - StrokeDashArray ⁸¹	0	0	0	151
Ellipse - StrokeWidth ⁸²	2	0	0	149
Ellipse - Text ⁸³	3	0	0	148
Ellipse - TheC ⁸⁴	0	0	0	151
Ellipse - TheT ⁸⁵	2	0	0	149
Ellipse - TheZ ⁸⁶	2	0	0	149
Ellipse - Transform ⁸⁷	2	0	0	149
Ellipse - Visible ⁸⁸	0	0	0	151
Ellipse - X ⁸⁹	5	0	0	146
Ellipse - Y ⁹⁰	5	0	0	146
Experiment - Description ⁹¹	1	0	0	150

Continued on next page

⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#DoubleAnnotation_Value

⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule

⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily

⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle

⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap

⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked

⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX

⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY

⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC

⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible

⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X

⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y

⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Description

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Experiment - ExperimenterRef ⁹²	0	0	0	151
Experiment - ID ⁹³	5	0	0	146
Experiment - Type ⁹⁴	5	0	0	146
Experimenter - AnnotationRef ⁹⁵	0	0	0	151
Experimenter - Email ⁹⁶	2	0	0	149
Experimenter - First-Name ⁹⁷	5	0	0	146
Experimenter - ID ⁹⁸	10	0	0	141
Experimenter - Institution ⁹⁹	3	0	0	148
Experimenter - Last-Name ¹⁰⁰	9	0	0	142
Experimenter - MiddleName ¹⁰¹	1	0	0	150
Experimenter - User-Name ¹⁰²	2	0	0	149
ExperimenterGroup - AnnotationRef ¹⁰³	0	0	0	151
ExperimenterGroup - Description ¹⁰⁴	0	0	0	151
ExperimenterGroup - ExperimenterRef ¹⁰⁵	0	0	0	151
ExperimenterGroup - ID ¹⁰⁶	0	0	0	151
ExperimenterGroup - Leader ¹⁰⁷	0	0	0	151
ExperimenterGroup - Name ¹⁰⁸	0	0	0	151
Filament - ID ¹⁰⁹	0	0	0	151
Filament - LotNumber ¹¹⁰	1	0	0	150

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⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Email⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_MiddleName¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_Description¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_ID¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Leader_ID¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_Name¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Filament - Manufacturer ¹¹¹	1	0	0	150
Filament - Model ¹¹²	1	0	0	150
Filament - Power ¹¹³	1	0	0	150
Filament - Serial-Number ¹¹⁴	1	0	0	150
Filament - Type ¹¹⁵	0	0	0	151
FileAnnotation - AnnotationRef ¹¹⁶	0	0	0	151
FileAnnotation - Description ¹¹⁷	0	0	0	151
FileAnnotation - ID ¹¹⁸	0	0	0	151
FileAnnotation - Namespace ¹¹⁹	0	0	0	151
Filter - Filter-Wheel ¹²⁰	2	0	0	149
Filter - ID ¹²¹	8	0	0	143
Filter - LotNumber ¹²²	1	0	0	150
Filter - Manufacturer ¹²³	1	0	0	150
Filter - Model ¹²⁴	8	0	0	143
Filter - SerialNumber ¹²⁵	1	0	0	150
Filter - Type ¹²⁶	2	0	0	149
FilterSet - DichroicRef ¹²⁷	2	0	0	149
FilterSet - Emission-FilterRef ¹²⁸	2	0	0	149
FilterSet - ExcitationFilterRef ¹²⁹	2	0	0	149
FilterSet - ID ¹³⁰	2	0	0	149

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¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filament_Type

¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel

¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type

¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSet_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
FilterSet - LotNumber ¹³¹	1	0	0	150
FilterSet - Manufacturer ¹³²	1	0	0	150
FilterSet - Model ¹³³	2	0	0	149
FilterSet - Serial-Number ¹³⁴	1	0	0	150
Image - Acquisition-Date ¹³⁵	151	0	0	0
Image - Annotation-Ref ¹³⁶	0	0	0	151
Image - Description ¹³⁷	40	0	0	111
Image - Experiment-Ref ¹³⁸	2	0	0	149
Image - ExperimenterGroupRef ¹³⁹	0	0	0	151
Image - ExperimenterRef ¹⁴⁰	5	0	0	146
Image - ID ¹⁴¹	151	0	0	0
Image - InstrumentRef ¹⁴²	39	0	0	112
Image - Microbeam-ManipulationRef ¹⁴³	0	0	0	151
Image - Name ¹⁴⁴	151	0	0	0
Image - ROIRef ¹⁴⁵	11	0	0	140
ImagingEnvironment - AirPressure ¹⁴⁶	1	0	0	150
ImagingEnvironment - CO2Percent ¹⁴⁷	1	0	0	150
ImagingEnvironment - Humidity ¹⁴⁸	1	0	0	150
ImagingEnvironment - Temperature ¹⁴⁹	10	0	0	141

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¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulationRef_ID¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_AirPressure¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_CO2Percent¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Humidity¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Instrument - ID ¹⁵⁰	43	0	0	108
Label - FillColor ¹⁵¹	0	0	0	151
Label - FillRule ¹⁵²	0	0	0	151
Label - FontFamily ¹⁵³	0	0	0	151
Label - FontSize ¹⁵⁴	2	0	0	149
Label - FontStyle ¹⁵⁵	0	0	0	151
Label - ID ¹⁵⁶	3	0	0	148
Label - LineCap ¹⁵⁷	0	0	0	151
Label - Locked ¹⁵⁸	0	0	0	151
Label - StrokeColor ¹⁵⁹	0	0	0	151
Label - StrokeDashArray ¹⁶⁰	0	0	0	151
Label - StrokeWidth ¹⁶¹	2	0	0	149
Label - Text ¹⁶²	3	0	0	148
Label - TheC ¹⁶³	0	0	0	151
Label - TheT ¹⁶⁴	0	0	0	151
Label - TheZ ¹⁶⁵	0	0	0	151
Label - Transform ¹⁶⁶	0	0	0	151
Label - Visible ¹⁶⁷	0	0	0	151
Label - X ¹⁶⁸	3	0	0	148
Label - Y ¹⁶⁹	3	0	0	148
Laser - Frequency-Multiplication ¹⁷⁰	0	0	0	151
Laser - ID ¹⁷¹	9	0	0	142
Laser - Laser-Medium ¹⁷²	8	0	0	143

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¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_FrequencyMultiplication¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Laser - LotNumber ¹⁷³	1	0	0	150
Laser - Manufacturer ¹⁷⁴	2	0	0	149
Laser - Model ¹⁷⁵	4	0	0	147
Laser - PockelCell ¹⁷⁶	0	0	0	151
Laser - Power ¹⁷⁷	3	0	0	148
Laser - Pulse ¹⁷⁸	0	0	0	151
Laser - Pump ¹⁷⁹	0	0	0	151
Laser - Repetition-Rate ¹⁸⁰	1	0	0	150
Laser - SerialNumber ¹⁸¹	1	0	0	150
Laser - Tuneable ¹⁸²	0	0	0	151
Laser - Type ¹⁸³	8	0	0	143
Laser - Wavelength ¹⁸⁴	7	0	0	144
LightEmittingDiode - ID ¹⁸⁵	0	0	0	151
LightEmittingDiode - LotNumber ¹⁸⁶	1	0	0	150
LightEmittingDiode - Manufacturer ¹⁸⁷	1	0	0	150
LightEmittingDiode - Model ¹⁸⁸	1	0	0	150
LightEmittingDiode - Power ¹⁸⁹	1	0	0	150
LightEmittingDiode - SerialNumber ¹⁹⁰	1	0	0	150
LightPath - DichroicRef ¹⁹¹	3	0	0	148
LightPath - EmissionFilterRef ¹⁹²	5	0	0	146

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¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_PockelCell¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Pulse¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pump_ID¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_RepetitionRate¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Tuneable¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

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Field	Supported	Unsupported	Partial	Unknown/Missing
LightPath - ExcitationFilterRef ¹⁹³	1	0	0	150
Line - FillColor ¹⁹⁴	0	0	0	151
Line - FillRule ¹⁹⁵	0	0	0	151
Line - FontFamily ¹⁹⁶	0	0	0	151
Line - FontSize ¹⁹⁷	2	0	0	149
Line - FontStyle ¹⁹⁸	0	0	0	151
Line - ID ¹⁹⁹	5	0	0	146
Line - LineCap ²⁰⁰	0	0	0	151
Line - Locked ²⁰¹	0	0	0	151
Line - MarkerEnd ²⁰²	0	0	0	151
Line - MarkerStart ²⁰³	0	0	0	151
Line - StrokeColor ²⁰⁴	0	0	0	151
Line - StrokeDashArray ²⁰⁵	0	0	0	151
Line - StrokeWidth ²⁰⁶	2	0	0	149
Line - Text ²⁰⁷	2	0	0	149
Line - TheC ²⁰⁸	0	0	0	151
Line - TheT ²⁰⁹	1	0	0	150
Line - TheZ ²¹⁰	1	0	0	150
Line - Transform ²¹¹	1	0	0	150
Line - Visible ²¹²	0	0	0	151
Line - X1 ²¹³	5	0	0	146
Line - X2 ²¹⁴	5	0	0	146
Line - Y1 ²¹⁵	5	0	0	146
Line - Y2 ²¹⁶	5	0	0	146
ListAnnotation - AnnotationRef ²¹⁷	0	0	0	151

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¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_MarkerEnd²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_MarkerStart²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
ListAnnotation - Description ²¹⁸	0	0	0	151
ListAnnotation ID ²¹⁹	0	0	0	151
ListAnnotation Namespace ²²⁰	0	0	0	151
LongAnnotation - AnnotationRef ²²¹	0	0	0	151
LongAnnotation - Description ²²²	0	0	0	151
LongAnnotation - ID ²²³	0	0	0	151
LongAnnotation - Namespace ²²⁴	0	0	0	151
LongAnnotation - Value ²²⁵	0	0	0	151
Mask - FillColor ²²⁶	1	0	0	150
Mask - FillRule ²²⁷	0	0	0	151
Mask - FontFamily ²²⁸	0	0	0	151
Mask - FontSize ²²⁹	0	0	0	151
Mask - Height ²³⁰	2	0	0	149
Mask - ID ²³¹	2	0	0	149
Mask - LineCap ²³²	0	0	0	151
Mask - Locked ²³³	0	0	0	151
Mask - StrokeColor ²³⁴	1	0	0	150
Mask - StrokeDashArray ²³⁵	0	0	0	151
Mask - StrokeWidth ²³⁶	0	0	0	151
Mask - Text ²³⁷	0	0	0	151

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²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#LongAnnotation_Value

²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule

²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily

²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height

²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap

²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked

²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Mask - TheC ²³⁸	0	0	0	151
Mask - TheT ²³⁹	0	0	0	151
Mask - TheZ ²⁴⁰	0	0	0	151
Mask - Transform ²⁴¹	0	0	0	151
Mask - Visible ²⁴²	0	0	0	151
Mask - Width ²⁴³	2	0	0	149
Mask - X ²⁴⁴	2	0	0	149
Mask - Y ²⁴⁵	2	0	0	149
MicrobeamManipulation - ExperimenterRef ²⁴⁶	0	0	0	151
MicrobeamManipulation - ID ²⁴⁷	0	0	0	151
MicrobeamManipulation - ROIRef ²⁴⁸	0	0	0	151
MicrobeamManipulation - Type ²⁴⁹	0	0	0	151
MicrobeamManipulationLightSourceSettings - Attenuation ²⁵⁰	0	0	0	151
MicrobeamManipulationLightSourceSettings - ID ²⁵¹	0	0	0	151
MicrobeamManipulationLightSourceSettings - Wavelength ²⁵²	0	0	0	151
Microscope - Lot- Number ²⁵³	1	0	0	150
Microscope - Manu- facturer ²⁵⁴	2	0	0	149
Microscope - Model ²⁵⁵	9	0	0	142
Microscope - Serial- Number ²⁵⁶	3	0	0	148
Microscope - Type ²⁵⁷	3	0	0	148

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²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC

²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible

²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width

²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X

²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y

²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulation_ID

²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulation_Type

²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation

²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength

²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Objective - CalibratedMagnification ²⁵⁸	9	0	0	142
Objective - Correction ²⁵⁹	25	0	0	126
Objective - ID ²⁶⁰	31	0	0	120
Objective - Immersion ²⁶¹	26	0	0	125
Objective - Iris ²⁶²	2	0	0	149
Objective - LensNA ²⁶³	19	0	0	132
Objective - LotNumber ²⁶⁴	1	0	0	150
Objective - Manufacturer ²⁶⁵	5	0	0	146
Objective - Model ²⁶⁶	12	0	0	139
Objective - NominalMagnification ²⁶⁷	23	0	0	128
Objective - SerialNumber ²⁶⁸	3	0	0	148
Objective - WorkingDistance ²⁶⁹	9	0	0	142
ObjectiveSettings - CorrectionCollar ²⁷⁰	1	0	0	150
ObjectiveSettings - ID ²⁷¹	26	0	0	125
ObjectiveSettings - Medium ²⁷²	1	0	0	150
ObjectiveSettings - RefractiveIndex ²⁷³	7	0	0	144
Pixels - AnnotationRef ²⁷⁴	0	0	0	151
Pixels - BinDataBigEndian ²⁷⁵	151	0	0	0

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²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_Medium²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Pixels - DimensionOrder ²⁷⁶	151	0	0	0
Pixels - ID ²⁷⁷	151	0	0	0
Pixels - Physical-SizeX ²⁷⁸	79	0	0	72
Pixels - Physical-SizeY ²⁷⁹	79	0	0	72
Pixels - Physical-SizeZ ²⁸⁰	39	0	0	112
Pixels - SizeC ²⁸¹	151	0	0	0
Pixels - SizeT ²⁸²	151	0	0	0
Pixels - SizeX ²⁸³	151	0	0	0
Pixels - SizeY ²⁸⁴	151	0	0	0
Pixels - SizeZ ²⁸⁵	151	0	0	0
Pixels - TimeIncrement ²⁸⁶	16	0	0	135
Pixels - Type ²⁸⁷	151	0	0	0
Plane - Annotation-Ref ²⁸⁸	0	0	0	151
Plane - DeltaT ²⁸⁹	22	0	0	129
Plane - Exposure-Time ²⁹⁰	25	0	0	126
Plane - HashSHA1 ²⁹¹	0	0	0	151
Plane - PositionX ²⁹²	26	0	0	125
Plane - PositionY ²⁹³	26	0	0	125
Plane - PositionZ ²⁹⁴	20	0	0	131
Plane - TheC ²⁹⁵	151	0	0	0
Plane - TheT ²⁹⁶	151	0	0	0
Plane - TheZ ²⁹⁷	151	0	0	0

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²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_HashSHA1²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Plate - Annotation-Ref ²⁹⁸	0	0	0	151
Plate - ColumnNamingConvention ²⁹⁹	8	0	0	143
Plate - Columns ³⁰⁰	3	0	0	148
Plate - Description ³⁰¹	2	0	0	149
Plate - ExternalIdentifier ³⁰²	3	0	0	148
Plate - ID ³⁰³	10	0	0	141
Plate - Name ³⁰⁴	9	0	0	142
Plate - RowNamingConvention ³⁰⁵	8	0	0	143
Plate - Rows ³⁰⁶	3	0	0	148
Plate - Status ³⁰⁷	0	0	0	151
Plate - WellOriginX ³⁰⁸	1	0	0	150
Plate - WellOriginY ³⁰⁹	1	0	0	150
PlateAcquisition - AnnotationRef ³¹⁰	0	0	0	151
PlateAcquisition - Description ³¹¹	0	0	0	151
PlateAcquisition - EndTime ³¹²	0	0	0	151
PlateAcquisition - ID ³¹³	7	0	0	144
PlateAcquisition - MaximumFieldCount ³¹⁴	7	0	0	144
PlateAcquisition - Name ³¹⁵	0	0	0	151
PlateAcquisition - StartTime ³¹⁶	1	0	0	150

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²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Status³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginX³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginY³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_Description³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_EndTime³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_Name³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_StartTime

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
PlateAcquisition - WellSampleRef ³¹⁷	7	0	0	144
Point - FillColor ³¹⁸	0	0	0	151
Point - FillRule ³¹⁹	0	0	0	151
Point - FontFamily ³²⁰	0	0	0	151
Point - FontSize ³²¹	1	0	0	150
Point - FontStyle ³²²	0	0	0	151
Point - ID ³²³	3	0	0	148
Point - LineCap ³²⁴	0	0	0	151
Point - Locked ³²⁵	0	0	0	151
Point - StrokeColor ³²⁶	1	0	0	150
Point - StrokeDashArray ³²⁷	1	0	0	150
Point - StrokeWidth ³²⁸	2	0	0	149
Point - Text ³²⁹	1	0	0	150
Point - TheC ³³⁰	0	0	0	151
Point - TheT ³³¹	1	0	0	150
Point - TheZ ³³²	2	0	0	149
Point - Transform ³³³	0	0	0	151
Point - Visible ³³⁴	0	0	0	151
Point - X ³³⁵	3	0	0	148
Point - Y ³³⁶	3	0	0	148
Polygon - FillColor ³³⁷	0	0	0	151
Polygon - FillRule ³³⁸	0	0	0	151
Polygon - FontFamily ³³⁹	0	0	0	151

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³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule

³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily

³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle

³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap

³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked

³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC

³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible

³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X

³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y

³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule

³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Polygon - Font-Size ³⁴⁰	2	0	0	149
Polygon - FontStyle ³⁴¹	0	0	0	151
Polygon - ID ³⁴²	7	0	0	144
Polygon - LineCap ³⁴³	0	0	0	151
Polygon - Locked ³⁴⁴	0	0	0	151
Polygon - Points ³⁴⁵	7	0	0	144
Polygon - Stroke-Color ³⁴⁶	1	0	0	150
Polygon - StrokeDashArray ³⁴⁷	1	0	0	150
Polygon - StrokeWidth ³⁴⁸	3	0	0	148
Polygon - Text ³⁴⁹	2	0	0	149
Polygon - TheC ³⁵⁰	0	0	0	151
Polygon - TheT ³⁵¹	1	0	0	150
Polygon - TheZ ³⁵²	2	0	0	149
Polygon - Transform ³⁵³	1	0	0	150
Polygon - Visible ³⁵⁴	0	0	0	151
Polyline - Fill-Color ³⁵⁵	0	0	0	151
Polyline - FillRule ³⁵⁶	0	0	0	151
Polyline - FontFamily ³⁵⁷	0	0	0	151
Polyline - Font-Size ³⁵⁸	2	0	0	149
Polyline - FontStyle ³⁵⁹	0	0	0	151
Polyline - ID ³⁶⁰	5	0	0	146

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³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Polyline - LineCap ³⁶¹	0	0	0	151
Polyline - Locked ³⁶²	0	0	0	151
Polyline - MarkerEnd ³⁶³	0	0	0	151
Polyline - MarkerStart ³⁶⁴	0	0	0	151
Polyline - Points ³⁶⁵	5	0	0	146
Polyline - StrokeColor ³⁶⁶	1	0	0	150
Polyline - StrokeDashArray ³⁶⁷	1	0	0	150
Polyline - StrokeWidth ³⁶⁸	3	0	0	148
Polyline - Text ³⁶⁹	2	0	0	149
Polyline - TheC ³⁷⁰	0	0	0	151
Polyline - TheT ³⁷¹	1	0	0	150
Polyline - TheZ ³⁷²	2	0	0	149
Polyline - Transform ³⁷³	1	0	0	150
Polyline - Visible ³⁷⁴	0	0	0	151
Project - AnnotationRef ³⁷⁵	0	0	0	151
Project - DatasetRef ³⁷⁶	0	0	0	151
Project - Description ³⁷⁷	0	0	0	151
Project - ExperimenterGroupRef ³⁷⁸	0	0	0	151
Project - ExperimenterRef ³⁷⁹	0	0	0	151
Project - ID ³⁸⁰	0	0	0	151

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³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap

³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked

³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_MarkerEnd

³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_MarkerStart

³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points

³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC

³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible

³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DatasetRef_ID

³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Project_Description

³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID

³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Project_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Project - Name ³⁸¹	0	0	0	151
ROI - Annotation-Ref ³⁸²	0	0	0	151
ROI - Description ³⁸³	1	0	0	150
ROI - ID ³⁸⁴	11	0	0	140
ROI - Name ³⁸⁵	3	0	0	148
ROI - Namespace ³⁸⁶	0	0	0	151
Reagent - AnnotationRef ³⁸⁷	0	0	0	151
Reagent - Description ³⁸⁸	0	0	0	151
Reagent - ID ³⁸⁹	0	0	0	151
Reagent - Name ³⁹⁰	0	0	0	151
Reagent - ReagentIdentifier ³⁹¹	0	0	0	151
Rectangle - Fill-Color ³⁹²	0	0	0	151
Rectangle - Fill-Rule ³⁹³	0	0	0	151
Rectangle - Font-Family ³⁹⁴	0	0	0	151
Rectangle - Font-Size ³⁹⁵	2	0	0	149
Rectangle - FontStyle ³⁹⁶	0	0	0	151
Rectangle - Height ³⁹⁷	7	0	0	144
Rectangle - ID ³⁹⁸	7	0	0	144
Rectangle - LineCap ³⁹⁹	0	0	0	151
Rectangle - Locked ⁴⁰⁰	0	0	0	151

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³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Project_Name

³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Description

³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name

³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Namespace

³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_Description

³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_ID

³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_Name

³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_ReagentIdentifier

³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule

³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily

³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle

³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap

⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Rectangle - Stroke-Color ⁴⁰¹	0	0	0	151
Rectangle - StrokeDashArray ⁴⁰²	0	0	0	151
Rectangle - StrokeWidth ⁴⁰³	2	0	0	149
Rectangle - Text ⁴⁰⁴	2	0	0	149
Rectangle - TheC ⁴⁰⁵	0	0	0	151
Rectangle - TheT ⁴⁰⁶	1	0	0	150
Rectangle - TheZ ⁴⁰⁷	1	0	0	150
Rectangle - Transform ⁴⁰⁸	1	0	0	150
Rectangle - Visible ⁴⁰⁹	0	0	0	151
Rectangle - Width ⁴¹⁰	7	0	0	144
Rectangle - X ⁴¹¹	7	0	0	144
Rectangle - Y ⁴¹²	7	0	0	144
Screen - Annotation-Ref ⁴¹³	0	0	0	151
Screen - Description ⁴¹⁴	0	0	0	151
Screen - ID ⁴¹⁵	1	0	0	150
Screen - Name ⁴¹⁶	1	0	0	150
Screen - PlateRef ⁴¹⁷	1	0	0	150
Screen - ProtocolDescription ⁴¹⁸	0	0	0	151
Screen - ProtocolIdentifier ⁴¹⁹	0	0	0	151
Screen - ReagentSet-Description ⁴²⁰	0	0	0	151
Screen - ReagentSet-Identifier ⁴²¹	0	0	0	151

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⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC

⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible

⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Description

⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ID

⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Name

⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Screen_PlateRef_ID

⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ProtocolDescription

⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ProtocolIdentifier

⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ReagentSetDescription

⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ReagentSetIdentifier

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Screen - Type ⁴²²	0	0	0	151
StageLabel Name ⁴²³	2	0	0	149
StageLabel - X ⁴²⁴	1	0	0	150
StageLabel - Y ⁴²⁵	1	0	0	150
StageLabel - Z ⁴²⁶	2	0	0	149
TagAnnotation - AnnotationRef ⁴²⁷	0	0	0	151
TagAnnotation - Description ⁴²⁸	0	0	0	151
TagAnnotation ID ⁴²⁹	0	0	0	151
TagAnnotation Namespace ⁴³⁰	0	0	0	151
TagAnnotation Value ⁴³¹	0	0	0	151
TermAnnotation AnnotationRef ⁴³²	0	0	0	151
TermAnnotation Description ⁴³³	0	0	0	151
TermAnnotation ID ⁴³⁴	0	0	0	151
TermAnnotation Namespace ⁴³⁵	0	0	0	151
TermAnnotation Value ⁴³⁶	0	0	0	151
TiffData - FirstC ⁴³⁷	0	0	0	151
TiffData - FirstT ⁴³⁸	0	0	0	151
TiffData - FirstZ ⁴³⁹	0	0	0	151
TiffData - IFD ⁴⁴⁰	0	0	0	151
TiffData PlaneCount ⁴⁴¹	0	0	0	151

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⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Type

⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name

⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_X

⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Y

⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Z

⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TagAnnotation_Value

⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TermAnnotation_Value

⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstC

⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstT

⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstZ

⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_IFD

⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_PlaneCount

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
TimestampAnnotation - AnnotationRef ⁴⁴²	0	0	0	151
TimestampAnnotation - Description ⁴⁴³	0	0	0	151
TimestampAnnotation - ID ⁴⁴⁴	0	0	0	151
TimestampAnnotation - Namespace ⁴⁴⁵	0	0	0	151
TimestampAnnotation - Value ⁴⁴⁶	0	0	0	151
TransmittanceRange - CutIn ⁴⁴⁷	5	0	0	146
TransmittanceRange - CutInTolerance ⁴⁴⁸	1	0	0	150
TransmittanceRange - CutOut ⁴⁴⁹	5	0	0	146
TransmittanceRange - CutOutTolerance ⁴⁵⁰	1	0	0	150
TransmittanceRange - Transmittance ⁴⁵¹	1	0	0	150
UUID - FileName ⁴⁵²	0	0	0	151
UUID - Value ⁴⁵³	0	0	0	151
Well - Annotation-Ref ⁴⁵⁴	0	0	0	151
Well - Color ⁴⁵⁵	0	0	0	151
Well - Column ⁴⁵⁶	10	0	0	141
Well - ExternalDescription ⁴⁵⁷	0	0	0	151
Well - ExternalIdentifier ⁴⁵⁸	0	0	0	151
Well - ID ⁴⁵⁹	10	0	0	141
Well - ReagentRef ⁴⁶⁰	0	0	0	151
Well - Row ⁴⁶¹	10	0	0	141

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⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description

⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TimestampAnnotation_Value

⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutInTolerance

⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOutTolerance

⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_Transmittance

⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_TiffData_UUID_FileName

⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#UniversallyUniqueIdentifier

⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Color

⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ExternalDescription

⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ExternalIdentifier

⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#ReagentRef_ID

⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Well - Type ⁴⁶²	0	0	0	151
WellSample - AnnotationRef ⁴⁶³	0	0	0	151
WellSample - ID ⁴⁶⁴	10	0	0	141
WellSample - ImageRef ⁴⁶⁵	10	0	0	141
WellSample - Index ⁴⁶⁶	10	0	0	141
WellSample - PositionX ⁴⁶⁷	4	0	0	147
WellSample - PositionY ⁴⁶⁸	4	0	0	147
WellSample - Timepoint ⁴⁶⁹	0	0	0	151
XMLAnnotation - AnnotationRef ⁴⁷⁰	0	0	0	151
XMLAnnotation - ID ⁴⁷¹	0	0	0	151
XMLAnnotation - Namespace ⁴⁷²	0	0	0	151
XMLAnnotation - Value ⁴⁷³	0	0	0	151

18.2.1 SlidebookReader

This page lists supported metadata fields for the Bio-Formats Olympus Slidebook format reader.

These fields are from the [OME data model](http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Type)⁴⁷⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 32 of them (6%).
- Of those, Bio-Formats fully or partially converts 32 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus Slidebook format reader:

⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Type

⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX

⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY

⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Timepoint

⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID

⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID

⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace

⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#XMLAnnotation_Value

⁴⁷⁴<http://www.openmicroscopy.org/site/support/ome-model/>

- Channel : ID⁴⁷⁵
- Channel : NDFilter⁴⁷⁶
- Channel : Name⁴⁷⁷
- Channel : SamplesPerPixel⁴⁷⁸
- Image : AcquisitionDate⁴⁷⁹
- Image : Description⁴⁸⁰
- Image : ID⁴⁸¹
- Image : InstrumentRef⁴⁸²
- Image : Name⁴⁸³
- Instrument : ID⁴⁸⁴
- Objective : Correction⁴⁸⁵
- Objective : ID⁴⁸⁶
- Objective : Immersion⁴⁸⁷
- Objective : Model⁴⁸⁸
- Objective : NominalMagnification⁴⁸⁹
- ObjectiveSettings : ID⁴⁹⁰
- Pixels : BinDataBigEndian⁴⁹¹
- Pixels : DimensionOrder⁴⁹²
- Pixels : ID⁴⁹³
- Pixels : PhysicalSizeX⁴⁹⁴
- Pixels : PhysicalSizeY⁴⁹⁵
- Pixels : PhysicalSizeZ⁴⁹⁶
- Pixels : SizeC⁴⁹⁷

⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter

⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT⁴⁹⁸
- Pixels : SizeX⁴⁹⁹
- Pixels : SizeY⁵⁰⁰
- Pixels : SizeZ⁵⁰¹
- Pixels : Type⁵⁰²
- Plane : ExposureTime⁵⁰³
- Plane : TheC⁵⁰⁴
- Plane : TheT⁵⁰⁵
- Plane : TheZ⁵⁰⁶

Total supported: 32

Total unknown or missing: 441

18.2.2 AIMReader

This page lists supported metadata fields for the Bio-Formats AIM format reader.

These fields are from the [OME data model](#)⁵⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats AIM format reader:

- Channel : ID⁵⁰⁸
- Channel : SamplesPerPixel⁵⁰⁹
- Image : AcquisitionDate⁵¹⁰
- Image : ID⁵¹¹
- Image : Name⁵¹²

⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁵⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Pixels : BinDataBigEndian⁵¹³
- Pixels : DimensionOrder⁵¹⁴
- Pixels : ID⁵¹⁵
- Pixels : PhysicalSizeX⁵¹⁶
- Pixels : PhysicalSizeY⁵¹⁷
- Pixels : PhysicalSizeZ⁵¹⁸
- Pixels : SizeC⁵¹⁹
- Pixels : SizeT⁵²⁰
- Pixels : SizeX⁵²¹
- Pixels : SizeY⁵²²
- Pixels : SizeZ⁵²³
- Pixels : Type⁵²⁴
- Plane : TheC⁵²⁵
- Plane : TheT⁵²⁶
- Plane : TheZ⁵²⁷

Total supported: 20

Total unknown or missing: 453

18.2.3 AliconaReader

This page lists supported metadata fields for the Bio-Formats Alicona AL3D format reader.

These fields are from the [OME data model](#)⁵²⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 31 of them (6%).
- Of those, Bio-Formats fully or partially converts 31 (100%).

⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁵²⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Alicona AL3D format reader:

- Channel : ID⁵²⁹
- Channel : SamplesPerPixel⁵³⁰
- Detector : ID⁵³¹
- Detector : Type⁵³²
- DetectorSettings : ID⁵³³
- DetectorSettings : Voltage⁵³⁴
- Image : AcquisitionDate⁵³⁵
- Image : ID⁵³⁶
- Image : InstrumentRef⁵³⁷
- Image : Name⁵³⁸
- Instrument : ID⁵³⁹
- Objective : CalibratedMagnification⁵⁴⁰
- Objective : Correction⁵⁴¹
- Objective : ID⁵⁴²
- Objective : Immersion⁵⁴³
- Objective : WorkingDistance⁵⁴⁴
- ObjectiveSettings : ID⁵⁴⁵
- Pixels : BinDataBigEndian⁵⁴⁶
- Pixels : DimensionOrder⁵⁴⁷
- Pixels : ID⁵⁴⁸
- Pixels : PhysicalSizeX⁵⁴⁹

⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁵⁵⁰
- Pixels : SizeC⁵⁵¹
- Pixels : SizeT⁵⁵²
- Pixels : SizeX⁵⁵³
- Pixels : SizeY⁵⁵⁴
- Pixels : SizeZ⁵⁵⁵
- Pixels : Type⁵⁵⁶
- Plane : TheC⁵⁵⁷
- Plane : TheT⁵⁵⁸
- Plane : TheZ⁵⁵⁹

Total supported: 31

Total unknown or missing: 442

18.2.4 GelReader

This page lists supported metadata fields for the Bio-Formats Amersham Biosciences GEL format reader.

These fields are from the [OME data model](#)⁵⁶⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Amersham Biosciences GEL format reader:

- Channel : ID⁵⁶¹
- Channel : SamplesPerPixel⁵⁶²
- Image : AcquisitionDate⁵⁶³
- Image : ID⁵⁶⁴

⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁵⁶⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name⁵⁶⁵
- Pixels : BinDataBigEndian⁵⁶⁶
- Pixels : DimensionOrder⁵⁶⁷
- Pixels : ID⁵⁶⁸
- Pixels : PhysicalSizeX⁵⁶⁹
- Pixels : PhysicalSizeY⁵⁷⁰
- Pixels : SizeC⁵⁷¹
- Pixels : SizeT⁵⁷²
- Pixels : SizeX⁵⁷³
- Pixels : SizeY⁵⁷⁴
- Pixels : SizeZ⁵⁷⁵
- Pixels : Type⁵⁷⁶
- Plane : TheC⁵⁷⁷
- Plane : TheT⁵⁷⁸
- Plane : TheZ⁵⁷⁹

Total supported: 19

Total unknown or missing: 454

18.2.5 AmiraReader

This page lists supported metadata fields for the Bio-Formats Amira format reader.

These fields are from the [OME data model](#)⁵⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁵⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Amira format reader:

- Channel : ID⁵⁸¹
- Channel : SamplesPerPixel⁵⁸²
- Image : AcquisitionDate⁵⁸³
- Image : ID⁵⁸⁴
- Image : Name⁵⁸⁵
- Pixels : BinDataBigEndian⁵⁸⁶
- Pixels : DimensionOrder⁵⁸⁷
- Pixels : ID⁵⁸⁸
- Pixels : PhysicalSizeX⁵⁸⁹
- Pixels : PhysicalSizeY⁵⁹⁰
- Pixels : PhysicalSizeZ⁵⁹¹
- Pixels : SizeC⁵⁹²
- Pixels : SizeT⁵⁹³
- Pixels : SizeX⁵⁹⁴
- Pixels : SizeY⁵⁹⁵
- Pixels : SizeZ⁵⁹⁶
- Pixels : Type⁵⁹⁷
- Plane : TheC⁵⁹⁸
- Plane : TheT⁵⁹⁹
- Plane : TheZ⁶⁰⁰

Total supported: 20

Total unknown or missing: 453

⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.6 AnalyzeReader

This page lists supported metadata fields for the Bio-Formats Analyze 7.5 format reader.

These fields are from the [OME data model](#)⁶⁰¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Analyze 7.5 format reader:

- Channel : ID⁶⁰²
- Channel : SamplesPerPixel⁶⁰³
- Image : AcquisitionDate⁶⁰⁴
- Image : Description⁶⁰⁵
- Image : ID⁶⁰⁶
- Image : Name⁶⁰⁷
- Pixels : BinDataBigEndian⁶⁰⁸
- Pixels : DimensionOrder⁶⁰⁹
- Pixels : ID⁶¹⁰
- Pixels : PhysicalSizeX⁶¹¹
- Pixels : PhysicalSizeY⁶¹²
- Pixels : PhysicalSizeZ⁶¹³
- Pixels : SizeC⁶¹⁴
- Pixels : SizeT⁶¹⁵
- Pixels : SizeX⁶¹⁶
- Pixels : SizeY⁶¹⁷

⁶⁰¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁶¹⁸
- Pixels : TimeIncrement⁶¹⁹
- Pixels : Type⁶²⁰
- Plane : TheC⁶²¹
- Plane : TheT⁶²²
- Plane : TheZ⁶²³

Total supported: 22

Total unknown or missing: 451

18.2.7 SVSReader

This page lists supported metadata fields for the Bio-Formats Aperio SVS format reader.

These fields are from the [OME data model](#)⁶²⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 18 of them (3%).
- Of those, Bio-Formats fully or partially converts 18 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Aperio SVS format reader:

- Channel : ID⁶²⁵
- Channel : SamplesPerPixel⁶²⁶
- Image : AcquisitionDate⁶²⁷
- Image : Description⁶²⁸
- Image : ID⁶²⁹
- Image : Name⁶³⁰
- Pixels : BinDataBigEndian⁶³¹
- Pixels : DimensionOrder⁶³²

⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁶²⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID⁶³³
- Pixels : SizeC⁶³⁴
- Pixels : SizeT⁶³⁵
- Pixels : SizeX⁶³⁶
- Pixels : SizeY⁶³⁷
- Pixels : SizeZ⁶³⁸
- Pixels : Type⁶³⁹
- Plane : TheC⁶⁴⁰
- Plane : TheT⁶⁴¹
- Plane : TheZ⁶⁴²

Total supported: 18

Total unknown or missing: 455

18.2.8 CellWorxReader

This page lists supported metadata fields for the Bio-Formats CellWorx format reader.

These fields are from the [OME data model](#)⁶⁴³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats CellWorx format reader:

- Channel : EmissionWavelength⁶⁴⁴
- Channel : ExcitationWavelength⁶⁴⁵
- Channel : ID⁶⁴⁶
- Channel : Name⁶⁴⁷

⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁶⁴³<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

- Channel : SamplesPerPixel⁶⁴⁸
- Detector : ID⁶⁴⁹
- DetectorSettings : Gain⁶⁵⁰
- DetectorSettings : ID⁶⁵¹
- Image : AcquisitionDate⁶⁵²
- Image : ID⁶⁵³
- Image : InstrumentRef⁶⁵⁴
- Image : Name⁶⁵⁵
- Instrument : ID⁶⁵⁶
- Microscope : SerialNumber⁶⁵⁷
- Pixels : BinDataBigEndian⁶⁵⁸
- Pixels : DimensionOrder⁶⁵⁹
- Pixels : ID⁶⁶⁰
- Pixels : PhysicalSizeX⁶⁶¹
- Pixels : PhysicalSizeY⁶⁶²
- Pixels : SizeC⁶⁶³
- Pixels : SizeT⁶⁶⁴
- Pixels : SizeX⁶⁶⁵
- Pixels : SizeY⁶⁶⁶
- Pixels : SizeZ⁶⁶⁷
- Pixels : Type⁶⁶⁸
- Plane : TheC⁶⁶⁹
- Plane : TheT⁶⁷⁰

⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁶⁷¹
- Plate : ID⁶⁷²
- Plate : Name⁶⁷³
- PlateAcquisition : ID⁶⁷⁴
- PlateAcquisition : MaximumFieldCount⁶⁷⁵
- PlateAcquisition : WellSampleRef⁶⁷⁶
- Well : Column⁶⁷⁷
- Well : ID⁶⁷⁸
- Well : Row⁶⁷⁹
- WellSample : ID⁶⁸⁰
- WellSample : ImageRef⁶⁸¹
- WellSample : Index⁶⁸²
- WellSample : PositionX⁶⁸³
- WellSample : PositionY⁶⁸⁴

Total supported: 41

Total unknown or missing: 432

18.2.9 AVIReader

This page lists supported metadata fields for the Bio-Formats Audio Video Interleave format reader.

These fields are from the [OME data model](#)⁶⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX

⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY

⁶⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Audio Video Interleave format reader:

- Channel : ID⁶⁸⁶
- Channel : SamplesPerPixel⁶⁸⁷
- Image : AcquisitionDate⁶⁸⁸
- Image : ID⁶⁸⁹
- Image : Name⁶⁹⁰
- Pixels : BinDataBigEndian⁶⁹¹
- Pixels : DimensionOrder⁶⁹²
- Pixels : ID⁶⁹³
- Pixels : SizeC⁶⁹⁴
- Pixels : SizeT⁶⁹⁵
- Pixels : SizeX⁶⁹⁶
- Pixels : SizeY⁶⁹⁷
- Pixels : SizeZ⁶⁹⁸
- Pixels : Type⁶⁹⁹
- Plane : TheC⁷⁰⁰
- Plane : TheT⁷⁰¹
- Plane : TheZ⁷⁰²

Total supported: 17

Total unknown or missing: 456

18.2.10 ARFReader

This page lists supported metadata fields for the Bio-Formats ARF format reader.

⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)⁷⁰³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats ARF format reader:

- Channel : ID⁷⁰⁴
- Channel : SamplesPerPixel⁷⁰⁵
- Image : AcquisitionDate⁷⁰⁶
- Image : ID⁷⁰⁷
- Image : Name⁷⁰⁸
- Pixels : BinDataBigEndian⁷⁰⁹
- Pixels : DimensionOrder⁷¹⁰
- Pixels : ID⁷¹¹
- Pixels : SizeC⁷¹²
- Pixels : SizeT⁷¹³
- Pixels : SizeX⁷¹⁴
- Pixels : SizeY⁷¹⁵
- Pixels : SizeZ⁷¹⁶
- Pixels : Type⁷¹⁷
- Plane : TheC⁷¹⁸
- Plane : TheT⁷¹⁹
- Plane : TheZ⁷²⁰

⁷⁰³<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 17

Total unknown or missing: 456

18.2.11 BDReader

This page lists supported metadata fields for the Bio-Formats BD Pathway format reader.

These fields are from the [OME data model](#)⁷²¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 55 of them (11%).
- Of those, Bio-Formats fully or partially converts 55 (100%).

Supported fields

These fields are fully supported by the Bio-Formats BD Pathway format reader:

- Channel : [EmissionWavelength](#)⁷²²
- Channel : [ExcitationWavelength](#)⁷²³
- Channel : [ID](#)⁷²⁴
- Channel : [Name](#)⁷²⁵
- Channel : [SamplesPerPixel](#)⁷²⁶
- Detector : [ID](#)⁷²⁷
- DetectorSettings : [Binning](#)⁷²⁸
- DetectorSettings : [Gain](#)⁷²⁹
- DetectorSettings : [ID](#)⁷³⁰
- DetectorSettings : [Offset](#)⁷³¹
- Image : [AcquisitionDate](#)⁷³²
- Image : [ID](#)⁷³³
- Image : [InstrumentRef](#)⁷³⁴
- Image : [Name](#)⁷³⁵

⁷²¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Image : ROIRef⁷³⁶
- Instrument : ID⁷³⁷
- Objective : ID⁷³⁸
- Objective : LensNA⁷³⁹
- Objective : Manufacturer⁷⁴⁰
- Objective : NominalMagnification⁷⁴¹
- ObjectiveSettings : ID⁷⁴²
- Pixels : BinDataBigEndian⁷⁴³
- Pixels : DimensionOrder⁷⁴⁴
- Pixels : ID⁷⁴⁵
- Pixels : SizeC⁷⁴⁶
- Pixels : SizeT⁷⁴⁷
- Pixels : SizeX⁷⁴⁸
- Pixels : SizeY⁷⁴⁹
- Pixels : SizeZ⁷⁵⁰
- Pixels : Type⁷⁵¹
- Plane : DeltaT⁷⁵²
- Plane : ExposureTime⁷⁵³
- Plane : TheC⁷⁵⁴
- Plane : TheT⁷⁵⁵
- Plane : TheZ⁷⁵⁶
- Plate : ColumnNamingConvention⁷⁵⁷
- Plate : Description⁷⁵⁸

⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description

- Plate : ID⁷⁵⁹
- Plate : Name⁷⁶⁰
- Plate : RowNamingConvention⁷⁶¹
- PlateAcquisition : ID⁷⁶²
- PlateAcquisition : MaximumFieldCount⁷⁶³
- PlateAcquisition : WellSampleRef⁷⁶⁴
- ROI : ID⁷⁶⁵
- Rectangle : Height⁷⁶⁶
- Rectangle : ID⁷⁶⁷
- Rectangle : Width⁷⁶⁸
- Rectangle : X⁷⁶⁹
- Rectangle : Y⁷⁷⁰
- Well : Column⁷⁷¹
- Well : ID⁷⁷²
- Well : Row⁷⁷³
- WellSample : ID⁷⁷⁴
- WellSample : ImageRef⁷⁷⁵
- WellSample : Index⁷⁷⁶

Total supported: 55

Total unknown or missing: 418

18.2.12 SDTReader

This page lists supported metadata fields for the Bio-Formats SPCImage Data format reader.

These fields are from the [OME data model](#)⁷⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

⁷⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields**These fields are fully supported by the Bio-Formats SPCImage Data format reader:**

- Channel : ID⁷⁷⁸
- Channel : SamplesPerPixel⁷⁷⁹
- Image : AcquisitionDate⁷⁸⁰
- Image : ID⁷⁸¹
- Image : Name⁷⁸²
- Pixels : BinDataBigEndian⁷⁸³
- Pixels : DimensionOrder⁷⁸⁴
- Pixels : ID⁷⁸⁵
- Pixels : SizeC⁷⁸⁶
- Pixels : SizeT⁷⁸⁷
- Pixels : SizeX⁷⁸⁸
- Pixels : SizeY⁷⁸⁹
- Pixels : SizeZ⁷⁹⁰
- Pixels : Type⁷⁹¹
- Plane : TheC⁷⁹²
- Plane : TheT⁷⁹³
- Plane : TheZ⁷⁹⁴

Total supported: 17**Total unknown or missing: 456**⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.13 BioRadGelReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad GEL format reader.

These fields are from the [OME data model](#)⁷⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Bio-Rad GEL format reader:

- Channel : ID⁷⁹⁶
- Channel : SamplesPerPixel⁷⁹⁷
- Image : AcquisitionDate⁷⁹⁸
- Image : ID⁷⁹⁹
- Image : Name⁸⁰⁰
- Pixels : BinDataBigEndian⁸⁰¹
- Pixels : DimensionOrder⁸⁰²
- Pixels : ID⁸⁰³
- Pixels : PhysicalSizeX⁸⁰⁴
- Pixels : PhysicalSizeY⁸⁰⁵
- Pixels : SizeC⁸⁰⁶
- Pixels : SizeT⁸⁰⁷
- Pixels : SizeX⁸⁰⁸
- Pixels : SizeY⁸⁰⁹
- Pixels : SizeZ⁸¹⁰
- Pixels : Type⁸¹¹

⁷⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁸¹²
- Plane : TheT⁸¹³
- Plane : TheZ⁸¹⁴

Total supported: 19

Total unknown or missing: 454

18.2.14 BioRadReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad PIC format reader.

These fields are from the [OME data model](#)⁸¹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 38 of them (8%).
- Of those, Bio-Formats fully or partially converts 38 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Bio-Rad PIC format reader:

- Channel : ID⁸¹⁶
- Channel : SamplesPerPixel⁸¹⁷
- Detector : Gain⁸¹⁸
- Detector : ID⁸¹⁹
- Detector : Offset⁸²⁰
- Detector : Type⁸²¹
- DetectorSettings : Gain⁸²²
- DetectorSettings : ID⁸²³
- DetectorSettings : Offset⁸²⁴
- Experiment : ID⁸²⁵
- Experiment : Type⁸²⁶

⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁸¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID

⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

- Image : AcquisitionDate⁸²⁷
- Image : ID⁸²⁸
- Image : InstrumentRef⁸²⁹
- Image : Name⁸³⁰
- Instrument : ID⁸³¹
- Objective : Correction⁸³²
- Objective : ID⁸³³
- Objective : Immersion⁸³⁴
- Objective : LensNA⁸³⁵
- Objective : Model⁸³⁶
- Objective : NominalMagnification⁸³⁷
- ObjectiveSettings : ID⁸³⁸
- Pixels : BinDataBigEndian⁸³⁹
- Pixels : DimensionOrder⁸⁴⁰
- Pixels : ID⁸⁴¹
- Pixels : PhysicalSizeX⁸⁴²
- Pixels : PhysicalSizeY⁸⁴³
- Pixels : PhysicalSizeZ⁸⁴⁴
- Pixels : SizeC⁸⁴⁵
- Pixels : SizeT⁸⁴⁶
- Pixels : SizeX⁸⁴⁷
- Pixels : SizeY⁸⁴⁸
- Pixels : SizeZ⁸⁴⁹

⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type⁸⁵⁰
- Plane : TheC⁸⁵¹
- Plane : TheT⁸⁵²
- Plane : TheZ⁸⁵³

Total supported: 38

Total unknown or missing: 435

18.2.15 ImarisHDFReader

This page lists supported metadata fields for the Bio-Formats Bitplane Imaris 5.5 (HDF) format reader.

These fields are from the [OME data model](#)⁸⁵⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Bitplane Imaris 5.5 (HDF) format reader:

- Channel : Color⁸⁵⁵
- Channel : ID⁸⁵⁶
- Channel : SamplesPerPixel⁸⁵⁷
- DetectorSettings : Gain⁸⁵⁸
- Image : AcquisitionDate⁸⁵⁹
- Image : ID⁸⁶⁰
- Image : Name⁸⁶¹
- Pixels : BinDataBigEndian⁸⁶²
- Pixels : DimensionOrder⁸⁶³
- Pixels : ID⁸⁶⁴

⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁸⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX⁸⁶⁵
- Pixels : PhysicalSizeY⁸⁶⁶
- Pixels : PhysicalSizeZ⁸⁶⁷
- Pixels : SizeC⁸⁶⁸
- Pixels : SizeT⁸⁶⁹
- Pixels : SizeX⁸⁷⁰
- Pixels : SizeY⁸⁷¹
- Pixels : SizeZ⁸⁷²
- Pixels : Type⁸⁷³
- Plane : TheC⁸⁷⁴
- Plane : TheT⁸⁷⁵
- Plane : TheZ⁸⁷⁶

Total supported: 22

Total unknown or missing: 451

18.2.16 BrukerReader

This page lists supported metadata fields for the Bio-Formats Bruker format reader.

These fields are from the [OME data model](#)⁸⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Bruker format reader:

- Channel : ID⁸⁷⁸
- Channel : SamplesPerPixel⁸⁷⁹

⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁸⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Experimenter : ID⁸⁸⁰
- Experimenter : Institution⁸⁸¹
- Experimenter : LastName⁸⁸²
- Image : AcquisitionDate⁸⁸³
- Image : ExperimenterRef⁸⁸⁴
- Image : ID⁸⁸⁵
- Image : Name⁸⁸⁶
- Pixels : BinDataBigEndian⁸⁸⁷
- Pixels : DimensionOrder⁸⁸⁸
- Pixels : ID⁸⁸⁹
- Pixels : SizeC⁸⁹⁰
- Pixels : SizeT⁸⁹¹
- Pixels : SizeX⁸⁹²
- Pixels : SizeY⁸⁹³
- Pixels : SizeZ⁸⁹⁴
- Pixels : Type⁸⁹⁵
- Plane : TheC⁸⁹⁶
- Plane : TheT⁸⁹⁷
- Plane : TheZ⁸⁹⁸

Total supported: 21

Total unknown or missing: 452

18.2.17 BurleighReader

This page lists supported metadata fields for the Bio-Formats Burleigh format reader.

⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution

⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)⁸⁹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Burleigh format reader:

- Channel : ID⁹⁰⁰
- Channel : SamplesPerPixel⁹⁰¹
- Image : AcquisitionDate⁹⁰²
- Image : ID⁹⁰³
- Image : Name⁹⁰⁴
- Pixels : BinDataBigEndian⁹⁰⁵
- Pixels : DimensionOrder⁹⁰⁶
- Pixels : ID⁹⁰⁷
- Pixels : PhysicalSizeX⁹⁰⁸
- Pixels : PhysicalSizeY⁹⁰⁹
- Pixels : PhysicalSizeZ⁹¹⁰
- Pixels : SizeC⁹¹¹
- Pixels : SizeT⁹¹²
- Pixels : SizeX⁹¹³
- Pixels : SizeY⁹¹⁴
- Pixels : SizeZ⁹¹⁵
- Pixels : Type⁹¹⁶

⁸⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁹¹⁷
- Plane : TheT⁹¹⁸
- Plane : TheZ⁹¹⁹

Total supported: 20

Total unknown or missing: 453

18.2.18 DNGReader

This page lists supported metadata fields for the Bio-Formats DNG format reader.

These fields are from the [OME data model](#)⁹²⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats DNG format reader:

- Channel : ID⁹²¹
- Channel : SamplesPerPixel⁹²²
- Image : AcquisitionDate⁹²³
- Image : ID⁹²⁴
- Image : Name⁹²⁵
- Pixels : BinDataBigEndian⁹²⁶
- Pixels : DimensionOrder⁹²⁷
- Pixels : ID⁹²⁸
- Pixels : SizeC⁹²⁹
- Pixels : SizeT⁹³⁰
- Pixels : SizeX⁹³¹

⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁹²⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY⁹³²
- Pixels : SizeZ⁹³³
- Pixels : Type⁹³⁴
- Plane : TheC⁹³⁵
- Plane : TheT⁹³⁶
- Plane : TheZ⁹³⁷

Total supported: 17

Total unknown or missing: 456

18.2.19 CellomicsReader

This page lists supported metadata fields for the Bio-Formats Cellomics C01 format reader.

These fields are from the [OME data model](#)⁹³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 29 of them (6%).
- Of those, Bio-Formats fully or partially converts 29 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Cellomics C01 format reader:

- Channel : ID⁹³⁹
- Channel : SamplesPerPixel⁹⁴⁰
- Image : AcquisitionDate⁹⁴¹
- Image : ID⁹⁴²
- Image : Name⁹⁴³
- Pixels : BinDataBigEndian⁹⁴⁴
- Pixels : DimensionOrder⁹⁴⁵
- Pixels : ID⁹⁴⁶

⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁹³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX⁹⁴⁷
- Pixels : PhysicalSizeY⁹⁴⁸
- Pixels : SizeC⁹⁴⁹
- Pixels : SizeT⁹⁵⁰
- Pixels : SizeX⁹⁵¹
- Pixels : SizeY⁹⁵²
- Pixels : SizeZ⁹⁵³
- Pixels : Type⁹⁵⁴
- Plane : TheC⁹⁵⁵
- Plane : TheT⁹⁵⁶
- Plane : TheZ⁹⁵⁷
- Plate : ColumnNamingConvention⁹⁵⁸
- Plate : ID⁹⁵⁹
- Plate : Name⁹⁶⁰
- Plate : RowNamingConvention⁹⁶¹
- Well : Column⁹⁶²
- Well : ID⁹⁶³
- Well : Row⁹⁶⁴
- WellSample : ID⁹⁶⁵
- WellSample : ImageRef⁹⁶⁶
- WellSample : Index⁹⁶⁷

Total supported: 29

Total unknown or missing: 444

⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

18.2.20 CellSensReader

This page lists supported metadata fields for the Bio-Formats CellSens VSI format reader.

These fields are from the [OME data model](#)⁹⁶⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats CellSens VSI format reader:

- Channel : ID⁹⁶⁹
- Channel : SamplesPerPixel⁹⁷⁰
- Image : AcquisitionDate⁹⁷¹
- Image : ID⁹⁷²
- Image : Name⁹⁷³
- Pixels : BinDataBigEndian⁹⁷⁴
- Pixels : DimensionOrder⁹⁷⁵
- Pixels : ID⁹⁷⁶
- Pixels : SizeC⁹⁷⁷
- Pixels : SizeT⁹⁷⁸
- Pixels : SizeX⁹⁷⁹
- Pixels : SizeY⁹⁸⁰
- Pixels : SizeZ⁹⁸¹
- Pixels : Type⁹⁸²
- Plane : TheC⁹⁸³
- Plane : TheT⁹⁸⁴

⁹⁶⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁹⁸⁵

Total supported: 17

Total unknown or missing: 456

18.2.21 DeltavisionReader

This page lists supported metadata fields for the Bio-Formats Deltavision format reader.

These fields are from the [OME data model](#)⁹⁸⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 50 of them (10%).
- Of those, Bio-Formats fully or partially converts 50 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Deltavision format reader:

- Channel : EmissionWavelength⁹⁸⁷
- Channel : ExcitationWavelength⁹⁸⁸
- Channel : ID⁹⁸⁹
- Channel : NDFilter⁹⁹⁰
- Channel : Name⁹⁹¹
- Channel : SamplesPerPixel⁹⁹²
- Detector : ID⁹⁹³
- Detector : Model⁹⁹⁴
- Detector : Type⁹⁹⁵
- DetectorSettings : Binning⁹⁹⁶
- DetectorSettings : Gain⁹⁹⁷
- DetectorSettings : ID⁹⁹⁸
- DetectorSettings : ReadOutRate⁹⁹⁹

⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁹⁸⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter

⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

- Image : AcquisitionDate¹⁰⁰⁰
- Image : Description¹⁰⁰¹
- Image : ID¹⁰⁰²
- Image : InstrumentRef¹⁰⁰³
- Image : Name¹⁰⁰⁴
- ImagingEnvironment : Temperature¹⁰⁰⁵
- Instrument : ID¹⁰⁰⁶
- Objective : CalibratedMagnification¹⁰⁰⁷
- Objective : Correction¹⁰⁰⁸
- Objective : ID¹⁰⁰⁹
- Objective : Immersion¹⁰¹⁰
- Objective : LensNA¹⁰¹¹
- Objective : Manufacturer¹⁰¹²
- Objective : Model¹⁰¹³
- Objective : NominalMagnification¹⁰¹⁴
- Objective : WorkingDistance¹⁰¹⁵
- ObjectiveSettings : ID¹⁰¹⁶
- Pixels : BinDataBigEndian¹⁰¹⁷
- Pixels : DimensionOrder¹⁰¹⁸
- Pixels : ID¹⁰¹⁹
- Pixels : PhysicalSizeX¹⁰²⁰
- Pixels : PhysicalSizeY¹⁰²¹
- Pixels : PhysicalSizeZ¹⁰²²

¹⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

¹⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

¹⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

¹⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

¹⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

¹⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

¹⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC¹⁰²³
- Pixels : SizeT¹⁰²⁴
- Pixels : SizeX¹⁰²⁵
- Pixels : SizeY¹⁰²⁶
- Pixels : SizeZ¹⁰²⁷
- Pixels : Type¹⁰²⁸
- Plane : DeltaT¹⁰²⁹
- Plane : ExposureTime¹⁰³⁰
- Plane : PositionX¹⁰³¹
- Plane : PositionY¹⁰³²
- Plane : PositionZ¹⁰³³
- Plane : TheC¹⁰³⁴
- Plane : TheT¹⁰³⁵
- Plane : TheZ¹⁰³⁶

Total supported: 50

Total unknown or missing: 423

18.2.22 DicomReader

This page lists supported metadata fields for the Bio-Formats DICOM format reader.

These fields are from the [OME data model](#)¹⁰³⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

¹⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

¹⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

¹⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁰³⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats DICOM format reader:

- Channel : ID¹⁰³⁸
- Channel : SamplesPerPixel¹⁰³⁹
- Image : AcquisitionDate¹⁰⁴⁰
- Image : Description¹⁰⁴¹
- Image : ID¹⁰⁴²
- Image : Name¹⁰⁴³
- Pixels : BinDataBigEndian¹⁰⁴⁴
- Pixels : DimensionOrder¹⁰⁴⁵
- Pixels : ID¹⁰⁴⁶
- Pixels : PhysicalSizeX¹⁰⁴⁷
- Pixels : PhysicalSizeY¹⁰⁴⁸
- Pixels : PhysicalSizeZ¹⁰⁴⁹
- Pixels : SizeC¹⁰⁵⁰
- Pixels : SizeT¹⁰⁵¹
- Pixels : SizeX¹⁰⁵²
- Pixels : SizeY¹⁰⁵³
- Pixels : SizeZ¹⁰⁵⁴
- Pixels : Type¹⁰⁵⁵
- Plane : TheC¹⁰⁵⁶
- Plane : TheT¹⁰⁵⁷
- Plane : TheZ¹⁰⁵⁸

¹⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 21

Total unknown or missing: 452

18.2.23 Ecat7Reader

This page lists supported metadata fields for the Bio-Formats ECAT7 format reader.

These fields are from the [OME data model](#)¹⁰⁵⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

Supported fields

These fields are fully supported by the Bio-Formats ECAT7 format reader:

- Channel : ID¹⁰⁶⁰
- Channel : SamplesPerPixel¹⁰⁶¹
- Image : AcquisitionDate¹⁰⁶²
- Image : Description¹⁰⁶³
- Image : ID¹⁰⁶⁴
- Image : Name¹⁰⁶⁵
- Pixels : BinDataBigEndian¹⁰⁶⁶
- Pixels : DimensionOrder¹⁰⁶⁷
- Pixels : ID¹⁰⁶⁸
- Pixels : PhysicalSizeX¹⁰⁶⁹
- Pixels : PhysicalSizeY¹⁰⁷⁰
- Pixels : PhysicalSizeZ¹⁰⁷¹
- Pixels : SizeC¹⁰⁷²
- Pixels : SizeT¹⁰⁷³

¹⁰⁵⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹⁰⁷⁴
- Pixels : SizeY¹⁰⁷⁵
- Pixels : SizeZ¹⁰⁷⁶
- Pixels : Type¹⁰⁷⁷
- Plane : TheC¹⁰⁷⁸
- Plane : TheT¹⁰⁷⁹
- Plane : TheZ¹⁰⁸⁰

Total supported: 21

Total unknown or missing: 452

18.2.24 EPSReader

This page lists supported metadata fields for the Bio-Formats Encapsulated PostScript format reader.

These fields are from the [OME data model](#)¹⁰⁸¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Encapsulated PostScript format reader:

- Channel : ID¹⁰⁸²
- Channel : SamplesPerPixel¹⁰⁸³
- Image : AcquisitionDate¹⁰⁸⁴
- Image : ID¹⁰⁸⁵
- Image : Name¹⁰⁸⁶
- Pixels : BinDataBigEndian¹⁰⁸⁷
- Pixels : DimensionOrder¹⁰⁸⁸

¹⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁰⁸¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID¹⁰⁸⁹
- Pixels : SizeC¹⁰⁹⁰
- Pixels : SizeT¹⁰⁹¹
- Pixels : SizeX¹⁰⁹²
- Pixels : SizeY¹⁰⁹³
- Pixels : SizeZ¹⁰⁹⁴
- Pixels : Type¹⁰⁹⁵
- Plane : TheC¹⁰⁹⁶
- Plane : TheT¹⁰⁹⁷
- Plane : TheZ¹⁰⁹⁸

Total supported: 17

Total unknown or missing: 456

18.2.25 FlexReader

This page lists supported metadata fields for the Bio-Formats Evotec Flex format reader.

These fields are from the [OME data model](#)¹⁰⁹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 67 of them (14%).
- Of those, Bio-Formats fully or partially converts 67 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Evotec Flex format reader:

- Channel : ID¹¹⁰⁰
- Channel : LightSourceSettingsID¹¹⁰¹
- Channel : Name¹¹⁰²
- Channel : SamplesPerPixel¹¹⁰³

¹⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁰⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

¹¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

¹¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID¹¹⁰⁴
- Detector : Type¹¹⁰⁵
- DetectorSettings : Binning¹¹⁰⁶
- DetectorSettings : ID¹¹⁰⁷
- Dichroic : ID¹¹⁰⁸
- Dichroic : Model¹¹⁰⁹
- Filter : FilterWheel¹¹¹⁰
- Filter : ID¹¹¹¹
- Filter : Model¹¹¹²
- Image : AcquisitionDate¹¹¹³
- Image : ID¹¹¹⁴
- Image : InstrumentRef¹¹¹⁵
- Image : Name¹¹¹⁶
- Instrument : ID¹¹¹⁷
- Laser : ID¹¹¹⁸
- Laser : LaserMedium¹¹¹⁹
- Laser : Type¹¹²⁰
- Laser : Wavelength¹¹²¹
- LightPath : DichroicRef¹¹²²
- LightPath : EmissionFilterRef¹¹²³
- LightPath : ExcitationFilterRef¹¹²⁴
- Objective : CalibratedMagnification¹¹²⁵
- Objective : Correction¹¹²⁶

¹¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

¹¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

¹¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel

¹¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

¹¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

¹¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

¹¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

¹¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

¹¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

¹¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

¹¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

- Objective : ID¹¹²⁷
- Objective : Immersion¹¹²⁸
- Objective : LensNA¹¹²⁹
- ObjectiveSettings : ID¹¹³⁰
- Pixels : BinDataBigEndian¹¹³¹
- Pixels : DimensionOrder¹¹³²
- Pixels : ID¹¹³³
- Pixels : PhysicalSizeX¹¹³⁴
- Pixels : PhysicalSizeY¹¹³⁵
- Pixels : SizeC¹¹³⁶
- Pixels : SizeT¹¹³⁷
- Pixels : SizeX¹¹³⁸
- Pixels : SizeY¹¹³⁹
- Pixels : SizeZ¹¹⁴⁰
- Pixels : Type¹¹⁴¹
- Plane : DeltaT¹¹⁴²
- Plane : ExposureTime¹¹⁴³
- Plane : PositionX¹¹⁴⁴
- Plane : PositionY¹¹⁴⁵
- Plane : PositionZ¹¹⁴⁶
- Plane : TheC¹¹⁴⁷
- Plane : TheT¹¹⁴⁸
- Plane : TheZ¹¹⁴⁹

¹¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

¹¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

¹¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

¹¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

¹¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

- Plate : ColumnNamingConvention¹¹⁵⁰
- Plate : ExternalIdentifier¹¹⁵¹
- Plate : ID¹¹⁵²
- Plate : Name¹¹⁵³
- Plate : RowNamingConvention¹¹⁵⁴
- PlateAcquisition : ID¹¹⁵⁵
- PlateAcquisition : MaximumFieldCount¹¹⁵⁶
- PlateAcquisition : StartTime¹¹⁵⁷
- PlateAcquisition : WellSampleRef¹¹⁵⁸
- Well : Column¹¹⁵⁹
- Well : ID¹¹⁶⁰
- Well : Row¹¹⁶¹
- WellSample : ID¹¹⁶²
- WellSample : ImageRef¹¹⁶³
- WellSample : Index¹¹⁶⁴
- WellSample : PositionX¹¹⁶⁵
- WellSample : PositionY¹¹⁶⁶

Total supported: 67

Total unknown or missing: 406

18.2.26 FEIReader

This page lists supported metadata fields for the Bio-Formats FEI/Philips format reader.

These fields are from the [OME data model](#)¹¹⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

¹¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier

¹¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

¹¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

¹¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

¹¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

¹¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_StartTime

¹¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

¹¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

¹¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

¹¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

¹¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

¹¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

¹¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

¹¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX

¹¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY

¹¹⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats FEI/Philips format reader:

- Channel : ID¹¹⁶⁸
- Channel : SamplesPerPixel¹¹⁶⁹
- Image : AcquisitionDate¹¹⁷⁰
- Image : ID¹¹⁷¹
- Image : Name¹¹⁷²
- Pixels : BinDataBigEndian¹¹⁷³
- Pixels : DimensionOrder¹¹⁷⁴
- Pixels : ID¹¹⁷⁵
- Pixels : SizeC¹¹⁷⁶
- Pixels : SizeT¹¹⁷⁷
- Pixels : SizeX¹¹⁷⁸
- Pixels : SizeY¹¹⁷⁹
- Pixels : SizeZ¹¹⁸⁰
- Pixels : Type¹¹⁸¹
- Plane : TheC¹¹⁸²
- Plane : TheT¹¹⁸³
- Plane : TheZ¹¹⁸⁴

Total supported: 17

Total unknown or missing: 456

¹¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.27 FEITiffReader

This page lists supported metadata fields for the Bio-Formats FEI TIFF format reader.

These fields are from the [OME data model](#)¹¹⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 37 of them (7%).
- Of those, Bio-Formats fully or partially converts 37 (100%).

Supported fields

These fields are fully supported by the Bio-Formats FEI TIFF format reader:

- Channel : ID¹¹⁸⁶
- Channel : SamplesPerPixel¹¹⁸⁷
- Detector : ID¹¹⁸⁸
- Detector : Model¹¹⁸⁹
- Detector : Type¹¹⁹⁰
- Experimenter : ID¹¹⁹¹
- Experimenter : LastName¹¹⁹²
- Image : AcquisitionDate¹¹⁹³
- Image : Description¹¹⁹⁴
- Image : ID¹¹⁹⁵
- Image : InstrumentRef¹¹⁹⁶
- Image : Name¹¹⁹⁷
- Instrument : ID¹¹⁹⁸
- Microscope : Model¹¹⁹⁹
- Objective : Correction¹²⁰⁰
- Objective : ID¹²⁰¹

¹¹⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

¹¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

¹¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

¹²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion¹²⁰²
- Objective : NominalMagnification¹²⁰³
- Pixels : BinDataBigEndian¹²⁰⁴
- Pixels : DimensionOrder¹²⁰⁵
- Pixels : ID¹²⁰⁶
- Pixels : PhysicalSizeX¹²⁰⁷
- Pixels : PhysicalSizeY¹²⁰⁸
- Pixels : SizeC¹²⁰⁹
- Pixels : SizeT¹²¹⁰
- Pixels : SizeX¹²¹¹
- Pixels : SizeY¹²¹²
- Pixels : SizeZ¹²¹³
- Pixels : TimeIncrement¹²¹⁴
- Pixels : Type¹²¹⁵
- Plane : TheC¹²¹⁶
- Plane : TheT¹²¹⁷
- Plane : TheZ¹²¹⁸
- StageLabel : Name¹²¹⁹
- StageLabel : X¹²²⁰
- StageLabel : Y¹²²¹
- StageLabel : Z¹²²²

Total supported: 37

Total unknown or missing: 436

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- ¹²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
 - ¹²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
 - ¹²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
 - ¹²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
 - ¹²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
 - ¹²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ¹²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ¹²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
 - ¹²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
 - ¹²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
 - ¹²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
 - ¹²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
 - ¹²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
 - ¹²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
 - ¹²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
 - ¹²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
 - ¹²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
 - ¹²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name
 - ¹²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_X
 - ¹²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Y
 - ¹²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Z

18.2.28 FitsReader

This page lists supported metadata fields for the Bio-Formats Flexible Image Transport System format reader.

These fields are from the [OME data model](#)¹²²³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Flexible Image Transport System format reader:

- Channel : ID¹²²⁴
- Channel : SamplesPerPixel¹²²⁵
- Image : AcquisitionDate¹²²⁶
- Image : ID¹²²⁷
- Image : Name¹²²⁸
- Pixels : BinDataBigEndian¹²²⁹
- Pixels : DimensionOrder¹²³⁰
- Pixels : ID¹²³¹
- Pixels : SizeC¹²³²
- Pixels : SizeT¹²³³
- Pixels : SizeX¹²³⁴
- Pixels : SizeY¹²³⁵
- Pixels : SizeZ¹²³⁶
- Pixels : Type¹²³⁷
- Plane : TheC¹²³⁸
- Plane : TheT¹²³⁹

¹²²³<http://www.openmicroscopy.org/site/support/ome-model/>

¹²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹²⁴⁰

Total supported: 17

Total unknown or missing: 456

18.2.29 GatanDM2Reader

This page lists supported metadata fields for the Bio-Formats Gatan DM2 format reader.

These fields are from the [OME data model](#)¹²⁴¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 28 of them (5%).
- Of those, Bio-Formats fully or partially converts 28 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Gatan DM2 format reader:

- Channel : ID¹²⁴²
- Channel : SamplesPerPixel¹²⁴³
- Detector : ID¹²⁴⁴
- DetectorSettings : Binning¹²⁴⁵
- DetectorSettings : ID¹²⁴⁶
- Experimenter : FirstName¹²⁴⁷
- Experimenter : ID¹²⁴⁸
- Experimenter : LastName¹²⁴⁹
- Image : AcquisitionDate¹²⁵⁰
- Image : ExperimenterRef¹²⁵¹
- Image : ID¹²⁵²
- Image : InstrumentRef¹²⁵³
- Image : Name¹²⁵⁴

¹²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹²⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

¹²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName

¹²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

¹²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

¹²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

¹²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Instrument : ID¹²⁵⁵
- Pixels : BinDataBigEndian¹²⁵⁶
- Pixels : DimensionOrder¹²⁵⁷
- Pixels : ID¹²⁵⁸
- Pixels : PhysicalSizeX¹²⁵⁹
- Pixels : PhysicalSizeY¹²⁶⁰
- Pixels : SizeC¹²⁶¹
- Pixels : SizeT¹²⁶²
- Pixels : SizeX¹²⁶³
- Pixels : SizeY¹²⁶⁴
- Pixels : SizeZ¹²⁶⁵
- Pixels : Type¹²⁶⁶
- Plane : TheC¹²⁶⁷
- Plane : TheT¹²⁶⁸
- Plane : TheZ¹²⁶⁹

Total supported: 28

Total unknown or missing: 445

18.2.30 GatanReader

This page lists supported metadata fields for the Bio-Formats Gatan Digital Micrograph format reader.

These fields are from the [OME data model](#)¹²⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 34 of them (7%).
- Of those, Bio-Formats fully or partially converts 34 (100%).

¹²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹²⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Gatan Digital Micrograph format reader:

- Channel : AcquisitionMode¹²⁷¹
- Channel : ID¹²⁷²
- Channel : SamplesPerPixel¹²⁷³
- Detector : ID¹²⁷⁴
- DetectorSettings : ID¹²⁷⁵
- DetectorSettings : Voltage¹²⁷⁶
- Image : AcquisitionDate¹²⁷⁷
- Image : ID¹²⁷⁸
- Image : Name¹²⁷⁹
- Instrument : ID¹²⁸⁰
- Objective : Correction¹²⁸¹
- Objective : ID¹²⁸²
- Objective : Immersion¹²⁸³
- Objective : NominalMagnification¹²⁸⁴
- ObjectiveSettings : ID¹²⁸⁵
- Pixels : BinDataBigEndian¹²⁸⁶
- Pixels : DimensionOrder¹²⁸⁷
- Pixels : ID¹²⁸⁸
- Pixels : PhysicalSizeX¹²⁸⁹
- Pixels : PhysicalSizeY¹²⁹⁰
- Pixels : PhysicalSizeZ¹²⁹¹

¹²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode

¹²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

¹²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

¹²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

¹²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

¹²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC¹²⁹²
- Pixels : SizeT¹²⁹³
- Pixels : SizeX¹²⁹⁴
- Pixels : SizeY¹²⁹⁵
- Pixels : SizeZ¹²⁹⁶
- Pixels : Type¹²⁹⁷
- Plane : ExposureTime¹²⁹⁸
- Plane : PositionX¹²⁹⁹
- Plane : PositionY¹³⁰⁰
- Plane : PositionZ¹³⁰¹
- Plane : TheC¹³⁰²
- Plane : TheT¹³⁰³
- Plane : TheZ¹³⁰⁴

Total supported: 34

Total unknown or missing: 439

18.2.31 GIFReader

This page lists supported metadata fields for the Bio-Formats Graphics Interchange Format format reader.

These fields are from the [OME data model](#)¹³⁰⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Graphics Interchange Format format reader:

- Channel : ID¹³⁰⁶

¹²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

¹³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹³⁰⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹³⁰⁷
- Image : AcquisitionDate¹³⁰⁸
- Image : ID¹³⁰⁹
- Image : Name¹³¹⁰
- Pixels : BinDataBigEndian¹³¹¹
- Pixels : DimensionOrder¹³¹²
- Pixels : ID¹³¹³
- Pixels : SizeC¹³¹⁴
- Pixels : SizeT¹³¹⁵
- Pixels : SizeX¹³¹⁶
- Pixels : SizeY¹³¹⁷
- Pixels : SizeZ¹³¹⁸
- Pixels : Type¹³¹⁹
- Plane : TheC¹³²⁰
- Plane : TheT¹³²¹
- Plane : TheZ¹³²²

Total supported: 17

Total unknown or missing: 456

18.2.32 NAFReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu Aquacosmos format reader.

These fields are from the [OME data model](#)¹³²³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

¹³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹³²³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu Aquacosmos format reader:

- Channel : ID¹³²⁴
- Channel : SamplesPerPixel¹³²⁵
- Image : AcquisitionDate¹³²⁶
- Image : ID¹³²⁷
- Image : Name¹³²⁸
- Pixels : BinDataBigEndian¹³²⁹
- Pixels : DimensionOrder¹³³⁰
- Pixels : ID¹³³¹
- Pixels : SizeC¹³³²
- Pixels : SizeT¹³³³
- Pixels : SizeX¹³³⁴
- Pixels : SizeY¹³³⁵
- Pixels : SizeZ¹³³⁶
- Pixels : Type¹³³⁷
- Plane : TheC¹³³⁸
- Plane : TheT¹³³⁹
- Plane : TheZ¹³⁴⁰

Total supported: 17

Total unknown or missing: 456

18.2.33 HISReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu HIS format reader.

- ¹³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
- ¹³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ¹³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ¹³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ¹³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ¹³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ¹³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ¹³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ¹³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ¹³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ¹³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ¹³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ¹³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ¹³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ¹³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ¹³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)¹³⁴¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 25 of them (5%).
- Of those, Bio-Formats fully or partially converts 25 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu HIS format reader:

- Channel : ID¹³⁴²
- Channel : SamplesPerPixel¹³⁴³
- Detector : ID¹³⁴⁴
- Detector : Offset¹³⁴⁵
- Detector : Type¹³⁴⁶
- DetectorSettings : Binning¹³⁴⁷
- DetectorSettings : ID¹³⁴⁸
- Image : AcquisitionDate¹³⁴⁹
- Image : ID¹³⁵⁰
- Image : InstrumentRef¹³⁵¹
- Image : Name¹³⁵²
- Instrument : ID¹³⁵³
- Pixels : BinDataBigEndian¹³⁵⁴
- Pixels : DimensionOrder¹³⁵⁵
- Pixels : ID¹³⁵⁶
- Pixels : SizeC¹³⁵⁷
- Pixels : SizeT¹³⁵⁸

¹³⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

¹³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

¹³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹³⁵⁹
- Pixels : SizeY¹³⁶⁰
- Pixels : SizeZ¹³⁶¹
- Pixels : Type¹³⁶²
- Plane : ExposureTime¹³⁶³
- Plane : TheC¹³⁶⁴
- Plane : TheT¹³⁶⁵
- Plane : TheZ¹³⁶⁶

Total supported: 25

Total unknown or missing: 448

18.2.34 NDPIReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu NDPI format reader.

These fields are from the [OME data model](#)¹³⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu NDPI format reader:

- Channel : ID¹³⁶⁸
- Channel : SamplesPerPixel¹³⁶⁹
- Image : AcquisitionDate¹³⁷⁰
- Image : ID¹³⁷¹
- Image : Name¹³⁷²
- Pixels : BinDataBigEndian¹³⁷³

¹³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹³⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder¹³⁷⁴
- Pixels : ID¹³⁷⁵
- Pixels : PhysicalSizeX¹³⁷⁶
- Pixels : PhysicalSizeY¹³⁷⁷
- Pixels : SizeC¹³⁷⁸
- Pixels : SizeT¹³⁷⁹
- Pixels : SizeX¹³⁸⁰
- Pixels : SizeY¹³⁸¹
- Pixels : SizeZ¹³⁸²
- Pixels : Type¹³⁸³
- Plane : TheC¹³⁸⁴
- Plane : TheT¹³⁸⁵
- Plane : TheZ¹³⁸⁶

Total supported: 19

Total unknown or missing: 454

18.2.35 HamamatsuVMSReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu VMS format reader.

These fields are from the [OME data model](#)¹³⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 24 of them (5%).
- Of those, Bio-Formats fully or partially converts 24 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu VMS format reader:

- Channel : ID¹³⁸⁸

¹³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹³⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹³⁸⁹
- Image : AcquisitionDate¹³⁹⁰
- Image : ID¹³⁹¹
- Image : InstrumentRef¹³⁹²
- Image : Name¹³⁹³
- Instrument : ID¹³⁹⁴
- Objective : ID¹³⁹⁵
- Objective : NominalMagnification¹³⁹⁶
- ObjectiveSettings : ID¹³⁹⁷
- Pixels : BinDataBigEndian¹³⁹⁸
- Pixels : DimensionOrder¹³⁹⁹
- Pixels : ID¹⁴⁰⁰
- Pixels : PhysicalSizeX¹⁴⁰¹
- Pixels : PhysicalSizeY¹⁴⁰²
- Pixels : SizeC¹⁴⁰³
- Pixels : SizeT¹⁴⁰⁴
- Pixels : SizeX¹⁴⁰⁵
- Pixels : SizeY¹⁴⁰⁶
- Pixels : SizeZ¹⁴⁰⁷
- Pixels : Type¹⁴⁰⁸
- Plane : TheC¹⁴⁰⁹
- Plane : TheT¹⁴¹⁰
- Plane : TheZ¹⁴¹¹

¹³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

¹³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 24

Total unknown or missing: 449

18.2.36 HitachiReader

This page lists supported metadata fields for the Bio-Formats Hitachi format reader.

These fields are from the [OME data model](#)¹⁴¹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 29 of them (6%).
- Of those, Bio-Formats fully or partially converts 29 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hitachi format reader:

- Channel : ID¹⁴¹³
- Channel : SamplesPerPixel¹⁴¹⁴
- Image : AcquisitionDate¹⁴¹⁵
- Image : ID¹⁴¹⁶
- Image : InstrumentRef¹⁴¹⁷
- Image : Name¹⁴¹⁸
- Instrument : ID¹⁴¹⁹
- Microscope : Model¹⁴²⁰
- Microscope : SerialNumber¹⁴²¹
- Objective : ID¹⁴²²
- Objective : WorkingDistance¹⁴²³
- ObjectiveSettings : ID¹⁴²⁴
- Pixels : BinDataBigEndian¹⁴²⁵
- Pixels : DimensionOrder¹⁴²⁶

¹⁴¹²<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

¹⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID¹⁴²⁷
- Pixels : PhysicalSizeX¹⁴²⁸
- Pixels : PhysicalSizeY¹⁴²⁹
- Pixels : SizeC¹⁴³⁰
- Pixels : SizeT¹⁴³¹
- Pixels : SizeX¹⁴³²
- Pixels : SizeY¹⁴³³
- Pixels : SizeZ¹⁴³⁴
- Pixels : Type¹⁴³⁵
- Plane : PositionX¹⁴³⁶
- Plane : PositionY¹⁴³⁷
- Plane : PositionZ¹⁴³⁸
- Plane : TheC¹⁴³⁹
- Plane : TheT¹⁴⁴⁰
- Plane : TheZ¹⁴⁴¹

Total supported: 29

Total unknown or missing: 444

18.2.37 ICSReader

This page lists supported metadata fields for the Bio-Formats Image Cytometry Standard format reader.

These fields are from the [OME data model](#)¹⁴⁴². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 70 of them (14%).
- Of those, Bio-Formats fully or partially converts 70 (100%).

¹⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

¹⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁴⁴²<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Image Cytometry Standard format reader:

- Channel : EmissionWavelength¹⁴⁴³
- Channel : ExcitationWavelength¹⁴⁴⁴
- Channel : ID¹⁴⁴⁵
- Channel : Name¹⁴⁴⁶
- Channel : PinholeSize¹⁴⁴⁷
- Channel : SamplesPerPixel¹⁴⁴⁸
- Detector : ID¹⁴⁴⁹
- Detector : Manufacturer¹⁴⁵⁰
- Detector : Model¹⁴⁵¹
- Detector : Type¹⁴⁵²
- DetectorSettings : Gain¹⁴⁵³
- DetectorSettings : ID¹⁴⁵⁴
- Dichroic : ID¹⁴⁵⁵
- Dichroic : Model¹⁴⁵⁶
- Experiment : ID¹⁴⁵⁷
- Experiment : Type¹⁴⁵⁸
- Experimenter : ID¹⁴⁵⁹
- Experimenter : LastName¹⁴⁶⁰
- Filter : ID¹⁴⁶¹
- Filter : Model¹⁴⁶²
- FilterSet : DichroicRef¹⁴⁶³

¹⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

¹⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

¹⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

¹⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

¹⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

¹⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID

¹⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

¹⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

¹⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

¹⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

¹⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

- FilterSet : EmissionFilterRef¹⁴⁶⁴
- FilterSet : ExcitationFilterRef¹⁴⁶⁵
- FilterSet : ID¹⁴⁶⁶
- FilterSet : Model¹⁴⁶⁷
- Image : AcquisitionDate¹⁴⁶⁸
- Image : Description¹⁴⁶⁹
- Image : ID¹⁴⁷⁰
- Image : InstrumentRef¹⁴⁷¹
- Image : Name¹⁴⁷²
- Instrument : ID¹⁴⁷³
- Laser : ID¹⁴⁷⁴
- Laser : LaserMedium¹⁴⁷⁵
- Laser : Manufacturer¹⁴⁷⁶
- Laser : Model¹⁴⁷⁷
- Laser : Power¹⁴⁷⁸
- Laser : RepetitionRate¹⁴⁷⁹
- Laser : Type¹⁴⁸⁰
- Laser : Wavelength¹⁴⁸¹
- Microscope : Manufacturer¹⁴⁸²
- Microscope : Model¹⁴⁸³
- Objective : CalibratedMagnification¹⁴⁸⁴
- Objective : Correction¹⁴⁸⁵
- Objective : ID¹⁴⁸⁶

¹⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

¹⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSet_ID

¹⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

¹⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

¹⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

¹⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_RepetitionRate

¹⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

¹⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

¹⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

¹⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion¹⁴⁸⁷
- Objective : LensNA¹⁴⁸⁸
- Objective : Model¹⁴⁸⁹
- Objective : WorkingDistance¹⁴⁹⁰
- ObjectiveSettings : ID¹⁴⁹¹
- Pixels : BinDataBigEndian¹⁴⁹²
- Pixels : DimensionOrder¹⁴⁹³
- Pixels : ID¹⁴⁹⁴
- Pixels : PhysicalSizeX¹⁴⁹⁵
- Pixels : PhysicalSizeY¹⁴⁹⁶
- Pixels : PhysicalSizeZ¹⁴⁹⁷
- Pixels : SizeC¹⁴⁹⁸
- Pixels : SizeT¹⁴⁹⁹
- Pixels : SizeX¹⁵⁰⁰
- Pixels : SizeY¹⁵⁰¹
- Pixels : SizeZ¹⁵⁰²
- Pixels : TimeIncrement¹⁵⁰³
- Pixels : Type¹⁵⁰⁴
- Plane : DeltaT¹⁵⁰⁵
- Plane : ExposureTime¹⁵⁰⁶
- Plane : PositionX¹⁵⁰⁷
- Plane : PositionY¹⁵⁰⁸
- Plane : PositionZ¹⁵⁰⁹

¹⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

¹⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

¹⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

¹⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

¹⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

¹⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC¹⁵¹⁰
- Plane : TheT¹⁵¹¹
- Plane : TheZ¹⁵¹²

Total supported: 70

Total unknown or missing: 403

18.2.38 ImaconReader

This page lists supported metadata fields for the Bio-Formats Imacon format reader.

These fields are from the [OME data model](#)¹⁵¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Imacon format reader:

- Channel : ID¹⁵¹⁴
- Channel : SamplesPerPixel¹⁵¹⁵
- Experimenter : FirstName¹⁵¹⁶
- Experimenter : ID¹⁵¹⁷
- Experimenter : LastName¹⁵¹⁸
- Image : AcquisitionDate¹⁵¹⁹
- Image : ExperimenterRef¹⁵²⁰
- Image : ID¹⁵²¹
- Image : Name¹⁵²²
- Pixels : BinDataBigEndian¹⁵²³
- Pixels : DimensionOrder¹⁵²⁴

¹⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁵¹³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName

¹⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

¹⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

¹⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

¹⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID¹⁵²⁵
- Pixels : SizeC¹⁵²⁶
- Pixels : SizeT¹⁵²⁷
- Pixels : SizeX¹⁵²⁸
- Pixels : SizeY¹⁵²⁹
- Pixels : SizeZ¹⁵³⁰
- Pixels : Type¹⁵³¹
- Plane : TheC¹⁵³²
- Plane : TheT¹⁵³³
- Plane : TheZ¹⁵³⁴

Total supported: 21

Total unknown or missing: 452

18.2.39 SEQReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Sequence format reader.

These fields are from the [OME data model](#)¹⁵³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Image-Pro Sequence format reader:

- Channel : ID¹⁵³⁶
- Channel : SamplesPerPixel¹⁵³⁷
- Image : AcquisitionDate¹⁵³⁸
- Image : ID¹⁵³⁹

¹⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁵³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name¹⁵⁴⁰
- Pixels : BinDataBigEndian¹⁵⁴¹
- Pixels : DimensionOrder¹⁵⁴²
- Pixels : ID¹⁵⁴³
- Pixels : SizeC¹⁵⁴⁴
- Pixels : SizeT¹⁵⁴⁵
- Pixels : SizeX¹⁵⁴⁶
- Pixels : SizeY¹⁵⁴⁷
- Pixels : SizeZ¹⁵⁴⁸
- Pixels : Type¹⁵⁴⁹
- Plane : TheC¹⁵⁵⁰
- Plane : TheT¹⁵⁵¹
- Plane : TheZ¹⁵⁵²

Total supported: 17

Total unknown or missing: 456

18.2.40 IPWReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Workspace format reader.

These fields are from the [OME data model](#)¹⁵⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 18 of them (3%).
- Of those, Bio-Formats fully or partially converts 18 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Image-Pro Workspace format reader:

- Channel : ID¹⁵⁵⁴

¹⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁵⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹⁵⁵⁵
- Image : AcquisitionDate¹⁵⁵⁶
- Image : Description¹⁵⁵⁷
- Image : ID¹⁵⁵⁸
- Image : Name¹⁵⁵⁹
- Pixels : BinDataBigEndian¹⁵⁶⁰
- Pixels : DimensionOrder¹⁵⁶¹
- Pixels : ID¹⁵⁶²
- Pixels : SizeC¹⁵⁶³
- Pixels : SizeT¹⁵⁶⁴
- Pixels : SizeX¹⁵⁶⁵
- Pixels : SizeY¹⁵⁶⁶
- Pixels : SizeZ¹⁵⁶⁷
- Pixels : Type¹⁵⁶⁸
- Plane : TheC¹⁵⁶⁹
- Plane : TheT¹⁵⁷⁰
- Plane : TheZ¹⁵⁷¹

Total supported: 18

Total unknown or missing: 455

18.2.41 ImagicReader

This page lists supported metadata fields for the Bio-Formats IMAGIC format reader.

These fields are from the [OME data model](#)¹⁵⁷². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- ¹⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
- ¹⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ¹⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ¹⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ¹⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ¹⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ¹⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ¹⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ¹⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ¹⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ¹⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ¹⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ¹⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ¹⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
- ¹⁵⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IMAGIC format reader:

- Channel : ID¹⁵⁷³
- Channel : SamplesPerPixel¹⁵⁷⁴
- Image : AcquisitionDate¹⁵⁷⁵
- Image : ID¹⁵⁷⁶
- Image : Name¹⁵⁷⁷
- Pixels : BinDataBigEndian¹⁵⁷⁸
- Pixels : DimensionOrder¹⁵⁷⁹
- Pixels : ID¹⁵⁸⁰
- Pixels : PhysicalSizeX¹⁵⁸¹
- Pixels : PhysicalSizeY¹⁵⁸²
- Pixels : PhysicalSizeZ¹⁵⁸³
- Pixels : SizeC¹⁵⁸⁴
- Pixels : SizeT¹⁵⁸⁵
- Pixels : SizeX¹⁵⁸⁶
- Pixels : SizeY¹⁵⁸⁷
- Pixels : SizeZ¹⁵⁸⁸
- Pixels : Type¹⁵⁸⁹
- Plane : TheC¹⁵⁹⁰
- Plane : TheT¹⁵⁹¹
- Plane : TheZ¹⁵⁹²

¹⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 20

Total unknown or missing: 453

18.2.42 IMODReader

This page lists supported metadata fields for the Bio-Formats IMOD format reader.

These fields are from the [OME data model](#)¹⁵⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 42 of them (8%).
- Of those, Bio-Formats fully or partially converts 42 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IMOD format reader:

- Channel : ID¹⁵⁹⁴
- Channel : SamplesPerPixel¹⁵⁹⁵
- Image : AcquisitionDate¹⁵⁹⁶
- Image : ID¹⁵⁹⁷
- Image : Name¹⁵⁹⁸
- Image : ROIRef¹⁵⁹⁹
- Pixels : BinDataBigEndian¹⁶⁰⁰
- Pixels : DimensionOrder¹⁶⁰¹
- Pixels : ID¹⁶⁰²
- Pixels : PhysicalSizeX¹⁶⁰³
- Pixels : PhysicalSizeY¹⁶⁰⁴
- Pixels : PhysicalSizeZ¹⁶⁰⁵
- Pixels : SizeC¹⁶⁰⁶
- Pixels : SizeT¹⁶⁰⁷

¹⁵⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

¹⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹⁶⁰⁸
- Pixels : SizeY¹⁶⁰⁹
- Pixels : SizeZ¹⁶¹⁰
- Pixels : Type¹⁶¹¹
- Plane : TheC¹⁶¹²
- Plane : TheT¹⁶¹³
- Plane : TheZ¹⁶¹⁴
- Point : ID¹⁶¹⁵
- Point : StrokeColor¹⁶¹⁶
- Point : StrokeDashArray¹⁶¹⁷
- Point : StrokeWidth¹⁶¹⁸
- Point : TheZ¹⁶¹⁹
- Point : X¹⁶²⁰
- Point : Y¹⁶²¹
- Polygon : ID¹⁶²²
- Polygon : Points¹⁶²³
- Polygon : StrokeColor¹⁶²⁴
- Polygon : StrokeDashArray¹⁶²⁵
- Polygon : StrokeWidth¹⁶²⁶
- Polygon : TheZ¹⁶²⁷
- Polyline : ID¹⁶²⁸
- Polyline : Points¹⁶²⁹
- Polyline : StrokeColor¹⁶³⁰

¹⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

¹⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

¹⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

¹⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

¹⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X

¹⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y

¹⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

¹⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

¹⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

¹⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

¹⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

¹⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

¹⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points

¹⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

- Polyline : StrokeDashArray¹⁶³¹
- Polyline : StrokeWidth¹⁶³²
- Polyline : TheZ¹⁶³³
- ROI : ID¹⁶³⁴
- ROI : Name¹⁶³⁵

Total supported: 42

Total unknown or missing: 431

18.2.43 OpenlabReader

This page lists supported metadata fields for the Bio-Formats Openlab LIFF format reader.

These fields are from the [OME data model](#)¹⁶³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 30 of them (6%).
- Of those, Bio-Formats fully or partially converts 30 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Openlab LIFF format reader:

- Channel : ID¹⁶³⁷
- Channel : Name¹⁶³⁸
- Channel : SamplesPerPixel¹⁶³⁹
- Detector : ID¹⁶⁴⁰
- Detector : Type¹⁶⁴¹
- DetectorSettings : Gain¹⁶⁴²
- DetectorSettings : ID¹⁶⁴³
- DetectorSettings : Offset¹⁶⁴⁴
- Image : AcquisitionDate¹⁶⁴⁵

¹⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

¹⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

¹⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

¹⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name

¹⁶³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

¹⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

¹⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

¹⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID¹⁶⁴⁶
- Image : InstrumentRef¹⁶⁴⁷
- Image : Name¹⁶⁴⁸
- Instrument : ID¹⁶⁴⁹
- Pixels : BinDataBigEndian¹⁶⁵⁰
- Pixels : DimensionOrder¹⁶⁵¹
- Pixels : ID¹⁶⁵²
- Pixels : PhysicalSizeX¹⁶⁵³
- Pixels : PhysicalSizeY¹⁶⁵⁴
- Pixels : SizeC¹⁶⁵⁵
- Pixels : SizeT¹⁶⁵⁶
- Pixels : SizeX¹⁶⁵⁷
- Pixels : SizeY¹⁶⁵⁸
- Pixels : SizeZ¹⁶⁵⁹
- Pixels : Type¹⁶⁶⁰
- Plane : PositionX¹⁶⁶¹
- Plane : PositionY¹⁶⁶²
- Plane : PositionZ¹⁶⁶³
- Plane : TheC¹⁶⁶⁴
- Plane : TheT¹⁶⁶⁵
- Plane : TheZ¹⁶⁶⁶

Total supported: 30

Total unknown or missing: 443

-
- ¹⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
 - ¹⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
 - ¹⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
 - ¹⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
 - ¹⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
 - ¹⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
 - ¹⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
 - ¹⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ¹⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ¹⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
 - ¹⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
 - ¹⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
 - ¹⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
 - ¹⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
 - ¹⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
 - ¹⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
 - ¹⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
 - ¹⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
 - ¹⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
 - ¹⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
 - ¹⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.44 OpenlabRawReader

This page lists supported metadata fields for the Bio-Formats Openlab RAW format reader.

These fields are from the [OME data model](#)¹⁶⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Openlab RAW format reader:

- Channel : ID¹⁶⁶⁸
- Channel : SamplesPerPixel¹⁶⁶⁹
- Image : AcquisitionDate¹⁶⁷⁰
- Image : ID¹⁶⁷¹
- Image : Name¹⁶⁷²
- Pixels : BinDataBigEndian¹⁶⁷³
- Pixels : DimensionOrder¹⁶⁷⁴
- Pixels : ID¹⁶⁷⁵
- Pixels : SizeC¹⁶⁷⁶
- Pixels : SizeT¹⁶⁷⁷
- Pixels : SizeX¹⁶⁷⁸
- Pixels : SizeY¹⁶⁷⁹
- Pixels : SizeZ¹⁶⁸⁰
- Pixels : Type¹⁶⁸¹
- Plane : TheC¹⁶⁸²
- Plane : TheT¹⁶⁸³

¹⁶⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁶⁸⁴

Total supported: 17

Total unknown or missing: 456

18.2.45 ImprovisationTiffReader

This page lists supported metadata fields for the Bio-Formats Improvisation TIFF format reader.

These fields are from the [OME data model](#)¹⁶⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 23 of them (4%).
- Of those, Bio-Formats fully or partially converts 23 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Improvisation TIFF format reader:

- Channel : ID¹⁶⁸⁶
- Channel : Name¹⁶⁸⁷
- Channel : SamplesPerPixel¹⁶⁸⁸
- Image : AcquisitionDate¹⁶⁸⁹
- Image : Description¹⁶⁹⁰
- Image : ID¹⁶⁹¹
- Image : Name¹⁶⁹²
- Pixels : BinDataBigEndian¹⁶⁹³
- Pixels : DimensionOrder¹⁶⁹⁴
- Pixels : ID¹⁶⁹⁵
- Pixels : PhysicalSizeX¹⁶⁹⁶
- Pixels : PhysicalSizeY¹⁶⁹⁷
- Pixels : PhysicalSizeZ¹⁶⁹⁸

¹⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁶⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

¹⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC¹⁶⁹⁹
- Pixels : SizeT¹⁷⁰⁰
- Pixels : SizeX¹⁷⁰¹
- Pixels : SizeY¹⁷⁰²
- Pixels : SizeZ¹⁷⁰³
- Pixels : TimeIncrement¹⁷⁰⁴
- Pixels : Type¹⁷⁰⁵
- Plane : TheC¹⁷⁰⁶
- Plane : TheT¹⁷⁰⁷
- Plane : TheZ¹⁷⁰⁸

Total supported: 23

Total unknown or missing: 450

18.2.46 InCellReader

This page lists supported metadata fields for the Bio-Formats InCell 1000/2000 format reader.

These fields are from the [OME data model](#)¹⁷⁰⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 65 of them (13%).
- Of those, Bio-Formats fully or partially converts 65 (100%).

Supported fields

These fields are fully supported by the Bio-Formats InCell 1000/2000 format reader:

- Channel : EmissionWavelength¹⁷¹⁰
- Channel : ExcitationWavelength¹⁷¹¹
- Channel : ID¹⁷¹²
- Channel : Name¹⁷¹³

¹⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

¹⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁷⁰⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

¹⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

- Channel : SamplesPerPixel¹⁷¹⁴
- Detector : ID¹⁷¹⁵
- Detector : Model¹⁷¹⁶
- Detector : Type¹⁷¹⁷
- DetectorSettings : Binning¹⁷¹⁸
- DetectorSettings : Gain¹⁷¹⁹
- DetectorSettings : ID¹⁷²⁰
- Experiment : ID¹⁷²¹
- Experiment : Type¹⁷²²
- Image : AcquisitionDate¹⁷²³
- Image : Description¹⁷²⁴
- Image : ExperimentRef¹⁷²⁵
- Image : ID¹⁷²⁶
- Image : InstrumentRef¹⁷²⁷
- Image : Name¹⁷²⁸
- ImagingEnvironment : Temperature¹⁷²⁹
- Instrument : ID¹⁷³⁰
- Objective : Correction¹⁷³¹
- Objective : ID¹⁷³²
- Objective : Immersion¹⁷³³
- Objective : LensNA¹⁷³⁴
- Objective : Manufacturer¹⁷³⁵
- Objective : NominalMagnification¹⁷³⁶

¹⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

¹⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

¹⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

¹⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID

¹⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

¹⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimentRef_ID

¹⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

¹⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

¹⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

¹⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

¹⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

¹⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

¹⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

- ObjectiveSettings : ID¹⁷³⁷
- ObjectiveSettings : RefractiveIndex¹⁷³⁸
- Pixels : BinDataBigEndian¹⁷³⁹
- Pixels : DimensionOrder¹⁷⁴⁰
- Pixels : ID¹⁷⁴¹
- Pixels : PhysicalSizeX¹⁷⁴²
- Pixels : PhysicalSizeY¹⁷⁴³
- Pixels : SizeC¹⁷⁴⁴
- Pixels : SizeT¹⁷⁴⁵
- Pixels : SizeX¹⁷⁴⁶
- Pixels : SizeY¹⁷⁴⁷
- Pixels : SizeZ¹⁷⁴⁸
- Pixels : Type¹⁷⁴⁹
- Plane : DeltaT¹⁷⁵⁰
- Plane : ExposureTime¹⁷⁵¹
- Plane : PositionX¹⁷⁵²
- Plane : PositionY¹⁷⁵³
- Plane : PositionZ¹⁷⁵⁴
- Plane : TheC¹⁷⁵⁵
- Plane : TheT¹⁷⁵⁶
- Plane : TheZ¹⁷⁵⁷
- Plate : ColumnNamingConvention¹⁷⁵⁸
- Plate : ID¹⁷⁵⁹

¹⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

¹⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

¹⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

¹⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

¹⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

¹⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

¹⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

¹⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

- Plate : Name¹⁷⁶⁰
- Plate : RowNamingConvention¹⁷⁶¹
- Plate : WellOriginX¹⁷⁶²
- Plate : WellOriginY¹⁷⁶³
- PlateAcquisition : ID¹⁷⁶⁴
- PlateAcquisition : MaximumFieldCount¹⁷⁶⁵
- PlateAcquisition : WellSampleRef¹⁷⁶⁶
- Well : Column¹⁷⁶⁷
- Well : ID¹⁷⁶⁸
- Well : Row¹⁷⁶⁹
- WellSample : ID¹⁷⁷⁰
- WellSample : ImageRef¹⁷⁷¹
- WellSample : Index¹⁷⁷²
- WellSample : PositionX¹⁷⁷³
- WellSample : PositionY¹⁷⁷⁴

Total supported: 65

Total unknown or missing: 408

18.2.47 InCell3000Reader

This page lists supported metadata fields for the Bio-Formats InCell 3000 format reader.

These fields are from the [OME data model](#)¹⁷⁷⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

¹⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

¹⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

¹⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginX

¹⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginY

¹⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

¹⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

¹⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

¹⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

¹⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

¹⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

¹⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

¹⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

¹⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX

¹⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY

¹⁷⁷⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats InCell 3000 format reader:

- Channel : ID¹⁷⁷⁶
- Channel : SamplesPerPixel¹⁷⁷⁷
- Image : AcquisitionDate¹⁷⁷⁸
- Image : ID¹⁷⁷⁹
- Image : Name¹⁷⁸⁰
- Pixels : BinDataBigEndian¹⁷⁸¹
- Pixels : DimensionOrder¹⁷⁸²
- Pixels : ID¹⁷⁸³
- Pixels : SizeC¹⁷⁸⁴
- Pixels : SizeT¹⁷⁸⁵
- Pixels : SizeX¹⁷⁸⁶
- Pixels : SizeY¹⁷⁸⁷
- Pixels : SizeZ¹⁷⁸⁸
- Pixels : Type¹⁷⁸⁹
- Plane : TheC¹⁷⁹⁰
- Plane : TheT¹⁷⁹¹
- Plane : TheZ¹⁷⁹²

Total supported: 17

Total unknown or missing: 456

18.2.48 INRReader

This page lists supported metadata fields for the Bio-Formats INR format reader.

- ¹⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
- ¹⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ¹⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ¹⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ¹⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ¹⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ¹⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ¹⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ¹⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ¹⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ¹⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ¹⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ¹⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ¹⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model¹⁷⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats INR format reader:

- Channel : ID¹⁷⁹⁴
- Channel : SamplesPerPixel¹⁷⁹⁵
- Image : AcquisitionDate¹⁷⁹⁶
- Image : ID¹⁷⁹⁷
- Image : Name¹⁷⁹⁸
- Pixels : BinDataBigEndian¹⁷⁹⁹
- Pixels : DimensionOrder¹⁸⁰⁰
- Pixels : ID¹⁸⁰¹
- Pixels : PhysicalSizeX¹⁸⁰²
- Pixels : PhysicalSizeY¹⁸⁰³
- Pixels : PhysicalSizeZ¹⁸⁰⁴
- Pixels : SizeC¹⁸⁰⁵
- Pixels : SizeT¹⁸⁰⁶
- Pixels : SizeX¹⁸⁰⁷
- Pixels : SizeY¹⁸⁰⁸
- Pixels : SizeZ¹⁸⁰⁹
- Pixels : Type¹⁸¹⁰

¹⁷⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC¹⁸¹¹
- Plane : TheT¹⁸¹²
- Plane : TheZ¹⁸¹³

Total supported: 20

Total unknown or missing: 453

18.2.49 IvisionReader

This page lists supported metadata fields for the Bio-Formats IVison format reader.

These fields are from the [OME data model](#)¹⁸¹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 32 of them (6%).
- Of those, Bio-Formats fully or partially converts 32 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IVison format reader:

- Channel : ID¹⁸¹⁵
- Channel : SamplesPerPixel¹⁸¹⁶
- Detector : ID¹⁸¹⁷
- Detector : Type¹⁸¹⁸
- DetectorSettings : Binning¹⁸¹⁹
- DetectorSettings : Gain¹⁸²⁰
- DetectorSettings : ID¹⁸²¹
- Image : AcquisitionDate¹⁸²²
- Image : ID¹⁸²³
- Image : InstrumentRef¹⁸²⁴
- Image : Name¹⁸²⁵

¹⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁸¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

¹⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

¹⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

¹⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

¹⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

¹⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

¹⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Instrument : ID¹⁸²⁶
- Objective : Correction¹⁸²⁷
- Objective : ID¹⁸²⁸
- Objective : Immersion¹⁸²⁹
- Objective : LensNA¹⁸³⁰
- Objective : NominalMagnification¹⁸³¹
- ObjectiveSettings : ID¹⁸³²
- ObjectiveSettings : RefractiveIndex¹⁸³³
- Pixels : BinDataBigEndian¹⁸³⁴
- Pixels : DimensionOrder¹⁸³⁵
- Pixels : ID¹⁸³⁶
- Pixels : SizeC¹⁸³⁷
- Pixels : SizeT¹⁸³⁸
- Pixels : SizeX¹⁸³⁹
- Pixels : SizeY¹⁸⁴⁰
- Pixels : SizeZ¹⁸⁴¹
- Pixels : TimeIncrement¹⁸⁴²
- Pixels : Type¹⁸⁴³
- Plane : TheC¹⁸⁴⁴
- Plane : TheT¹⁸⁴⁵
- Plane : TheZ¹⁸⁴⁶

Total supported: 32

Total unknown or missing: 441

-
- ¹⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
 - ¹⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
 - ¹⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
 - ¹⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
 - ¹⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
 - ¹⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
 - ¹⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
 - ¹⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
 - ¹⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
 - ¹⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
 - ¹⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
 - ¹⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
 - ¹⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
 - ¹⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
 - ¹⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
 - ¹⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
 - ¹⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
 - ¹⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
 - ¹⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
 - ¹⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
 - ¹⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.50 IPLabReader

This page lists supported metadata fields for the Bio-Formats IPLab format reader.

These fields are from the [OME data model](#)¹⁸⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 29 of them (6%).
- Of those, Bio-Formats fully or partially converts 29 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IPLab format reader:

- Channel : ID¹⁸⁴⁸
- Channel : SamplesPerPixel¹⁸⁴⁹
- Image : AcquisitionDate¹⁸⁵⁰
- Image : Description¹⁸⁵¹
- Image : ID¹⁸⁵²
- Image : Name¹⁸⁵³
- Image : ROIRef¹⁸⁵⁴
- Pixels : BinDataBigEndian¹⁸⁵⁵
- Pixels : DimensionOrder¹⁸⁵⁶
- Pixels : ID¹⁸⁵⁷
- Pixels : PhysicalSizeX¹⁸⁵⁸
- Pixels : PhysicalSizeY¹⁸⁵⁹
- Pixels : SizeC¹⁸⁶⁰
- Pixels : SizeT¹⁸⁶¹
- Pixels : SizeX¹⁸⁶²
- Pixels : SizeY¹⁸⁶³

¹⁸⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

¹⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

¹⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁸⁶⁴
- Pixels : TimeIncrement¹⁸⁶⁵
- Pixels : Type¹⁸⁶⁶
- Plane : DeltaT¹⁸⁶⁷
- Plane : TheC¹⁸⁶⁸
- Plane : TheT¹⁸⁶⁹
- Plane : TheZ¹⁸⁷⁰
- ROI : ID¹⁸⁷¹
- Rectangle : Height¹⁸⁷²
- Rectangle : ID¹⁸⁷³
- Rectangle : Width¹⁸⁷⁴
- Rectangle : X¹⁸⁷⁵
- Rectangle : Y¹⁸⁷⁶

Total supported: 29

Total unknown or missing: 444

18.2.51 JEOLReader

This page lists supported metadata fields for the Bio-Formats JEOL format reader.

These fields are from the [OME data model](#)¹⁸⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats JEOL format reader:

- Channel : ID¹⁸⁷⁸

¹⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

¹⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

¹⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

¹⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

¹⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

¹⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

¹⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

¹⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

¹⁸⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹⁸⁷⁹
- Image : AcquisitionDate¹⁸⁸⁰
- Image : ID¹⁸⁸¹
- Image : Name¹⁸⁸²
- Pixels : BinDataBigEndian¹⁸⁸³
- Pixels : DimensionOrder¹⁸⁸⁴
- Pixels : ID¹⁸⁸⁵
- Pixels : SizeC¹⁸⁸⁶
- Pixels : SizeT¹⁸⁸⁷
- Pixels : SizeX¹⁸⁸⁸
- Pixels : SizeY¹⁸⁸⁹
- Pixels : SizeZ¹⁸⁹⁰
- Pixels : Type¹⁸⁹¹
- Plane : TheC¹⁸⁹²
- Plane : TheT¹⁸⁹³
- Plane : TheZ¹⁸⁹⁴

Total supported: 17

Total unknown or missing: 456

18.2.52 JPEG2000Reader

This page lists supported metadata fields for the Bio-Formats JPEG-2000 format reader.

These fields are from the [OME data model](#)¹⁸⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

¹⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁸⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats JPEG-2000 format reader:

- Channel : ID¹⁸⁹⁶
- Channel : SamplesPerPixel¹⁸⁹⁷
- Image : AcquisitionDate¹⁸⁹⁸
- Image : ID¹⁸⁹⁹
- Image : Name¹⁹⁰⁰
- Pixels : BinDataBigEndian¹⁹⁰¹
- Pixels : DimensionOrder¹⁹⁰²
- Pixels : ID¹⁹⁰³
- Pixels : SizeC¹⁹⁰⁴
- Pixels : SizeT¹⁹⁰⁵
- Pixels : SizeX¹⁹⁰⁶
- Pixels : SizeY¹⁹⁰⁷
- Pixels : SizeZ¹⁹⁰⁸
- Pixels : Type¹⁹⁰⁹
- Plane : TheC¹⁹¹⁰
- Plane : TheT¹⁹¹¹
- Plane : TheZ¹⁹¹²

Total supported: 17

Total unknown or missing: 456

18.2.53 JPEGReader

This page lists supported metadata fields for the Bio-Formats JPEG format reader.

- ¹⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
- ¹⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ¹⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ¹⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ¹⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ¹⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ¹⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ¹⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ¹⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ¹⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ¹⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ¹⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ¹⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ¹⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)¹⁹¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats JPEG format reader:

- Channel : ID¹⁹¹⁴
- Channel : SamplesPerPixel¹⁹¹⁵
- Image : AcquisitionDate¹⁹¹⁶
- Image : ID¹⁹¹⁷
- Image : Name¹⁹¹⁸
- Pixels : BinDataBigEndian¹⁹¹⁹
- Pixels : DimensionOrder¹⁹²⁰
- Pixels : ID¹⁹²¹
- Pixels : SizeC¹⁹²²
- Pixels : SizeT¹⁹²³
- Pixels : SizeX¹⁹²⁴
- Pixels : SizeY¹⁹²⁵
- Pixels : SizeZ¹⁹²⁶
- Pixels : Type¹⁹²⁷
- Plane : TheC¹⁹²⁸
- Plane : TheT¹⁹²⁹
- Plane : TheZ¹⁹³⁰

¹⁹¹³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 17

Total unknown or missing: 456

18.2.54 JPKReader

This page lists supported metadata fields for the Bio-Formats JPK Instruments format reader.

These fields are from the [OME data model](#)¹⁹³¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats JPK Instruments format reader:

- Channel : ID¹⁹³²
- Channel : SamplesPerPixel¹⁹³³
- Image : AcquisitionDate¹⁹³⁴
- Image : ID¹⁹³⁵
- Image : Name¹⁹³⁶
- Pixels : BinDataBigEndian¹⁹³⁷
- Pixels : DimensionOrder¹⁹³⁸
- Pixels : ID¹⁹³⁹
- Pixels : SizeC¹⁹⁴⁰
- Pixels : SizeT¹⁹⁴¹
- Pixels : SizeX¹⁹⁴²
- Pixels : SizeY¹⁹⁴³
- Pixels : SizeZ¹⁹⁴⁴
- Pixels : Type¹⁹⁴⁵

¹⁹³¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC¹⁹⁴⁶
- Plane : TheT¹⁹⁴⁷
- Plane : TheZ¹⁹⁴⁸

Total supported: 17

Total unknown or missing: 456

18.2.55 JPXReader

This page lists supported metadata fields for the Bio-Formats JPX format reader.

These fields are from the [OME data model](#)¹⁹⁴⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats JPX format reader:

- Channel : ID¹⁹⁵⁰
- Channel : SamplesPerPixel¹⁹⁵¹
- Image : AcquisitionDate¹⁹⁵²
- Image : ID¹⁹⁵³
- Image : Name¹⁹⁵⁴
- Pixels : BinDataBigEndian¹⁹⁵⁵
- Pixels : DimensionOrder¹⁹⁵⁶
- Pixels : ID¹⁹⁵⁷
- Pixels : SizeC¹⁹⁵⁸
- Pixels : SizeT¹⁹⁵⁹
- Pixels : SizeX¹⁹⁶⁰

¹⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁹⁴⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

¹⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹⁹⁶¹
- Pixels : SizeZ¹⁹⁶²
- Pixels : Type¹⁹⁶³
- Plane : TheC¹⁹⁶⁴
- Plane : TheT¹⁹⁶⁵
- Plane : TheZ¹⁹⁶⁶

Total supported: 17

Total unknown or missing: 456

18.2.56 KhorosReader

This page lists supported metadata fields for the Bio-Formats Khoros XV format reader.

These fields are from the [OME data model](#)¹⁹⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Khoros XV format reader:

- Channel : ID¹⁹⁶⁸
- Channel : SamplesPerPixel¹⁹⁶⁹
- Image : AcquisitionDate¹⁹⁷⁰
- Image : ID¹⁹⁷¹
- Image : Name¹⁹⁷²
- Pixels : BinDataBigEndian¹⁹⁷³
- Pixels : DimensionOrder¹⁹⁷⁴
- Pixels : ID¹⁹⁷⁵

¹⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁹⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

¹⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

¹⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : SizeC¹⁹⁷⁶
- Pixels : SizeT¹⁹⁷⁷
- Pixels : SizeX¹⁹⁷⁸
- Pixels : SizeY¹⁹⁷⁹
- Pixels : SizeZ¹⁹⁸⁰
- Pixels : Type¹⁹⁸¹
- Plane : TheC¹⁹⁸²
- Plane : TheT¹⁹⁸³
- Plane : TheZ¹⁹⁸⁴

Total supported: 17

Total unknown or missing: 456

18.2.57 KodakReader

This page lists supported metadata fields for the Bio-Formats Kodak Molecular Imaging format reader.

These fields are from the [OME data model](#)¹⁹⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 24 of them (5%).
- Of those, Bio-Formats fully or partially converts 24 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Kodak Molecular Imaging format reader:

- Channel : ID¹⁹⁸⁶
- Channel : SamplesPerPixel¹⁹⁸⁷
- Image : AcquisitionDate¹⁹⁸⁸
- Image : ID¹⁹⁸⁹
- Image : InstrumentRef¹⁹⁹⁰

¹⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

¹⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

¹⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

¹⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

¹⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

¹⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

¹⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

¹⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

¹⁹⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

¹⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

¹⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

- Image : Name¹⁹⁹¹
- ImagingEnvironment : Temperature¹⁹⁹²
- Instrument : ID¹⁹⁹³
- Microscope : Model¹⁹⁹⁴
- Pixels : BinDataBigEndian¹⁹⁹⁵
- Pixels : DimensionOrder¹⁹⁹⁶
- Pixels : ID¹⁹⁹⁷
- Pixels : PhysicalSizeX¹⁹⁹⁸
- Pixels : PhysicalSizeY¹⁹⁹⁹
- Pixels : SizeC²⁰⁰⁰
- Pixels : SizeT²⁰⁰¹
- Pixels : SizeX²⁰⁰²
- Pixels : SizeY²⁰⁰³
- Pixels : SizeZ²⁰⁰⁴
- Pixels : Type²⁰⁰⁵
- Plane : ExposureTime²⁰⁰⁶
- Plane : TheC²⁰⁰⁷
- Plane : TheT²⁰⁰⁸
- Plane : TheZ²⁰⁰⁹

Total supported: 24

Total unknown or missing: 449

18.2.58 LiFlimReader

This page lists supported metadata fields for the Bio-Formats LI-FLIM format reader.

- ¹⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ¹⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
- ¹⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
- ¹⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
- ¹⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ¹⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ¹⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
- ²⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ²⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ²⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ²⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ²⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ²⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ²⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
- ²⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ²⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ²⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)²⁰¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 23 of them (4%).
- Of those, Bio-Formats fully or partially converts 23 (100%).

Supported fields

These fields are fully supported by the Bio-Formats LI-FLIM format reader:

- Channel : ID²⁰¹¹
- Channel : SamplesPerPixel²⁰¹²
- Image : AcquisitionDate²⁰¹³
- Image : ID²⁰¹⁴
- Image : Name²⁰¹⁵
- Image : ROIRef²⁰¹⁶
- Pixels : BinDataBigEndian²⁰¹⁷
- Pixels : DimensionOrder²⁰¹⁸
- Pixels : ID²⁰¹⁹
- Pixels : SizeC²⁰²⁰
- Pixels : SizeT²⁰²¹
- Pixels : SizeX²⁰²²
- Pixels : SizeY²⁰²³
- Pixels : SizeZ²⁰²⁴
- Pixels : Type²⁰²⁵
- Plane : DeltaT²⁰²⁶
- Plane : ExposureTime²⁰²⁷

²⁰¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

²⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

- Plane : TheC²⁰²⁸
- Plane : TheT²⁰²⁹
- Plane : TheZ²⁰³⁰
- Polygon : ID²⁰³¹
- Polygon : Points²⁰³²
- ROI : ID²⁰³³

Total supported: 23

Total unknown or missing: 450

18.2.59 LeicaReader

This page lists supported metadata fields for the Bio-Formats Leica format reader.

These fields are from the [OME data model](#)²⁰³⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 54 of them (11%).
- Of those, Bio-Formats fully or partially converts 54 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Leica format reader:

- Channel : Color²⁰³⁵
- Channel : EmissionWavelength²⁰³⁶
- Channel : ExcitationWavelength²⁰³⁷
- Channel : ID²⁰³⁸
- Channel : Name²⁰³⁹
- Channel : PinholeSize²⁰⁴⁰
- Channel : SamplesPerPixel²⁰⁴¹
- Detector : ID²⁰⁴²

²⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

²⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

²⁰³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

²⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

²⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

- Detector : Offset²⁰⁴³
- Detector : Type²⁰⁴⁴
- Detector : Voltage²⁰⁴⁵
- DetectorSettings : ID²⁰⁴⁶
- Filter : ID²⁰⁴⁷
- Filter : Model²⁰⁴⁸
- Image : AcquisitionDate²⁰⁴⁹
- Image : Description²⁰⁵⁰
- Image : ID²⁰⁵¹
- Image : InstrumentRef²⁰⁵²
- Image : Name²⁰⁵³
- Instrument : ID²⁰⁵⁴
- LightPath : EmissionFilterRef²⁰⁵⁵
- Objective : Correction²⁰⁵⁶
- Objective : ID²⁰⁵⁷
- Objective : Immersion²⁰⁵⁸
- Objective : LensNA²⁰⁵⁹
- Objective : Model²⁰⁶⁰
- Objective : NominalMagnification²⁰⁶¹
- Objective : SerialNumber²⁰⁶²
- ObjectiveSettings : ID²⁰⁶³
- ObjectiveSettings : RefractiveIndex²⁰⁶⁴
- Pixels : BinDataBigEndian²⁰⁶⁵

²⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

²⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage

²⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

²⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

²⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder²⁰⁶⁶
- Pixels : ID²⁰⁶⁷
- Pixels : PhysicalSizeX²⁰⁶⁸
- Pixels : PhysicalSizeY²⁰⁶⁹
- Pixels : PhysicalSizeZ²⁰⁷⁰
- Pixels : SizeC²⁰⁷¹
- Pixels : SizeT²⁰⁷²
- Pixels : SizeX²⁰⁷³
- Pixels : SizeY²⁰⁷⁴
- Pixels : SizeZ²⁰⁷⁵
- Pixels : TimeIncrement²⁰⁷⁶
- Pixels : Type²⁰⁷⁷
- Plane : DeltaT²⁰⁷⁸
- Plane : ExposureTime²⁰⁷⁹
- Plane : PositionX²⁰⁸⁰
- Plane : PositionY²⁰⁸¹
- Plane : TheC²⁰⁸²
- Plane : TheT²⁰⁸³
- Plane : TheZ²⁰⁸⁴
- StageLabel : Name²⁰⁸⁵
- StageLabel : Z²⁰⁸⁶
- TransmittanceRange : CutIn²⁰⁸⁷
- TransmittanceRange : CutOut²⁰⁸⁸

²⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

²⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name

²⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Z

²⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

²⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

Total supported: 54

Total unknown or missing: 419

18.2.60 LIFReader

This page lists supported metadata fields for the Bio-Formats Leica Image File Format format reader.

These fields are from the [OME data model](#)²⁰⁸⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 83 of them (17%).
- Of those, Bio-Formats fully or partially converts 83 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Leica Image File Format format reader:

- Channel : Color²⁰⁹⁰
- Channel : ExcitationWavelength²⁰⁹¹
- Channel : ID²⁰⁹²
- Channel : LightSourceSettingsAttenuation²⁰⁹³
- Channel : LightSourceSettingsID²⁰⁹⁴
- Channel : Name²⁰⁹⁵
- Channel : PinholeSize²⁰⁹⁶
- Channel : SamplesPerPixel²⁰⁹⁷
- Detector : ID²⁰⁹⁸
- Detector : Model²⁰⁹⁹
- Detector : Offset²¹⁰⁰
- Detector : Type²¹⁰¹
- Detector : Zoom²¹⁰²
- DetectorSettings : Gain²¹⁰³

²⁰⁸⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

²⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation

²⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

²¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom

²¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

- DetectorSettings : ID²¹⁰⁴
- DetectorSettings : Offset²¹⁰⁵
- Filter : ID²¹⁰⁶
- Filter : Model²¹⁰⁷
- Image : AcquisitionDate²¹⁰⁸
- Image : Description²¹⁰⁹
- Image : ID²¹¹⁰
- Image : InstrumentRef²¹¹¹
- Image : Name²¹¹²
- Image : ROIRef²¹¹³
- Instrument : ID²¹¹⁴
- Label : FontSize²¹¹⁵
- Label : ID²¹¹⁶
- Label : StrokeWidth²¹¹⁷
- Label : Text²¹¹⁸
- Label : X²¹¹⁹
- Label : Y²¹²⁰
- Laser : ID²¹²¹
- Laser : LaserMedium²¹²²
- Laser : Type²¹²³
- Laser : Wavelength²¹²⁴
- LightPath : EmissionFilterRef²¹²⁵
- Line : ID²¹²⁶

²¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

²¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

²¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

²¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

²¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X

²¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y

²¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

²¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

²¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

²¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

²¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Line : X1²¹²⁷
- Line : X2²¹²⁸
- Line : Y1²¹²⁹
- Line : Y2²¹³⁰
- Microscope : Model²¹³¹
- Microscope : Type²¹³²
- Objective : Correction²¹³³
- Objective : ID²¹³⁴
- Objective : Immersion²¹³⁵
- Objective : LensNA²¹³⁶
- Objective : Model²¹³⁷
- Objective : NominalMagnification²¹³⁸
- Objective : SerialNumber²¹³⁹
- ObjectiveSettings : ID²¹⁴⁰
- ObjectiveSettings : RefractiveIndex²¹⁴¹
- Pixels : BinDataBigEndian²¹⁴²
- Pixels : DimensionOrder²¹⁴³
- Pixels : ID²¹⁴⁴
- Pixels : PhysicalSizeX²¹⁴⁵
- Pixels : PhysicalSizeY²¹⁴⁶
- Pixels : PhysicalSizeZ²¹⁴⁷
- Pixels : SizeC²¹⁴⁸
- Pixels : SizeT²¹⁴⁹

²¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1

²¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2

²¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1

²¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2

²¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type

²¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²¹⁵⁰
- Pixels : SizeY²¹⁵¹
- Pixels : SizeZ²¹⁵²
- Pixels : TimeIncrement²¹⁵³
- Pixels : Type²¹⁵⁴
- Plane : DeltaT²¹⁵⁵
- Plane : ExposureTime²¹⁵⁶
- Plane : PositionX²¹⁵⁷
- Plane : PositionY²¹⁵⁸
- Plane : PositionZ²¹⁵⁹
- Plane : TheC²¹⁶⁰
- Plane : TheT²¹⁶¹
- Plane : TheZ²¹⁶²
- Polygon : ID²¹⁶³
- Polygon : Points²¹⁶⁴
- ROI : ID²¹⁶⁵
- Rectangle : Height²¹⁶⁶
- Rectangle : ID²¹⁶⁷
- Rectangle : Width²¹⁶⁸
- Rectangle : X²¹⁶⁹
- Rectangle : Y²¹⁷⁰
- TransmittanceRange : CutIn²¹⁷¹
- TransmittanceRange : CutOut²¹⁷²

²¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

²¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

²¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

²¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

²¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

²¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

²¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

²¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

²¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

²¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

Total supported: 83

Total unknown or missing: 390

18.2.61 LeicaSCNReader

This page lists supported metadata fields for the Bio-Formats Leica SCN format reader.

These fields are from the [OME data model](#)²¹⁷³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 31 of them (6%).
- Of those, Bio-Formats fully or partially converts 31 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Leica SCN format reader:

- Channel : ID²¹⁷⁴
- Channel : IlluminationType²¹⁷⁵
- Channel : SamplesPerPixel²¹⁷⁶
- Image : AcquisitionDate²¹⁷⁷
- Image : Description²¹⁷⁸
- Image : ID²¹⁷⁹
- Image : InstrumentRef²¹⁸⁰
- Image : Name²¹⁸¹
- Instrument : ID²¹⁸²
- Objective : CalibratedMagnification²¹⁸³
- Objective : ID²¹⁸⁴
- Objective : LensNA²¹⁸⁵
- Objective : NominalMagnification²¹⁸⁶
- ObjectiveSettings : ID²¹⁸⁷

²¹⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType

²¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

²¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

- Pixels : BinDataBigEndian²¹⁸⁸
- Pixels : DimensionOrder²¹⁸⁹
- Pixels : ID²¹⁹⁰
- Pixels : PhysicalSizeX²¹⁹¹
- Pixels : PhysicalSizeY²¹⁹²
- Pixels : PhysicalSizeZ²¹⁹³
- Pixels : SizeC²¹⁹⁴
- Pixels : SizeT²¹⁹⁵
- Pixels : SizeX²¹⁹⁶
- Pixels : SizeY²¹⁹⁷
- Pixels : SizeZ²¹⁹⁸
- Pixels : Type²¹⁹⁹
- Plane : PositionX²²⁰⁰
- Plane : PositionY²²⁰¹
- Plane : TheC²²⁰²
- Plane : TheT²²⁰³
- Plane : TheZ²²⁰⁴

Total supported: 31

Total unknown or missing: 442

18.2.62 LEORReader

This page lists supported metadata fields for the Bio-Formats LEO format reader.

These fields are from the [OME data model](#)²²⁰⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

²¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²²⁰⁵<http://www.openmicroscopy.org/site/support/ome-model/>

- The file format itself supports 25 of them (5%).
- Of those, Bio-Formats fully or partially converts 25 (100%).

Supported fields

These fields are fully supported by the Bio-Formats LEO format reader:

- Channel : ID²²⁰⁶
- Channel : SamplesPerPixel²²⁰⁷
- Image : AcquisitionDate²²⁰⁸
- Image : ID²²⁰⁹
- Image : InstrumentRef²²¹⁰
- Image : Name²²¹¹
- Instrument : ID²²¹²
- Objective : Correction²²¹³
- Objective : ID²²¹⁴
- Objective : Immersion²²¹⁵
- Objective : WorkingDistance²²¹⁶
- Pixels : BinDataBigEndian²²¹⁷
- Pixels : DimensionOrder²²¹⁸
- Pixels : ID²²¹⁹
- Pixels : PhysicalSizeX²²²⁰
- Pixels : PhysicalSizeY²²²¹
- Pixels : SizeC²²²²
- Pixels : SizeT²²²³
- Pixels : SizeX²²²⁴
- Pixels : SizeY²²²⁵

²²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

²²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²²²⁶
- Pixels : Type²²²⁷
- Plane : TheC²²²⁸
- Plane : TheT²²²⁹
- Plane : TheZ²²³⁰

Total supported: 25

Total unknown or missing: 448

18.2.63 L2DReader

This page lists supported metadata fields for the Bio-Formats Li-Cor L2D format reader.

These fields are from the [OME data model](#)²²³¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 27 of them (5%).
- Of those, Bio-Formats fully or partially converts 27 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Li-Cor L2D format reader:

- Channel : ID²²³²
- Channel : LightSourceSettingsID²²³³
- Channel : SamplesPerPixel²²³⁴
- Image : AcquisitionDate²²³⁵
- Image : Description²²³⁶
- Image : ID²²³⁷
- Image : InstrumentRef²²³⁸
- Image : Name²²³⁹
- Instrument : ID²²⁴⁰

²²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²²³¹<http://www.openmicroscopy.org/site/support/ome-model/>

²²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

- Laser : ID²²⁴¹
- Laser : LaserMedium²²⁴²
- Laser : Type²²⁴³
- Laser : Wavelength²²⁴⁴
- Microscope : Model²²⁴⁵
- Microscope : Type²²⁴⁶
- Pixels : BinDataBigEndian²²⁴⁷
- Pixels : DimensionOrder²²⁴⁸
- Pixels : ID²²⁴⁹
- Pixels : SizeC²²⁵⁰
- Pixels : SizeT²²⁵¹
- Pixels : SizeX²²⁵²
- Pixels : SizeY²²⁵³
- Pixels : SizeZ²²⁵⁴
- Pixels : Type²²⁵⁵
- Plane : TheC²²⁵⁶
- Plane : TheT²²⁵⁷
- Plane : TheZ²²⁵⁸

Total supported: 27

Total unknown or missing: 446

18.2.64 LIMReader

This page lists supported metadata fields for the Bio-Formats Laboratory Imaging format reader.

These fields are from the [OME data model](#)²²⁵⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

²²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

²²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

²²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type

²²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²²⁵⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields**These fields are fully supported by the Bio-Formats Laboratory Imaging format reader:**

- Channel : ID²²⁶⁰
- Channel : SamplesPerPixel²²⁶¹
- Image : AcquisitionDate²²⁶²
- Image : ID²²⁶³
- Image : Name²²⁶⁴
- Pixels : BinDataBigEndian²²⁶⁵
- Pixels : DimensionOrder²²⁶⁶
- Pixels : ID²²⁶⁷
- Pixels : SizeC²²⁶⁸
- Pixels : SizeT²²⁶⁹
- Pixels : SizeX²²⁷⁰
- Pixels : SizeY²²⁷¹
- Pixels : SizeZ²²⁷²
- Pixels : Type²²⁷³
- Plane : TheC²²⁷⁴
- Plane : TheT²²⁷⁵
- Plane : TheZ²²⁷⁶

Total supported: 17**Total unknown or missing: 456**²²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID²²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel²²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate²²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID²²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name²²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian²²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder²²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID²²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC²²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT²²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX²²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY²²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ²²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type²²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC²²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT²²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.65 MetamorphTiffReader

This page lists supported metadata fields for the Bio-Formats Metamorph TIFF format reader.

These fields are from the OME data model²²⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 35 of them (7%).
- Of those, Bio-Formats fully or partially converts 35 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Metamorph TIFF format reader:

- Channel : ID²²⁷⁸
- Channel : Name²²⁷⁹
- Channel : SamplesPerPixel²²⁸⁰
- Image : AcquisitionDate²²⁸¹
- Image : Description²²⁸²
- Image : ID²²⁸³
- Image : Name²²⁸⁴
- ImagingEnvironment : Temperature²²⁸⁵
- Pixels : BinDataBigEndian²²⁸⁶
- Pixels : DimensionOrder²²⁸⁷
- Pixels : ID²²⁸⁸
- Pixels : PhysicalSizeX²²⁸⁹
- Pixels : PhysicalSizeY²²⁹⁰
- Pixels : SizeC²²⁹¹
- Pixels : SizeT²²⁹²
- Pixels : SizeX²²⁹³

²²⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

²²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY²²⁹⁴
- Pixels : SizeZ²²⁹⁵
- Pixels : Type²²⁹⁶
- Plane : DeltaT²²⁹⁷
- Plane : ExposureTime²²⁹⁸
- Plane : PositionX²²⁹⁹
- Plane : PositionY²³⁰⁰
- Plane : TheC²³⁰¹
- Plane : TheT²³⁰²
- Plane : TheZ²³⁰³
- Plate : ColumnNamingConvention²³⁰⁴
- Plate : ID²³⁰⁵
- Plate : RowNamingConvention²³⁰⁶
- Well : Column²³⁰⁷
- Well : ID²³⁰⁸
- Well : Row²³⁰⁹
- WellSample : ID²³¹⁰
- WellSample : ImageRef²³¹¹
- WellSample : Index²³¹²

Total supported: 35

Total unknown or missing: 438

18.2.66 MetamorphReader

This page lists supported metadata fields for the Bio-Formats Metamorph STK format reader.

- ²²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ²²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ²²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ²²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
- ²²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
- ²²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
- ²³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
- ²³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ²³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ²³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
- ²³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
- ²³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
- ²³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
- ²³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
- ²³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
- ²³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
- ²³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
- ²³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
- ²³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

These fields are from the OME data model²³¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Metamorph STK format reader:

- Channel : ID²³¹⁴
- Channel : LightSourceSettingsID²³¹⁵
- Channel : LightSourceSettingsWavelength²³¹⁶
- Channel : Name²³¹⁷
- Channel : SamplesPerPixel²³¹⁸
- Detector : ID²³¹⁹
- Detector : Type²³²⁰
- DetectorSettings : Binning²³²¹
- DetectorSettings : Gain²³²²
- DetectorSettings : ID²³²³
- DetectorSettings : ReadOutRate²³²⁴
- Image : AcquisitionDate²³²⁵
- Image : Description²³²⁶
- Image : ID²³²⁷
- Image : InstrumentRef²³²⁸
- Image : Name²³²⁹
- ImagingEnvironment : Temperature²³³⁰

²³¹³<http://www.openmicroscopy.org/site/support/ome-model/>

²³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength

²³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

²³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

²³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

²³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

- Instrument : ID²³³¹
- Laser : ID²³³²
- Laser : LaserMedium²³³³
- Laser : Type²³³⁴
- Pixels : BinDataBigEndian²³³⁵
- Pixels : DimensionOrder²³³⁶
- Pixels : ID²³³⁷
- Pixels : PhysicalSizeX²³³⁸
- Pixels : PhysicalSizeY²³³⁹
- Pixels : PhysicalSizeZ²³⁴⁰
- Pixels : SizeC²³⁴¹
- Pixels : SizeT²³⁴²
- Pixels : SizeX²³⁴³
- Pixels : SizeY²³⁴⁴
- Pixels : SizeZ²³⁴⁵
- Pixels : Type²³⁴⁶
- Plane : DeltaT²³⁴⁷
- Plane : ExposureTime²³⁴⁸
- Plane : PositionX²³⁴⁹
- Plane : PositionY²³⁵⁰
- Plane : PositionZ²³⁵¹
- Plane : TheC²³⁵²
- Plane : TheT²³⁵³

²³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

²³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

²³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

²³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ²³⁵⁴

Total supported: 41

Total unknown or missing: 432

18.2.67 MIASReader

This page lists supported metadata fields for the Bio-Formats MIAS format reader.

These fields are from the [OME data model](#)²³⁵⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 62 of them (13%).
- Of those, Bio-Formats fully or partially converts 62 (100%).

Supported fields

These fields are fully supported by the Bio-Formats MIAS format reader:

- Channel : Color²³⁵⁶
- Channel : ID²³⁵⁷
- Channel : Name²³⁵⁸
- Channel : SamplesPerPixel²³⁵⁹
- Ellipse : ID²³⁶⁰
- Ellipse : RadiusX²³⁶¹
- Ellipse : RadiusY²³⁶²
- Ellipse : Text²³⁶³
- Ellipse : TheT²³⁶⁴
- Ellipse : TheZ²³⁶⁵
- Ellipse : X²³⁶⁶
- Ellipse : Y²³⁶⁷
- Experiment : Description²³⁶⁸

²³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²³⁵⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

²³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX

²³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY

²³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

²³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X

²³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y

²³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Description

- Experiment : ID²³⁶⁹
- Experiment : Type²³⁷⁰
- Image : AcquisitionDate²³⁷¹
- Image : ExperimentRef²³⁷²
- Image : ID²³⁷³
- Image : InstrumentRef²³⁷⁴
- Image : Name²³⁷⁵
- Image : ROIRef²³⁷⁶
- Instrument : ID²³⁷⁷
- Mask : FillColor²³⁷⁸
- Mask : Height²³⁷⁹
- Mask : ID²³⁸⁰
- Mask : StrokeColor²³⁸¹
- Mask : Width²³⁸²
- Mask : X²³⁸³
- Mask : Y²³⁸⁴
- Objective : ID²³⁸⁵
- Objective : Model²³⁸⁶
- Objective : NominalMagnification²³⁸⁷
- Pixels : BinDataBigEndian²³⁸⁸
- Pixels : DimensionOrder²³⁸⁹
- Pixels : ID²³⁹⁰
- Pixels : PhysicalSizeX²³⁹¹

²³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID

²³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

²³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimentRef_ID

²³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

²³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor

²³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height

²³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

²³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width

²³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X

²³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y

²³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY²³⁹²
- Pixels : SizeC²³⁹³
- Pixels : SizeT²³⁹⁴
- Pixels : SizeX²³⁹⁵
- Pixels : SizeY²³⁹⁶
- Pixels : SizeZ²³⁹⁷
- Pixels : Type²³⁹⁸
- Plane : ExposureTime²³⁹⁹
- Plane : TheC²⁴⁰⁰
- Plane : TheT²⁴⁰¹
- Plane : TheZ²⁴⁰²
- Plate : ColumnNamingConvention²⁴⁰³
- Plate : ExternalIdentifier²⁴⁰⁴
- Plate : ID²⁴⁰⁵
- Plate : Name²⁴⁰⁶
- Plate : RowNamingConvention²⁴⁰⁷
- PlateAcquisition : ID²⁴⁰⁸
- PlateAcquisition : MaximumFieldCount²⁴⁰⁹
- PlateAcquisition : WellSampleRef²⁴¹⁰
- ROI : ID²⁴¹¹
- Well : Column²⁴¹²
- Well : ID²⁴¹³
- Well : Row²⁴¹⁴

²³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

²⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier

²⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

²⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

²⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

²⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

²⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

²⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

²⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

²⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

²⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

²⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

- WellSample : ID²⁴¹⁵
- WellSample : ImageRef²⁴¹⁶
- WellSample : Index²⁴¹⁷

Total supported: 62

Total unknown or missing: 411

18.2.68 MicromanagerReader

This page lists supported metadata fields for the Bio-Formats Micro-Manager format reader.

These fields are from the OME data model²⁴¹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 36 of them (7%).
- Of those, Bio-Formats fully or partially converts 36 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Micro-Manager format reader:

- Channel : ID²⁴¹⁹
- Channel : Name²⁴²⁰
- Channel : SamplesPerPixel²⁴²¹
- Detector : ID²⁴²²
- Detector : Manufacturer²⁴²³
- Detector : Model²⁴²⁴
- Detector : SerialNumber²⁴²⁵
- Detector : Type²⁴²⁶
- DetectorSettings : Binning²⁴²⁷
- DetectorSettings : Gain²⁴²⁸
- DetectorSettings : ID²⁴²⁹

²⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

²⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

²⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

²⁴¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

²⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

²⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

- DetectorSettings : Voltage²⁴³⁰
- Image : AcquisitionDate²⁴³¹
- Image : Description²⁴³²
- Image : ID²⁴³³
- Image : InstrumentRef²⁴³⁴
- Image : Name²⁴³⁵
- ImagingEnvironment : Temperature²⁴³⁶
- Instrument : ID²⁴³⁷
- Pixels : BinDataBigEndian²⁴³⁸
- Pixels : DimensionOrder²⁴³⁹
- Pixels : ID²⁴⁴⁰
- Pixels : PhysicalSizeX²⁴⁴¹
- Pixels : PhysicalSizeY²⁴⁴²
- Pixels : PhysicalSizeZ²⁴⁴³
- Pixels : SizeC²⁴⁴⁴
- Pixels : SizeT²⁴⁴⁵
- Pixels : SizeX²⁴⁴⁶
- Pixels : SizeY²⁴⁴⁷
- Pixels : SizeZ²⁴⁴⁸
- Pixels : Type²⁴⁴⁹
- Plane : DeltaT²⁴⁵⁰
- Plane : ExposureTime²⁴⁵¹
- Plane : TheC²⁴⁵²

²⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

²⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT²⁴⁵³
- Plane : TheZ²⁴⁵⁴

Total supported: 36

Total unknown or missing: 437

18.2.69 MINCReader

This page lists supported metadata fields for the Bio-Formats MINC MRI format reader.

These fields are from the OME data model²⁴⁵⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

Supported fields

These fields are fully supported by the Bio-Formats MINC MRI format reader:

- Channel : ID²⁴⁵⁶
- Channel : SamplesPerPixel²⁴⁵⁷
- Image : AcquisitionDate²⁴⁵⁸
- Image : Description²⁴⁵⁹
- Image : ID²⁴⁶⁰
- Image : Name²⁴⁶¹
- Pixels : BinDataBigEndian²⁴⁶²
- Pixels : DimensionOrder²⁴⁶³
- Pixels : ID²⁴⁶⁴
- Pixels : PhysicalSizeX²⁴⁶⁵
- Pixels : PhysicalSizeY²⁴⁶⁶
- Pixels : PhysicalSizeZ²⁴⁶⁷

²⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁴⁵⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC²⁴⁶⁸
- Pixels : SizeT²⁴⁶⁹
- Pixels : SizeX²⁴⁷⁰
- Pixels : SizeY²⁴⁷¹
- Pixels : SizeZ²⁴⁷²
- Pixels : Type²⁴⁷³
- Plane : TheC²⁴⁷⁴
- Plane : TheT²⁴⁷⁵
- Plane : TheZ²⁴⁷⁶

Total supported: 21

Total unknown or missing: 452

18.2.70 MRWReader

This page lists supported metadata fields for the Bio-Formats Minolta MRW format reader.

These fields are from the [OME data model](#)²⁴⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Minolta MRW format reader:

- Channel : ID²⁴⁷⁸
- Channel : SamplesPerPixel²⁴⁷⁹
- Image : AcquisitionDate²⁴⁸⁰
- Image : ID²⁴⁸¹
- Image : Name²⁴⁸²

²⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁴⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Pixels : BinDataBigEndian²⁴⁸³
- Pixels : DimensionOrder²⁴⁸⁴
- Pixels : ID²⁴⁸⁵
- Pixels : SizeC²⁴⁸⁶
- Pixels : SizeT²⁴⁸⁷
- Pixels : SizeX²⁴⁸⁸
- Pixels : SizeY²⁴⁸⁹
- Pixels : SizeZ²⁴⁹⁰
- Pixels : Type²⁴⁹¹
- Plane : TheC²⁴⁹²
- Plane : TheT²⁴⁹³
- Plane : TheZ²⁴⁹⁴

Total supported: 17

Total unknown or missing: 456

18.2.71 MNGReader

This page lists supported metadata fields for the Bio-Formats Multiple Network Graphics format reader.

These fields are from the [OME data model](#)²⁴⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Multiple Network Graphics format reader:

- Channel : ID²⁴⁹⁶
- Channel : SamplesPerPixel²⁴⁹⁷

²⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁴⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate²⁴⁹⁸
- Image : ID²⁴⁹⁹
- Image : Name²⁵⁰⁰
- Pixels : BinDataBigEndian²⁵⁰¹
- Pixels : DimensionOrder²⁵⁰²
- Pixels : ID²⁵⁰³
- Pixels : SizeC²⁵⁰⁴
- Pixels : SizeT²⁵⁰⁵
- Pixels : SizeX²⁵⁰⁶
- Pixels : SizeY²⁵⁰⁷
- Pixels : SizeZ²⁵⁰⁸
- Pixels : Type²⁵⁰⁹
- Plane : TheC²⁵¹⁰
- Plane : TheT²⁵¹¹
- Plane : TheZ²⁵¹²

Total supported: 17

Total unknown or missing: 456

18.2.72 MolecularImagingReader

This page lists supported metadata fields for the Bio-Formats Molecular Imaging format reader.

These fields are from the [OME data model](#)²⁵¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

²⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁵¹³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Molecular Imaging format reader:

- Channel : ID²⁵¹⁴
- Channel : SamplesPerPixel²⁵¹⁵
- Image : AcquisitionDate²⁵¹⁶
- Image : ID²⁵¹⁷
- Image : Name²⁵¹⁸
- Pixels : BinDataBigEndian²⁵¹⁹
- Pixels : DimensionOrder²⁵²⁰
- Pixels : ID²⁵²¹
- Pixels : PhysicalSizeX²⁵²²
- Pixels : PhysicalSizeY²⁵²³
- Pixels : SizeC²⁵²⁴
- Pixels : SizeT²⁵²⁵
- Pixels : SizeX²⁵²⁶
- Pixels : SizeY²⁵²⁷
- Pixels : SizeZ²⁵²⁸
- Pixels : Type²⁵²⁹
- Plane : TheC²⁵³⁰
- Plane : TheT²⁵³¹
- Plane : TheZ²⁵³²

Total supported: 19

Total unknown or missing: 454

²⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.73 MRCReader

This page lists supported metadata fields for the Bio-Formats Medical Research Council format reader.

These fields are from the OME data model²⁵³³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Medical Research Council format reader:

- Channel : ID²⁵³⁴
- Channel : SamplesPerPixel²⁵³⁵
- Image : AcquisitionDate²⁵³⁶
- Image : ID²⁵³⁷
- Image : Name²⁵³⁸
- Pixels : BinDataBigEndian²⁵³⁹
- Pixels : DimensionOrder²⁵⁴⁰
- Pixels : ID²⁵⁴¹
- Pixels : PhysicalSizeX²⁵⁴²
- Pixels : PhysicalSizeY²⁵⁴³
- Pixels : PhysicalSizeZ²⁵⁴⁴
- Pixels : SizeC²⁵⁴⁵
- Pixels : SizeT²⁵⁴⁶
- Pixels : SizeX²⁵⁴⁷
- Pixels : SizeY²⁵⁴⁸
- Pixels : SizeZ²⁵⁴⁹

²⁵³³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type²⁵⁵⁰
- Plane : TheC²⁵⁵¹
- Plane : TheT²⁵⁵²
- Plane : TheZ²⁵⁵³

Total supported: 20

Total unknown or missing: 453

18.2.74 NikonReader

This page lists supported metadata fields for the Bio-Formats Nikon NEF format reader.

These fields are from the [OME data model](#)²⁵⁵⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon NEF format reader:

- Channel : ID²⁵⁵⁵
- Channel : SamplesPerPixel²⁵⁵⁶
- Image : AcquisitionDate²⁵⁵⁷
- Image : ID²⁵⁵⁸
- Image : Name²⁵⁵⁹
- Pixels : BinDataBigEndian²⁵⁶⁰
- Pixels : DimensionOrder²⁵⁶¹
- Pixels : ID²⁵⁶²
- Pixels : SizeC²⁵⁶³
- Pixels : SizeT²⁵⁶⁴

²⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁵⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁵⁶⁵
- Pixels : SizeY²⁵⁶⁶
- Pixels : SizeZ²⁵⁶⁷
- Pixels : Type²⁵⁶⁸
- Plane : TheC²⁵⁶⁹
- Plane : TheT²⁵⁷⁰
- Plane : TheZ²⁵⁷¹

Total supported: 17

Total unknown or missing: 456

18.2.75 NiftiReader

This page lists supported metadata fields for the Bio-Formats NIFTI format reader.

These fields are from the [OME data model](#)²⁵⁷². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats NIFTI format reader:

- Channel : ID²⁵⁷³
- Channel : SamplesPerPixel²⁵⁷⁴
- Image : AcquisitionDate²⁵⁷⁵
- Image : Description²⁵⁷⁶
- Image : ID²⁵⁷⁷
- Image : Name²⁵⁷⁸
- Pixels : BinDataBigEndian²⁵⁷⁹

²⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁵⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder²⁵⁸⁰
- Pixels : ID²⁵⁸¹
- Pixels : PhysicalSizeX²⁵⁸²
- Pixels : PhysicalSizeY²⁵⁸³
- Pixels : PhysicalSizeZ²⁵⁸⁴
- Pixels : SizeC²⁵⁸⁵
- Pixels : SizeT²⁵⁸⁶
- Pixels : SizeX²⁵⁸⁷
- Pixels : SizeY²⁵⁸⁸
- Pixels : SizeZ²⁵⁸⁹
- Pixels : TimeIncrement²⁵⁹⁰
- Pixels : Type²⁵⁹¹
- Plane : TheC²⁵⁹²
- Plane : TheT²⁵⁹³
- Plane : TheZ²⁵⁹⁴

Total supported: 22

Total unknown or missing: 451

18.2.76 NikonElementsTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon Elements TIFF format reader.

These fields are from the [OME data model](#)²⁵⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 48 of them (10%).
- Of those, Bio-Formats fully or partially converts 48 (100%).

²⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

²⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁵⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Nikon Elements TIFF format reader:

- Channel : AcquisitionMode²⁵⁹⁶
- Channel : EmissionWavelength²⁵⁹⁷
- Channel : ExcitationWavelength²⁵⁹⁸
- Channel : ID²⁵⁹⁹
- Channel : Name²⁶⁰⁰
- Channel : PinholeSize²⁶⁰¹
- Channel : SamplesPerPixel²⁶⁰²
- Detector : ID²⁶⁰³
- Detector : Model²⁶⁰⁴
- Detector : Type²⁶⁰⁵
- DetectorSettings : Binning²⁶⁰⁶
- DetectorSettings : Gain²⁶⁰⁷
- DetectorSettings : ID²⁶⁰⁸
- DetectorSettings : ReadOutRate²⁶⁰⁹
- DetectorSettings : Voltage²⁶¹⁰
- Image : AcquisitionDate²⁶¹¹
- Image : ID²⁶¹²
- Image : InstrumentRef²⁶¹³
- Image : Name²⁶¹⁴
- ImagingEnvironment : Temperature²⁶¹⁵
- Instrument : ID²⁶¹⁶

²⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode

²⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

²⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

²⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

²⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

²⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

- Objective : CalibratedMagnification²⁶¹⁷
- Objective : Correction²⁶¹⁸
- Objective : ID²⁶¹⁹
- Objective : Immersion²⁶²⁰
- Objective : LensNA²⁶²¹
- Objective : Model²⁶²²
- ObjectiveSettings : ID²⁶²³
- ObjectiveSettings : RefractiveIndex²⁶²⁴
- Pixels : BinDataBigEndian²⁶²⁵
- Pixels : DimensionOrder²⁶²⁶
- Pixels : ID²⁶²⁷
- Pixels : PhysicalSizeX²⁶²⁸
- Pixels : PhysicalSizeY²⁶²⁹
- Pixels : PhysicalSizeZ²⁶³⁰
- Pixels : SizeC²⁶³¹
- Pixels : SizeT²⁶³²
- Pixels : SizeX²⁶³³
- Pixels : SizeY²⁶³⁴
- Pixels : SizeZ²⁶³⁵
- Pixels : Type²⁶³⁶
- Plane : ExposureTime²⁶³⁷
- Plane : PositionX²⁶³⁸
- Plane : PositionY²⁶³⁹

²⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

²⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

- Plane : PositionZ²⁶⁴⁰
- Plane : TheC²⁶⁴¹
- Plane : TheT²⁶⁴²
- Plane : TheZ²⁶⁴³

Total supported: 48

Total unknown or missing: 425

18.2.77 NikonTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon TIFF format reader.

These fields are from the [OME data model](#)²⁶⁴⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 45 of them (9%).
- Of those, Bio-Formats fully or partially converts 45 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon TIFF format reader:

- Channel : EmissionWavelength²⁶⁴⁵
- Channel : ExcitationWavelength²⁶⁴⁶
- Channel : ID²⁶⁴⁷
- Channel : PinholeSize²⁶⁴⁸
- Channel : SamplesPerPixel²⁶⁴⁹
- Detector : Gain²⁶⁵⁰
- Detector : ID²⁶⁵¹
- Detector : Type²⁶⁵²
- Dichroic : ID²⁶⁵³
- Dichroic : Model²⁶⁵⁴

²⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

²⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁶⁴⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

²⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

²⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

²⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

- Filter : ID²⁶⁵⁵
- Filter : Model²⁶⁵⁶
- Image : AcquisitionDate²⁶⁵⁷
- Image : Description²⁶⁵⁸
- Image : ID²⁶⁵⁹
- Image : InstrumentRef²⁶⁶⁰
- Image : Name²⁶⁶¹
- Instrument : ID²⁶⁶²
- Laser : ID²⁶⁶³
- Laser : LaserMedium²⁶⁶⁴
- Laser : Model²⁶⁶⁵
- Laser : Type²⁶⁶⁶
- Laser : Wavelength²⁶⁶⁷
- Objective : Correction²⁶⁶⁸
- Objective : ID²⁶⁶⁹
- Objective : Immersion²⁶⁷⁰
- Objective : LensNA²⁶⁷¹
- Objective : NominalMagnification²⁶⁷²
- Objective : WorkingDistance²⁶⁷³
- ObjectiveSettings : ID²⁶⁷⁴
- Pixels : BinDataBigEndian²⁶⁷⁵
- Pixels : DimensionOrder²⁶⁷⁶
- Pixels : ID²⁶⁷⁷

²⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

²⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

²⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

²⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

²⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

²⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX²⁶⁷⁸
- Pixels : PhysicalSizeY²⁶⁷⁹
- Pixels : PhysicalSizeZ²⁶⁸⁰
- Pixels : SizeC²⁶⁸¹
- Pixels : SizeT²⁶⁸²
- Pixels : SizeX²⁶⁸³
- Pixels : SizeY²⁶⁸⁴
- Pixels : SizeZ²⁶⁸⁵
- Pixels : Type²⁶⁸⁶
- Plane : TheC²⁶⁸⁷
- Plane : TheT²⁶⁸⁸
- Plane : TheZ²⁶⁸⁹

Total supported: 45

Total unknown or missing: 428

18.2.78 NativeND2Reader

This page lists supported metadata fields for the Bio-Formats Nikon ND2 format reader.

These fields are from the [OME data model](#)²⁶⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 50 of them (10%).
- Of those, Bio-Formats fully or partially converts 50 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon ND2 format reader:

- Channel : AcquisitionMode²⁶⁹¹
- Channel : Color²⁶⁹²

²⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁶⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode

²⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

- Channel : EmissionWavelength²⁶⁹³
- Channel : ExcitationWavelength²⁶⁹⁴
- Channel : ID²⁶⁹⁵
- Channel : Name²⁶⁹⁶
- Channel : PinholeSize²⁶⁹⁷
- Channel : SamplesPerPixel²⁶⁹⁸
- Detector : ID²⁶⁹⁹
- Detector : Model²⁷⁰⁰
- Detector : Type²⁷⁰¹
- DetectorSettings : Binning²⁷⁰²
- DetectorSettings : Gain²⁷⁰³
- DetectorSettings : ID²⁷⁰⁴
- DetectorSettings : ReadOutRate²⁷⁰⁵
- DetectorSettings : Voltage²⁷⁰⁶
- Image : AcquisitionDate²⁷⁰⁷
- Image : ID²⁷⁰⁸
- Image : InstrumentRef²⁷⁰⁹
- Image : Name²⁷¹⁰
- ImagingEnvironment : Temperature²⁷¹¹
- Instrument : ID²⁷¹²
- Objective : CalibratedMagnification²⁷¹³
- Objective : Correction²⁷¹⁴
- Objective : ID²⁷¹⁵

²⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

²⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

²⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

²⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

²⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

²⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

²⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion²⁷¹⁶
- Objective : LensNA²⁷¹⁷
- Objective : Model²⁷¹⁸
- ObjectiveSettings : ID²⁷¹⁹
- ObjectiveSettings : RefractiveIndex²⁷²⁰
- Pixels : BinDataBigEndian²⁷²¹
- Pixels : DimensionOrder²⁷²²
- Pixels : ID²⁷²³
- Pixels : PhysicalSizeX²⁷²⁴
- Pixels : PhysicalSizeY²⁷²⁵
- Pixels : PhysicalSizeZ²⁷²⁶
- Pixels : SizeC²⁷²⁷
- Pixels : SizeT²⁷²⁸
- Pixels : SizeX²⁷²⁹
- Pixels : SizeY²⁷³⁰
- Pixels : SizeZ²⁷³¹
- Pixels : Type²⁷³²
- Plane : DeltaT²⁷³³
- Plane : ExposureTime²⁷³⁴
- Plane : PositionX²⁷³⁵
- Plane : PositionY²⁷³⁶
- Plane : PositionZ²⁷³⁷
- Plane : TheC²⁷³⁸

²⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

²⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT²⁷³⁹
- Plane : TheZ²⁷⁴⁰

Total supported: 50

Total unknown or missing: 423

18.2.79 NRRDReader

This page lists supported metadata fields for the Bio-Formats NRRD format reader.

These fields are from the OME data model²⁷⁴¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats NRRD format reader:

- Channel : ID²⁷⁴²
- Channel : SamplesPerPixel²⁷⁴³
- Image : AcquisitionDate²⁷⁴⁴
- Image : ID²⁷⁴⁵
- Image : Name²⁷⁴⁶
- Pixels : BinDataBigEndian²⁷⁴⁷
- Pixels : DimensionOrder²⁷⁴⁸
- Pixels : ID²⁷⁴⁹
- Pixels : PhysicalSizeX²⁷⁵⁰
- Pixels : PhysicalSizeY²⁷⁵¹
- Pixels : PhysicalSizeZ²⁷⁵²
- Pixels : SizeC²⁷⁵³

²⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁷⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²⁷⁵⁴
- Pixels : SizeX²⁷⁵⁵
- Pixels : SizeY²⁷⁵⁶
- Pixels : SizeZ²⁷⁵⁷
- Pixels : Type²⁷⁵⁸
- Plane : TheC²⁷⁵⁹
- Plane : TheT²⁷⁶⁰
- Plane : TheZ²⁷⁶¹

Total supported: 20

Total unknown or missing: 453

18.2.80 APLReader

This page lists supported metadata fields for the Bio-Formats Olympus APL format reader.

These fields are from the [OME data model](#)²⁷⁶². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus APL format reader:

- Channel : ID²⁷⁶³
- Channel : SamplesPerPixel²⁷⁶⁴
- Image : AcquisitionDate²⁷⁶⁵
- Image : ID²⁷⁶⁶
- Image : Name²⁷⁶⁷
- Pixels : BinDataBigEndian²⁷⁶⁸

²⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁷⁶²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder²⁷⁶⁹
- Pixels : ID²⁷⁷⁰
- Pixels : PhysicalSizeX²⁷⁷¹
- Pixels : PhysicalSizeY²⁷⁷²
- Pixels : SizeC²⁷⁷³
- Pixels : SizeT²⁷⁷⁴
- Pixels : SizeX²⁷⁷⁵
- Pixels : SizeY²⁷⁷⁶
- Pixels : SizeZ²⁷⁷⁷
- Pixels : Type²⁷⁷⁸
- Plane : TheC²⁷⁷⁹
- Plane : TheT²⁷⁸⁰
- Plane : TheZ²⁷⁸¹

Total supported: 19

Total unknown or missing: 454

18.2.81 FV1000Reader

This page lists supported metadata fields for the Bio-Formats Olympus FV1000 format reader.

These fields are from the [OME data model](#)²⁷⁸². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 107 of them (22%).
- Of those, Bio-Formats fully or partially converts 107 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus FV1000 format reader:

- Channel : EmissionWavelength²⁷⁸³

²⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁷⁸²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

- Channel : ExcitationWavelength²⁷⁸⁴
- Channel : ID²⁷⁸⁵
- Channel : IlluminationType²⁷⁸⁶
- Channel : LightSourceSettingsID²⁷⁸⁷
- Channel : LightSourceSettingsWavelength²⁷⁸⁸
- Channel : Name²⁷⁸⁹
- Channel : SamplesPerPixel²⁷⁹⁰
- Detector : Gain²⁷⁹¹
- Detector : ID²⁷⁹²
- Detector : Type²⁷⁹³
- Detector : Voltage²⁷⁹⁴
- DetectorSettings : ID²⁷⁹⁵
- Dichroic : ID²⁷⁹⁶
- Dichroic : Model²⁷⁹⁷
- Ellipse : FontSize²⁷⁹⁸
- Ellipse : ID²⁷⁹⁹
- Ellipse : RadiusX²⁸⁰⁰
- Ellipse : RadiusY²⁸⁰¹
- Ellipse : StrokeWidth²⁸⁰²
- Ellipse : TheT²⁸⁰³
- Ellipse : TheZ²⁸⁰⁴
- Ellipse : Transform²⁸⁰⁵
- Ellipse : X²⁸⁰⁶

²⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

²⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType

²⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID

²⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength

²⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

²⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage

²⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

²⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX

²⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY

²⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X

- [Ellipse](#) : [Y](#)²⁸⁰⁷
- [Filter](#) : [ID](#)²⁸⁰⁸
- [Filter](#) : [Model](#)²⁸⁰⁹
- [Image](#) : [AcquisitionDate](#)²⁸¹⁰
- [Image](#) : [ID](#)²⁸¹¹
- [Image](#) : [InstrumentRef](#)²⁸¹²
- [Image](#) : [Name](#)²⁸¹³
- [Image](#) : [ROIRef](#)²⁸¹⁴
- [Instrument](#) : [ID](#)²⁸¹⁵
- [Laser](#) : [ID](#)²⁸¹⁶
- [Laser](#) : [LaserMedium](#)²⁸¹⁷
- [Laser](#) : [Type](#)²⁸¹⁸
- [Laser](#) : [Wavelength](#)²⁸¹⁹
- [LightPath](#) : [DichroicRef](#)²⁸²⁰
- [LightPath](#) : [EmissionFilterRef](#)²⁸²¹
- [Line](#) : [FontSize](#)²⁸²²
- [Line](#) : [ID](#)²⁸²³
- [Line](#) : [StrokeWidth](#)²⁸²⁴
- [Line](#) : [TheT](#)²⁸²⁵
- [Line](#) : [TheZ](#)²⁸²⁶
- [Line](#) : [Transform](#)²⁸²⁷
- [Line](#) : [X1](#)²⁸²⁸
- [Line](#) : [X2](#)²⁸²⁹

²⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y

²⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

²⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

²⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

²⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

²⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

²⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

²⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

²⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

²⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1

²⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2

- Line : Y1²⁸³⁰
- Line : Y2²⁸³¹
- Objective : Correction²⁸³²
- Objective : ID²⁸³³
- Objective : Immersion²⁸³⁴
- Objective : LensNA²⁸³⁵
- Objective : Model²⁸³⁶
- Objective : NominalMagnification²⁸³⁷
- Objective : WorkingDistance²⁸³⁸
- ObjectiveSettings : ID²⁸³⁹
- Pixels : BinDataBigEndian²⁸⁴⁰
- Pixels : DimensionOrder²⁸⁴¹
- Pixels : ID²⁸⁴²
- Pixels : PhysicalSizeX²⁸⁴³
- Pixels : PhysicalSizeY²⁸⁴⁴
- Pixels : PhysicalSizeZ²⁸⁴⁵
- Pixels : SizeC²⁸⁴⁶
- Pixels : SizeT²⁸⁴⁷
- Pixels : SizeX²⁸⁴⁸
- Pixels : SizeY²⁸⁴⁹
- Pixels : SizeZ²⁸⁵⁰
- Pixels : TimeIncrement²⁸⁵¹
- Pixels : Type²⁸⁵²

²⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1

²⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2

²⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

²⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

²⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC²⁸⁵³
- Plane : TheT²⁸⁵⁴
- Plane : TheZ²⁸⁵⁵
- Point : FontSize²⁸⁵⁶
- Point : ID²⁸⁵⁷
- Point : StrokeWidth²⁸⁵⁸
- Point : TheT²⁸⁵⁹
- Point : TheZ²⁸⁶⁰
- Point : X²⁸⁶¹
- Point : Y²⁸⁶²
- Polygon : FontSize²⁸⁶³
- Polygon : ID²⁸⁶⁴
- Polygon : Points²⁸⁶⁵
- Polygon : StrokeWidth²⁸⁶⁶
- Polygon : TheT²⁸⁶⁷
- Polygon : TheZ²⁸⁶⁸
- Polygon : Transform²⁸⁶⁹
- Polyline : FontSize²⁸⁷⁰
- Polyline : ID²⁸⁷¹
- Polyline : Points²⁸⁷²
- Polyline : StrokeWidth²⁸⁷³
- Polyline : TheT²⁸⁷⁴
- Polyline : TheZ²⁸⁷⁵

²⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X

²⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y

²⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

²⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points

²⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

- Polyline : Transform²⁸⁷⁶
- ROI : ID²⁸⁷⁷
- Rectangle : FontSize²⁸⁷⁸
- Rectangle : Height²⁸⁷⁹
- Rectangle : ID²⁸⁸⁰
- Rectangle : StrokeWidth²⁸⁸¹
- Rectangle : TheT²⁸⁸²
- Rectangle : TheZ²⁸⁸³
- Rectangle : Transform²⁸⁸⁴
- Rectangle : Width²⁸⁸⁵
- Rectangle : X²⁸⁸⁶
- Rectangle : Y²⁸⁸⁷
- TransmittanceRange : CutIn²⁸⁸⁸
- TransmittanceRange : CutOut²⁸⁸⁹

Total supported: 107

Total unknown or missing: 366

18.2.82 FluoviewReader

This page lists supported metadata fields for the Bio-Formats Olympus Fluoview/ABD TIFF format reader.

These fields are from the [OME data model](#)²⁸⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 47 of them (9%).
- Of those, Bio-Formats fully or partially converts 47 (100%).

²⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

²⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

²⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

²⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

²⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

²⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT

²⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

²⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

²⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

²⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

²⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

²⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

²⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

²⁸⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Olympus Fluoview/ABD TIFF format reader:

- Channel : ID²⁸⁹¹
- Channel : Name²⁸⁹²
- Channel : SamplesPerPixel²⁸⁹³
- Detector : ID²⁸⁹⁴
- Detector : Manufacturer²⁸⁹⁵
- Detector : Model²⁸⁹⁶
- Detector : Type²⁸⁹⁷
- DetectorSettings : Gain²⁸⁹⁸
- DetectorSettings : ID²⁸⁹⁹
- DetectorSettings : Offset²⁹⁰⁰
- DetectorSettings : ReadOutRate²⁹⁰¹
- DetectorSettings : Voltage²⁹⁰²
- Image : AcquisitionDate²⁹⁰³
- Image : Description²⁹⁰⁴
- Image : ID²⁹⁰⁵
- Image : InstrumentRef²⁹⁰⁶
- Image : Name²⁹⁰⁷
- ImagingEnvironment : Temperature²⁹⁰⁸
- Instrument : ID²⁹⁰⁹
- Objective : CalibratedMagnification²⁹¹⁰
- Objective : Correction²⁹¹¹

²⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

²⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

²⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

²⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage

²⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

²⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

²⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

- Objective : ID²⁹¹²
- Objective : Immersion²⁹¹³
- Objective : LensNA²⁹¹⁴
- Objective : Model²⁹¹⁵
- ObjectiveSettings : ID²⁹¹⁶
- Pixels : BinDataBigEndian²⁹¹⁷
- Pixels : DimensionOrder²⁹¹⁸
- Pixels : ID²⁹¹⁹
- Pixels : PhysicalSizeX²⁹²⁰
- Pixels : PhysicalSizeY²⁹²¹
- Pixels : PhysicalSizeZ²⁹²²
- Pixels : SizeC²⁹²³
- Pixels : SizeT²⁹²⁴
- Pixels : SizeX²⁹²⁵
- Pixels : SizeY²⁹²⁶
- Pixels : SizeZ²⁹²⁷
- Pixels : TimeIncrement²⁹²⁸
- Pixels : Type²⁹²⁹
- Plane : DeltaT²⁹³⁰
- Plane : ExposureTime²⁹³¹
- Plane : PositionX²⁹³²
- Plane : PositionY²⁹³³
- Plane : PositionZ²⁹³⁴

²⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

²⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

²⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC²⁹³⁵
- Plane : TheT²⁹³⁶
- Plane : TheZ²⁹³⁷

Total supported: 47

Total unknown or missing: 426

18.2.83 ScanReader

This page lists supported metadata fields for the Bio-Formats Olympus ScanR format reader.

These fields are from the [OME data model](#)²⁹³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus ScanR format reader:

- Channel : ID²⁹³⁹
- Channel : Name²⁹⁴⁰
- Channel : SamplesPerPixel²⁹⁴¹
- Image : AcquisitionDate²⁹⁴²
- Image : ID²⁹⁴³
- Image : Name²⁹⁴⁴
- Pixels : BinDataBigEndian²⁹⁴⁵
- Pixels : DimensionOrder²⁹⁴⁶
- Pixels : ID²⁹⁴⁷
- Pixels : PhysicalSizeX²⁹⁴⁸
- Pixels : PhysicalSizeY²⁹⁴⁹

²⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁹³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

²⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SizeC²⁹⁵⁰
- Pixels : SizeT²⁹⁵¹
- Pixels : SizeX²⁹⁵²
- Pixels : SizeY²⁹⁵³
- Pixels : SizeZ²⁹⁵⁴
- Pixels : Type²⁹⁵⁵
- Plane : DeltaT²⁹⁵⁶
- Plane : ExposureTime²⁹⁵⁷
- Plane : PositionX²⁹⁵⁸
- Plane : PositionY²⁹⁵⁹
- Plane : TheC²⁹⁶⁰
- Plane : TheT²⁹⁶¹
- Plane : TheZ²⁹⁶²
- Plate : ColumnNamingConvention²⁹⁶³
- Plate : Columns²⁹⁶⁴
- Plate : ID²⁹⁶⁵
- Plate : Name²⁹⁶⁶
- Plate : RowNamingConvention²⁹⁶⁷
- Plate : Rows²⁹⁶⁸
- PlateAcquisition : ID²⁹⁶⁹
- PlateAcquisition : MaximumFieldCount²⁹⁷⁰
- PlateAcquisition : WellSampleRef²⁹⁷¹
- Well : Column²⁹⁷²

²⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

²⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

²⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

²⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

²⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

²⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

²⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

²⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

²⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

²⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

²⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

²⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

²⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

²⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention

²⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns

²⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

²⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

²⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention

²⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows

²⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

²⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

²⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

²⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

- Well : ID²⁹⁷³
- Well : Row²⁹⁷⁴
- WellSample : ID²⁹⁷⁵
- WellSample : ImageRef²⁹⁷⁶
- WellSample : Index²⁹⁷⁷
- WellSample : PositionX²⁹⁷⁸
- WellSample : PositionY²⁹⁷⁹

Total supported: 41

Total unknown or missing: 432

18.2.84 SISReader

This page lists supported metadata fields for the Bio-Formats Olympus SIS TIFF format reader.

These fields are from the [OME data model](#)²⁹⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 31 of them (6%).
- Of those, Bio-Formats fully or partially converts 31 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus SIS TIFF format reader:

- Channel : ID²⁹⁸¹
- Channel : Name²⁹⁸²
- Channel : SamplesPerPixel²⁹⁸³
- Detector : ID²⁹⁸⁴
- Detector : Model²⁹⁸⁵
- Detector : Type²⁹⁸⁶
- DetectorSettings : ID²⁹⁸⁷

²⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

²⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

²⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

²⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

²⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

²⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX

²⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY

²⁹⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

²⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

²⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

²⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

²⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

- Image : AcquisitionDate²⁹⁸⁸
- Image : ID²⁹⁸⁹
- Image : InstrumentRef²⁹⁹⁰
- Image : Name²⁹⁹¹
- Instrument : ID²⁹⁹²
- Objective : Correction²⁹⁹³
- Objective : ID²⁹⁹⁴
- Objective : Immersion²⁹⁹⁵
- Objective : NominalMagnification²⁹⁹⁶
- ObjectiveSettings : ID²⁹⁹⁷
- Pixels : BinDataBigEndian²⁹⁹⁸
- Pixels : DimensionOrder²⁹⁹⁹
- Pixels : ID³⁰⁰⁰
- Pixels : PhysicalSizeX³⁰⁰¹
- Pixels : PhysicalSizeY³⁰⁰²
- Pixels : SizeC³⁰⁰³
- Pixels : SizeT³⁰⁰⁴
- Pixels : SizeX³⁰⁰⁵
- Pixels : SizeY³⁰⁰⁶
- Pixels : SizeZ³⁰⁰⁷
- Pixels : Type³⁰⁰⁸
- Plane : TheC³⁰⁰⁹
- Plane : TheT³⁰¹⁰

²⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

²⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

²⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

²⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

²⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

²⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

²⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

²⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

²⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

²⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

²⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁰¹¹

Total supported: 31

Total unknown or missing: 442

18.2.85 OMETiffReader

This page lists supported metadata fields for the Bio-Formats OME-TIFF format reader.

These fields are from the [OME data model](#)³⁰¹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats OME-TIFF format reader:

- Channel : ID³⁰¹³
- Channel : SamplesPerPixel³⁰¹⁴
- Image : AcquisitionDate³⁰¹⁵
- Image : ID³⁰¹⁶
- Image : Name³⁰¹⁷
- Pixels : BinDataBigEndian³⁰¹⁸
- Pixels : DimensionOrder³⁰¹⁹
- Pixels : ID³⁰²⁰
- Pixels : SizeC³⁰²¹
- Pixels : SizeT³⁰²²
- Pixels : SizeX³⁰²³
- Pixels : SizeY³⁰²⁴
- Pixels : SizeZ³⁰²⁵

³⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁰¹²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³⁰²⁶
- Plane : TheC³⁰²⁷
- Plane : TheT³⁰²⁸
- Plane : TheZ³⁰²⁹

Total supported: 17

Total unknown or missing: 456

18.2.86 OMEXMLReader

This page lists supported metadata fields for the Bio-Formats OME-XML format reader.

These fields are from the [OME data model](#)³⁰³⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats OME-XML format reader:

- Channel : ID³⁰³¹
- Channel : SamplesPerPixel³⁰³²
- Image : AcquisitionDate³⁰³³
- Image : ID³⁰³⁴
- Image : Name³⁰³⁵
- Pixels : BinDataBigEndian³⁰³⁶
- Pixels : DimensionOrder³⁰³⁷
- Pixels : ID³⁰³⁸
- Pixels : SizeC³⁰³⁹
- Pixels : SizeT³⁰⁴⁰

³⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁰³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁰⁴¹
- Pixels : SizeY³⁰⁴²
- Pixels : SizeZ³⁰⁴³
- Pixels : Type³⁰⁴⁴
- Plane : TheC³⁰⁴⁵
- Plane : TheT³⁰⁴⁶
- Plane : TheZ³⁰⁴⁷

Total supported: 17

Total unknown or missing: 456

18.2.87 OxfordInstrumentsReader

This page lists supported metadata fields for the Bio-Formats Oxford Instruments format reader.

These fields are from the [OME data model](#)³⁰⁴⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Oxford Instruments format reader:

- Channel : ID³⁰⁴⁹
- Channel : SamplesPerPixel³⁰⁵⁰
- Image : AcquisitionDate³⁰⁵¹
- Image : Description³⁰⁵²
- Image : ID³⁰⁵³
- Image : Name³⁰⁵⁴
- Pixels : BinDataBigEndian³⁰⁵⁵

³⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁰⁴⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder³⁰⁵⁶
- Pixels : ID³⁰⁵⁷
- Pixels : PhysicalSizeX³⁰⁵⁸
- Pixels : PhysicalSizeY³⁰⁵⁹
- Pixels : SizeC³⁰⁶⁰
- Pixels : SizeT³⁰⁶¹
- Pixels : SizeX³⁰⁶²
- Pixels : SizeY³⁰⁶³
- Pixels : SizeZ³⁰⁶⁴
- Pixels : Type³⁰⁶⁵
- Plane : TheC³⁰⁶⁶
- Plane : TheT³⁰⁶⁷
- Plane : TheZ³⁰⁶⁸

Total supported: 20

Total unknown or missing: 453

18.2.88 PCXReader

This page lists supported metadata fields for the Bio-Formats PCX format reader.

These fields are from the [OME data model](#)³⁰⁶⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats PCX format reader:

- Channel : ID³⁰⁷⁰

³⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁰⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel³⁰⁷¹
- Image : AcquisitionDate³⁰⁷²
- Image : ID³⁰⁷³
- Image : Name³⁰⁷⁴
- Pixels : BinDataBigEndian³⁰⁷⁵
- Pixels : DimensionOrder³⁰⁷⁶
- Pixels : ID³⁰⁷⁷
- Pixels : SizeC³⁰⁷⁸
- Pixels : SizeT³⁰⁷⁹
- Pixels : SizeX³⁰⁸⁰
- Pixels : SizeY³⁰⁸¹
- Pixels : SizeZ³⁰⁸²
- Pixels : Type³⁰⁸³
- Plane : TheC³⁰⁸⁴
- Plane : TheT³⁰⁸⁵
- Plane : TheZ³⁰⁸⁶

Total supported: 17

Total unknown or missing: 456

18.2.89 PDSReader

This page lists supported metadata fields for the Bio-Formats Perkin Elmer Densitometer format reader.

These fields are from the [OME data model](#)³⁰⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

³⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁰⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Perkin Elmer Densitometer format reader:

- Channel : ID³⁰⁸⁸
- Channel : SamplesPerPixel³⁰⁸⁹
- Image : AcquisitionDate³⁰⁹⁰
- Image : ID³⁰⁹¹
- Image : Name³⁰⁹²
- Pixels : BinDataBigEndian³⁰⁹³
- Pixels : DimensionOrder³⁰⁹⁴
- Pixels : ID³⁰⁹⁵
- Pixels : PhysicalSizeX³⁰⁹⁶
- Pixels : PhysicalSizeY³⁰⁹⁷
- Pixels : SizeC³⁰⁹⁸
- Pixels : SizeT³⁰⁹⁹
- Pixels : SizeX³¹⁰⁰
- Pixels : SizeY³¹⁰¹
- Pixels : SizeZ³¹⁰²
- Pixels : Type³¹⁰³
- Plane : PositionX³¹⁰⁴
- Plane : PositionY³¹⁰⁵
- Plane : TheC³¹⁰⁶
- Plane : TheT³¹⁰⁷
- Plane : TheZ³¹⁰⁸

³⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

³¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 21

Total unknown or missing: 452

18.2.90 OperettaReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer Operetta format reader.

These fields are from the [OME data model](#)³¹⁰⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats PerkinElmer Operetta format reader:

- Channel : ID³¹¹⁰
- Channel : Name³¹¹¹
- Channel : SamplesPerPixel³¹¹²
- Experimenter : ID³¹¹³
- Experimenter : LastName³¹¹⁴
- Image : AcquisitionDate³¹¹⁵
- Image : ExperimenterRef³¹¹⁶
- Image : ID³¹¹⁷
- Image : Name³¹¹⁸
- Pixels : BinDataBigEndian³¹¹⁹
- Pixels : DimensionOrder³¹²⁰
- Pixels : ID³¹²¹
- Pixels : PhysicalSizeX³¹²²
- Pixels : PhysicalSizeY³¹²³

³¹⁰⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

³¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

³¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

³¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

³¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SizeC³¹²⁴
- Pixels : SizeT³¹²⁵
- Pixels : SizeX³¹²⁶
- Pixels : SizeY³¹²⁷
- Pixels : SizeZ³¹²⁸
- Pixels : Type³¹²⁹
- Plane : PositionX³¹³⁰
- Plane : PositionY³¹³¹
- Plane : PositionZ³¹³²
- Plane : TheC³¹³³
- Plane : TheT³¹³⁴
- Plane : TheZ³¹³⁵
- Plate : Columns³¹³⁶
- Plate : Description³¹³⁷
- Plate : ExternalIdentifier³¹³⁸
- Plate : ID³¹³⁹
- Plate : Name³¹⁴⁰
- Plate : Rows³¹⁴¹
- PlateAcquisition : ID³¹⁴²
- PlateAcquisition : MaximumFieldCount³¹⁴³
- PlateAcquisition : WellSampleRef³¹⁴⁴
- Well : Column³¹⁴⁵
- Well : ID³¹⁴⁶

³¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

³¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

³¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns

³¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description

³¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier

³¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

³¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name

³¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows

³¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID

³¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

³¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID

³¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

³¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

- Well : Row³¹⁴⁷
- WellSample : ID³¹⁴⁸
- WellSample : ImageRef³¹⁴⁹
- WellSample : Index³¹⁵⁰

Total supported: 41

Total unknown or missing: 432

18.2.91 PerkinElmerReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer format reader.

These fields are from the [OME data model](#)³¹⁵¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 28 of them (5%).
- Of those, Bio-Formats fully or partially converts 28 (100%).

Supported fields

These fields are fully supported by the Bio-Formats PerkinElmer format reader:

- Channel : EmissionWavelength³¹⁵²
- Channel : ExcitationWavelength³¹⁵³
- Channel : ID³¹⁵⁴
- Channel : SamplesPerPixel³¹⁵⁵
- Image : AcquisitionDate³¹⁵⁶
- Image : ID³¹⁵⁷
- Image : InstrumentRef³¹⁵⁸
- Image : Name³¹⁵⁹
- Instrument : ID³¹⁶⁰
- Pixels : BinDataBigEndian³¹⁶¹

³¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

³¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID

³¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID

³¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

³¹⁵¹<http://www.openmicroscopy.org/site/support/ome-model/>

³¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

³¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

³¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

³¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder³¹⁶²
- Pixels : ID³¹⁶³
- Pixels : PhysicalSizeX³¹⁶⁴
- Pixels : PhysicalSizeY³¹⁶⁵
- Pixels : SizeC³¹⁶⁶
- Pixels : SizeT³¹⁶⁷
- Pixels : SizeX³¹⁶⁸
- Pixels : SizeY³¹⁶⁹
- Pixels : SizeZ³¹⁷⁰
- Pixels : Type³¹⁷¹
- Plane : DeltaT³¹⁷²
- Plane : ExposureTime³¹⁷³
- Plane : PositionX³¹⁷⁴
- Plane : PositionY³¹⁷⁵
- Plane : PositionZ³¹⁷⁶
- Plane : TheC³¹⁷⁷
- Plane : TheT³¹⁷⁸
- Plane : TheZ³¹⁷⁹

Total supported: 28

Total unknown or missing: 445

18.2.92 PGMReader

This page lists supported metadata fields for the Bio-Formats Portable Gray Map format reader.

These fields are from the [OME data model](#)³¹⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

³¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

³¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

³¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

³¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

³¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³¹⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields**These fields are fully supported by the Bio-Formats Portable Gray Map format reader:**

- Channel : ID³¹⁸¹
- Channel : SamplesPerPixel³¹⁸²
- Image : AcquisitionDate³¹⁸³
- Image : ID³¹⁸⁴
- Image : Name³¹⁸⁵
- Pixels : BinDataBigEndian³¹⁸⁶
- Pixels : DimensionOrder³¹⁸⁷
- Pixels : ID³¹⁸⁸
- Pixels : SizeC³¹⁸⁹
- Pixels : SizeT³¹⁹⁰
- Pixels : SizeX³¹⁹¹
- Pixels : SizeY³¹⁹²
- Pixels : SizeZ³¹⁹³
- Pixels : Type³¹⁹⁴
- Plane : TheC³¹⁹⁵
- Plane : TheT³¹⁹⁶
- Plane : TheZ³¹⁹⁷

Total supported: 17**Total unknown or missing: 456**³¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID³¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel³¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate³¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID³¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name³¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian³¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder³¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID³¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC³¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT³¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX³¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY³¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ³¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type³¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC³¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT³¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.93 PSDReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop format reader.

These fields are from the [OME data model](#)³¹⁹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Adobe Photoshop format reader:

- Channel : ID³¹⁹⁹
- Channel : SamplesPerPixel³²⁰⁰
- Image : AcquisitionDate³²⁰¹
- Image : ID³²⁰²
- Image : Name³²⁰³
- Pixels : BinDataBigEndian³²⁰⁴
- Pixels : DimensionOrder³²⁰⁵
- Pixels : ID³²⁰⁶
- Pixels : SizeC³²⁰⁷
- Pixels : SizeT³²⁰⁸
- Pixels : SizeX³²⁰⁹
- Pixels : SizeY³²¹⁰
- Pixels : SizeZ³²¹¹
- Pixels : Type³²¹²
- Plane : TheC³²¹³
- Plane : TheT³²¹⁴

³¹⁹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³²¹⁵

Total supported: 17

Total unknown or missing: 456

18.2.94 PhotoshopTiffReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop TIFF format reader.

These fields are from the [OME data model](#)³²¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Adobe Photoshop TIFF format reader:

- Channel : ID³²¹⁷
- Channel : SamplesPerPixel³²¹⁸
- Image : AcquisitionDate³²¹⁹
- Image : ID³²²⁰
- Image : Name³²²¹
- Pixels : BinDataBigEndian³²²²
- Pixels : DimensionOrder³²²³
- Pixels : ID³²²⁴
- Pixels : SizeC³²²⁵
- Pixels : SizeT³²²⁶
- Pixels : SizeX³²²⁷
- Pixels : SizeY³²²⁸
- Pixels : SizeZ³²²⁹

³²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³²¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³²³⁰
- Plane : TheC³²³¹
- Plane : TheT³²³²
- Plane : TheZ³²³³

Total supported: 17

Total unknown or missing: 456

18.2.95 PictReader

This page lists supported metadata fields for the Bio-Formats PICT format reader.

These fields are from the [OME data model](#)³²³⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats PICT format reader:

- Channel : ID³²³⁵
- Channel : SamplesPerPixel³²³⁶
- Image : AcquisitionDate³²³⁷
- Image : ID³²³⁸
- Image : Name³²³⁹
- Pixels : BinDataBigEndian³²⁴⁰
- Pixels : DimensionOrder³²⁴¹
- Pixels : ID³²⁴²
- Pixels : SizeC³²⁴³
- Pixels : SizeT³²⁴⁴

³²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³²³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³²⁴⁵
- Pixels : SizeY³²⁴⁶
- Pixels : SizeZ³²⁴⁷
- Pixels : Type³²⁴⁸
- Plane : TheC³²⁴⁹
- Plane : TheT³²⁵⁰
- Plane : TheZ³²⁵¹

Total supported: 17

Total unknown or missing: 456

18.2.96 APNGReader

This page lists supported metadata fields for the Bio-Formats Animated PNG format reader.

These fields are from the [OME data model](#)³²⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Animated PNG format reader:

- Channel : ID³²⁵³
- Channel : SamplesPerPixel³²⁵⁴
- Image : AcquisitionDate³²⁵⁵
- Image : ID³²⁵⁶
- Image : Name³²⁵⁷
- Pixels : BinDataBigEndian³²⁵⁸
- Pixels : DimensionOrder³²⁵⁹

³²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³²⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID³²⁶⁰
- Pixels : SizeC³²⁶¹
- Pixels : SizeT³²⁶²
- Pixels : SizeX³²⁶³
- Pixels : SizeY³²⁶⁴
- Pixels : SizeZ³²⁶⁵
- Pixels : Type³²⁶⁶
- Plane : TheC³²⁶⁷
- Plane : TheT³²⁶⁸
- Plane : TheZ³²⁶⁹

Total supported: 17

Total unknown or missing: 456

18.2.97 PrairieReader

This page lists supported metadata fields for the Bio-Formats Prairie TIFF format reader.

These fields are from the [OME data model](#)³²⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 43 of them (9%).
- Of those, Bio-Formats fully or partially converts 43 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Prairie TIFF format reader:

- Channel : ID³²⁷¹
- Channel : Name³²⁷²
- Channel : SamplesPerPixel³²⁷³
- Detector : ID³²⁷⁴

³²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³²⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

³²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

- Detector : Type³²⁷⁵
- Detector : Zoom³²⁷⁶
- DetectorSettings : Gain³²⁷⁷
- DetectorSettings : ID³²⁷⁸
- DetectorSettings : Offset³²⁷⁹
- Image : AcquisitionDate³²⁸⁰
- Image : ID³²⁸¹
- Image : InstrumentRef³²⁸²
- Image : Name³²⁸³
- Instrument : ID³²⁸⁴
- Laser : ID³²⁸⁵
- Laser : Power³²⁸⁶
- Microscope : Model³²⁸⁷
- Objective : Correction³²⁸⁸
- Objective : ID³²⁸⁹
- Objective : Immersion³²⁹⁰
- Objective : LensNA³²⁹¹
- Objective : Manufacturer³²⁹²
- Objective : NominalMagnification³²⁹³
- ObjectiveSettings : ID³²⁹⁴
- Pixels : BinDataBigEndian³²⁹⁵
- Pixels : DimensionOrder³²⁹⁶
- Pixels : ID³²⁹⁷

³²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

³²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom

³²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

³²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

³²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset

³²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

³²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

³²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

³²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

³²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

³²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

³²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

³²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

³²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

³²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX³²⁹⁸
- Pixels : PhysicalSizeY³²⁹⁹
- Pixels : SizeC³³⁰⁰
- Pixels : SizeT³³⁰¹
- Pixels : SizeX³³⁰²
- Pixels : SizeY³³⁰³
- Pixels : SizeZ³³⁰⁴
- Pixels : TimeIncrement³³⁰⁵
- Pixels : Type³³⁰⁶
- Plane : DeltaT³³⁰⁷
- Plane : PositionX³³⁰⁸
- Plane : PositionY³³⁰⁹
- Plane : PositionZ³³¹⁰
- Plane : TheC³³¹¹
- Plane : TheT³³¹²
- Plane : TheZ³³¹³

Total supported: 43

Total unknown or missing: 430

18.2.98 QuesantReader

This page lists supported metadata fields for the Bio-Formats Quesant AFM format reader.

These fields are from the [OME data model](#)³³¹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

³²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

³³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

³³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

³³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

³³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³³¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Quesant AFM format reader:

- Channel : ID³³¹⁵
- Channel : SamplesPerPixel³³¹⁶
- Image : AcquisitionDate³³¹⁷
- Image : Description³³¹⁸
- Image : ID³³¹⁹
- Image : Name³³²⁰
- Pixels : BinDataBigEndian³³²¹
- Pixels : DimensionOrder³³²²
- Pixels : ID³³²³
- Pixels : PhysicalSizeX³³²⁴
- Pixels : PhysicalSizeY³³²⁵
- Pixels : SizeC³³²⁶
- Pixels : SizeT³³²⁷
- Pixels : SizeX³³²⁸
- Pixels : SizeY³³²⁹
- Pixels : SizeZ³³³⁰
- Pixels : Type³³³¹
- Plane : TheC³³³²
- Plane : TheT³³³³
- Plane : TheZ³³³⁴

Total supported: 20

Total unknown or missing: 453

-
- ³³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
 - ³³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
 - ³³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
 - ³³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
 - ³³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
 - ³³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
 - ³³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
 - ³³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
 - ³³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
 - ³³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ³³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ³³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
 - ³³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
 - ³³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
 - ³³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
 - ³³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
 - ³³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
 - ³³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
 - ³³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
 - ³³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.99 NativeQTReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the OME data model³³³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats QuickTime format reader:

- Channel : ID³³³⁶
- Channel : SamplesPerPixel³³³⁷
- Image : AcquisitionDate³³³⁸
- Image : ID³³³⁹
- Image : Name³³⁴⁰
- Pixels : BinDataBigEndian³³⁴¹
- Pixels : DimensionOrder³³⁴²
- Pixels : ID³³⁴³
- Pixels : SizeC³³⁴⁴
- Pixels : SizeT³³⁴⁵
- Pixels : SizeX³³⁴⁶
- Pixels : SizeY³³⁴⁷
- Pixels : SizeZ³³⁴⁸
- Pixels : Type³³⁴⁹
- Plane : TheC³³⁵⁰
- Plane : TheT³³⁵¹

³³³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³³⁵²

Total supported: 17

Total unknown or missing: 456

18.2.100 RHKReader

This page lists supported metadata fields for the Bio-Formats RHK Technologies format reader.

These fields are from the [OME data model](#)³³⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats RHK Technologies format reader:

- Channel : ID³³⁵⁴
- Channel : SamplesPerPixel³³⁵⁵
- Image : AcquisitionDate³³⁵⁶
- Image : Description³³⁵⁷
- Image : ID³³⁵⁸
- Image : Name³³⁵⁹
- Pixels : BinDataBigEndian³³⁶⁰
- Pixels : DimensionOrder³³⁶¹
- Pixels : ID³³⁶²
- Pixels : PhysicalSizeX³³⁶³
- Pixels : PhysicalSizeY³³⁶⁴
- Pixels : SizeC³³⁶⁵
- Pixels : SizeT³³⁶⁶

³³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³³⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³³⁶⁷
- Pixels : SizeY³³⁶⁸
- Pixels : SizeZ³³⁶⁹
- Pixels : Type³³⁷⁰
- Plane : TheC³³⁷¹
- Plane : TheT³³⁷²
- Plane : TheZ³³⁷³

Total supported: 20

Total unknown or missing: 453

18.2.101 SBIGReader

This page lists supported metadata fields for the Bio-Formats SBIG format reader.

These fields are from the [OME data model](#)³³⁷⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SBIG format reader:

- Channel : ID³³⁷⁵
- Channel : SamplesPerPixel³³⁷⁶
- Image : AcquisitionDate³³⁷⁷
- Image : Description³³⁷⁸
- Image : ID³³⁷⁹
- Image : Name³³⁸⁰
- Pixels : BinDataBigEndian³³⁸¹

³³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³³⁷⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder³³⁸²
- Pixels : ID³³⁸³
- Pixels : PhysicalSizeX³³⁸⁴
- Pixels : PhysicalSizeY³³⁸⁵
- Pixels : SizeC³³⁸⁶
- Pixels : SizeT³³⁸⁷
- Pixels : SizeX³³⁸⁸
- Pixels : SizeY³³⁸⁹
- Pixels : SizeZ³³⁹⁰
- Pixels : Type³³⁹¹
- Plane : TheC³³⁹²
- Plane : TheT³³⁹³
- Plane : TheZ³³⁹⁴

Total supported: 20

Total unknown or missing: 453

18.2.102 SeikoReader

This page lists supported metadata fields for the Bio-Formats Seiko format reader.

These fields are from the [OME data model](#)³³⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Seiko format reader:

- Channel : ID³³⁹⁶

³³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³³⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel³³⁹⁷
- Image : AcquisitionDate³³⁹⁸
- Image : Description³³⁹⁹
- Image : ID³⁴⁰⁰
- Image : Name³⁴⁰¹
- Pixels : BinDataBigEndian³⁴⁰²
- Pixels : DimensionOrder³⁴⁰³
- Pixels : ID³⁴⁰⁴
- Pixels : PhysicalSizeX³⁴⁰⁵
- Pixels : PhysicalSizeY³⁴⁰⁶
- Pixels : SizeC³⁴⁰⁷
- Pixels : SizeT³⁴⁰⁸
- Pixels : SizeX³⁴⁰⁹
- Pixels : SizeY³⁴¹⁰
- Pixels : SizeZ³⁴¹¹
- Pixels : Type³⁴¹²
- Plane : TheC³⁴¹³
- Plane : TheT³⁴¹⁴
- Plane : TheZ³⁴¹⁵

Total supported: 20

Total unknown or missing: 453

18.2.103 PCIReader

This page lists supported metadata fields for the Bio-Formats Complex Simple-PCI format reader.

- ³³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ³³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ³³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
- ³⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ³⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ³⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ³⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ³⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
- ³⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
- ³⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ³⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ³⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ³⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ³⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ³⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ³⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ³⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ³⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model³⁴¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 27 of them (5%).
- Of those, Bio-Formats fully or partially converts 27 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Compix Simple-PCI format reader:

- Channel : ID³⁴¹⁷
- Channel : SamplesPerPixel³⁴¹⁸
- Detector : ID³⁴¹⁹
- Detector : Type³⁴²⁰
- DetectorSettings : Binning³⁴²¹
- DetectorSettings : ID³⁴²²
- Image : AcquisitionDate³⁴²³
- Image : ID³⁴²⁴
- Image : InstrumentRef³⁴²⁵
- Image : Name³⁴²⁶
- Instrument : ID³⁴²⁷
- Pixels : BinDataBigEndian³⁴²⁸
- Pixels : DimensionOrder³⁴²⁹
- Pixels : ID³⁴³⁰
- Pixels : PhysicalSizeX³⁴³¹
- Pixels : PhysicalSizeY³⁴³²
- Pixels : SizeC³⁴³³

³⁴¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

³⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

³⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

³⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

³⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

³⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT³⁴³⁴
- Pixels : SizeX³⁴³⁵
- Pixels : SizeY³⁴³⁶
- Pixels : SizeZ³⁴³⁷
- Pixels : TimeIncrement³⁴³⁸
- Pixels : Type³⁴³⁹
- Plane : DeltaT³⁴⁴⁰
- Plane : TheC³⁴⁴¹
- Plane : TheT³⁴⁴²
- Plane : TheZ³⁴⁴³

Total supported: 27

Total unknown or missing: 446

18.2.104 SimplePCITiffReader

This page lists supported metadata fields for the Bio-Formats SimplePCI TIFF format reader.

These fields are from the [OME data model](#)³⁴⁴⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 31 of them (6%).
- Of those, Bio-Formats fully or partially converts 31 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SimplePCI TIFF format reader:

- Channel : ID³⁴⁴⁵
- Channel : SamplesPerPixel³⁴⁴⁶
- Detector : ID³⁴⁴⁷
- Detector : Model³⁴⁴⁸

³⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

³⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

³⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁴⁴⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

³⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

- Detector : Type³⁴⁴⁹
- DetectorSettings : Binning³⁴⁵⁰
- DetectorSettings : ID³⁴⁵¹
- Image : AcquisitionDate³⁴⁵²
- Image : Description³⁴⁵³
- Image : ID³⁴⁵⁴
- Image : InstrumentRef³⁴⁵⁵
- Image : Name³⁴⁵⁶
- Instrument : ID³⁴⁵⁷
- Objective : ID³⁴⁵⁸
- Objective : Immersion³⁴⁵⁹
- Objective : NominalMagnification³⁴⁶⁰
- Pixels : BinDataBigEndian³⁴⁶¹
- Pixels : DimensionOrder³⁴⁶²
- Pixels : ID³⁴⁶³
- Pixels : PhysicalSizeX³⁴⁶⁴
- Pixels : PhysicalSizeY³⁴⁶⁵
- Pixels : SizeC³⁴⁶⁶
- Pixels : SizeT³⁴⁶⁷
- Pixels : SizeX³⁴⁶⁸
- Pixels : SizeY³⁴⁶⁹
- Pixels : SizeZ³⁴⁷⁰
- Pixels : Type³⁴⁷¹

³⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

³⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

³⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

³⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

³⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

³⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

³⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

³⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : ExposureTime³⁴⁷²
- Plane : TheC³⁴⁷³
- Plane : TheT³⁴⁷⁴
- Plane : TheZ³⁴⁷⁵

Total supported: 31

Total unknown or missing: 442

18.2.105 SMCameraReader

This page lists supported metadata fields for the Bio-Formats SM Camera format reader.

These fields are from the [OME data model](#)³⁴⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SM Camera format reader:

- Channel : ID³⁴⁷⁷
- Channel : SamplesPerPixel³⁴⁷⁸
- Image : AcquisitionDate³⁴⁷⁹
- Image : ID³⁴⁸⁰
- Image : Name³⁴⁸¹
- Pixels : BinDataBigEndian³⁴⁸²
- Pixels : DimensionOrder³⁴⁸³
- Pixels : ID³⁴⁸⁴
- Pixels : SizeC³⁴⁸⁵
- Pixels : SizeT³⁴⁸⁶

³⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

³⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁴⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁴⁸⁷
- Pixels : SizeY³⁴⁸⁸
- Pixels : SizeZ³⁴⁸⁹
- Pixels : Type³⁴⁹⁰
- Plane : TheC³⁴⁹¹
- Plane : TheT³⁴⁹²
- Plane : TheZ³⁴⁹³

Total supported: 17

Total unknown or missing: 456

18.2.106 SpiderReader

This page lists supported metadata fields for the Bio-Formats SPIDER format reader.

These fields are from the [OME data model](#)³⁴⁹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SPIDER format reader:

- Channel : ID³⁴⁹⁵
- Channel : SamplesPerPixel³⁴⁹⁶
- Image : AcquisitionDate³⁴⁹⁷
- Image : ID³⁴⁹⁸
- Image : Name³⁴⁹⁹
- Pixels : BinDataBigEndian³⁵⁰⁰
- Pixels : DimensionOrder³⁵⁰¹

³⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁴⁹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID³⁵⁰²
- Pixels : PhysicalSizeX³⁵⁰³
- Pixels : PhysicalSizeY³⁵⁰⁴
- Pixels : SizeC³⁵⁰⁵
- Pixels : SizeT³⁵⁰⁶
- Pixels : SizeX³⁵⁰⁷
- Pixels : SizeY³⁵⁰⁸
- Pixels : SizeZ³⁵⁰⁹
- Pixels : Type³⁵¹⁰
- Plane : TheC³⁵¹¹
- Plane : TheT³⁵¹²
- Plane : TheZ³⁵¹³

Total supported: 19

Total unknown or missing: 454

18.2.107 TargaReader

This page lists supported metadata fields for the Bio-Formats Truevision Targa format reader.

These fields are from the [OME data model](#)³⁵¹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 18 of them (3%).
- Of those, Bio-Formats fully or partially converts 18 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Truevision Targa format reader:

- Channel : ID³⁵¹⁵
- Channel : SamplesPerPixel³⁵¹⁶

³⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁵¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³⁵¹⁷
- Image : Description³⁵¹⁸
- Image : ID³⁵¹⁹
- Image : Name³⁵²⁰
- Pixels : BinDataBigEndian³⁵²¹
- Pixels : DimensionOrder³⁵²²
- Pixels : ID³⁵²³
- Pixels : SizeC³⁵²⁴
- Pixels : SizeT³⁵²⁵
- Pixels : SizeX³⁵²⁶
- Pixels : SizeY³⁵²⁷
- Pixels : SizeZ³⁵²⁸
- Pixels : Type³⁵²⁹
- Plane : TheC³⁵³⁰
- Plane : TheT³⁵³¹
- Plane : TheZ³⁵³²

Total supported: 18

Total unknown or missing: 455

18.2.108 TextReader

This page lists supported metadata fields for the Bio-Formats Text format reader.

These fields are from the [OME data model](#)³⁵³³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

³⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁵³³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Text format reader:

- Channel : ID³⁵³⁴
- Channel : SamplesPerPixel³⁵³⁵
- Image : AcquisitionDate³⁵³⁶
- Image : ID³⁵³⁷
- Image : Name³⁵³⁸
- Pixels : BinDataBigEndian³⁵³⁹
- Pixels : DimensionOrder³⁵⁴⁰
- Pixels : ID³⁵⁴¹
- Pixels : SizeC³⁵⁴²
- Pixels : SizeT³⁵⁴³
- Pixels : SizeX³⁵⁴⁴
- Pixels : SizeY³⁵⁴⁵
- Pixels : SizeZ³⁵⁴⁶
- Pixels : Type³⁵⁴⁷
- Plane : TheC³⁵⁴⁸
- Plane : TheT³⁵⁴⁹
- Plane : TheZ³⁵⁵⁰

Total supported: 17

Total unknown or missing: 456

18.2.109 TiffReader

This page lists supported metadata fields for the Bio-Formats Tagged Image File Format format reader.

- ³⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
- ³⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ³⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ³⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ³⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ³⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ³⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ³⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ³⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ³⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ³⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ³⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ³⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ³⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ³⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ³⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model³⁵⁵¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Tagged Image File Format format reader:

- Channel : ID³⁵⁵²
- Channel : SamplesPerPixel³⁵⁵³
- Image : AcquisitionDate³⁵⁵⁴
- Image : Description³⁵⁵⁵
- Image : ID³⁵⁵⁶
- Image : Name³⁵⁵⁷
- Pixels : BinDataBigEndian³⁵⁵⁸
- Pixels : DimensionOrder³⁵⁵⁹
- Pixels : ID³⁵⁶⁰
- Pixels : PhysicalSizeZ³⁵⁶¹
- Pixels : SizeC³⁵⁶²
- Pixels : SizeT³⁵⁶³
- Pixels : SizeX³⁵⁶⁴
- Pixels : SizeY³⁵⁶⁵
- Pixels : SizeZ³⁵⁶⁶
- Pixels : TimeIncrement³⁵⁶⁷
- Pixels : Type³⁵⁶⁸

³⁵⁵¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

³⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁵⁶⁹
- Plane : TheT³⁵⁷⁰
- Plane : TheZ³⁵⁷¹

Total supported: 20

Total unknown or missing: 453

18.2.110 TillVisionReader

This page lists supported metadata fields for the Bio-Formats TillVision format reader.

These fields are from the [OME data model](#)³⁵⁷². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats TillVision format reader:

- Channel : ID³⁵⁷³
- Channel : SamplesPerPixel³⁵⁷⁴
- Experiment : ID³⁵⁷⁵
- Experiment : Type³⁵⁷⁶
- Image : AcquisitionDate³⁵⁷⁷
- Image : ID³⁵⁷⁸
- Image : Name³⁵⁷⁹
- Pixels : BinDataBigEndian³⁵⁸⁰
- Pixels : DimensionOrder³⁵⁸¹
- Pixels : ID³⁵⁸²
- Pixels : SizeC³⁵⁸³

³⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁵⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID

³⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

³⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT³⁵⁸⁴
- Pixels : SizeX³⁵⁸⁵
- Pixels : SizeY³⁵⁸⁶
- Pixels : SizeZ³⁵⁸⁷
- Pixels : Type³⁵⁸⁸
- Plane : ExposureTime³⁵⁸⁹
- Plane : TheC³⁵⁹⁰
- Plane : TheT³⁵⁹¹
- Plane : TheZ³⁵⁹²

Total supported: 20

Total unknown or missing: 453

18.2.111 TopometrixReader

This page lists supported metadata fields for the Bio-Formats TopoMetrix format reader.

These fields are from the [OME data model](#)³⁵⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats TopoMetrix format reader:

- Channel : ID³⁵⁹⁴
- Channel : SamplesPerPixel³⁵⁹⁵
- Image : AcquisitionDate³⁵⁹⁶
- Image : Description³⁵⁹⁷
- Image : ID³⁵⁹⁸

³⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

³⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁵⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name³⁵⁹⁹
- Pixels : BinDataBigEndian³⁶⁰⁰
- Pixels : DimensionOrder³⁶⁰¹
- Pixels : ID³⁶⁰²
- Pixels : PhysicalSizeX³⁶⁰³
- Pixels : PhysicalSizeY³⁶⁰⁴
- Pixels : SizeC³⁶⁰⁵
- Pixels : SizeT³⁶⁰⁶
- Pixels : SizeX³⁶⁰⁷
- Pixels : SizeY³⁶⁰⁸
- Pixels : SizeZ³⁶⁰⁹
- Pixels : Type³⁶¹⁰
- Plane : TheC³⁶¹¹
- Plane : TheT³⁶¹²
- Plane : TheZ³⁶¹³

Total supported: 20

Total unknown or missing: 453

18.2.112 TrestleReader

This page lists supported metadata fields for the Bio-Formats Trestle format reader.

These fields are from the [OME data model](#)³⁶¹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 24 of them (5%).
- Of those, Bio-Formats fully or partially converts 24 (100%).

³⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁶¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Trestle format reader:

- Channel : ID³⁶¹⁵
- Channel : SamplesPerPixel³⁶¹⁶
- Image : AcquisitionDate³⁶¹⁷
- Image : ID³⁶¹⁸
- Image : Name³⁶¹⁹
- Image : ROIRef³⁶²⁰
- Mask : Height³⁶²¹
- Mask : ID³⁶²²
- Mask : Width³⁶²³
- Mask : X³⁶²⁴
- Mask : Y³⁶²⁵
- Pixels : BinDataBigEndian³⁶²⁶
- Pixels : DimensionOrder³⁶²⁷
- Pixels : ID³⁶²⁸
- Pixels : SizeC³⁶²⁹
- Pixels : SizeT³⁶³⁰
- Pixels : SizeX³⁶³¹
- Pixels : SizeY³⁶³²
- Pixels : SizeZ³⁶³³
- Pixels : Type³⁶³⁴
- Plane : TheC³⁶³⁵

³⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

³⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height

³⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

³⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width

³⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X

³⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y

³⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT³⁶³⁶
- Plane : TheZ³⁶³⁷
- ROI : ID³⁶³⁸

Total supported: 24

Total unknown or missing: 449

18.2.113 UBMReader

This page lists supported metadata fields for the Bio-Formats UBM format reader.

These fields are from the [OME data model](#)³⁶³⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats UBM format reader:

- Channel : ID³⁶⁴⁰
- Channel : SamplesPerPixel³⁶⁴¹
- Image : AcquisitionDate³⁶⁴²
- Image : ID³⁶⁴³
- Image : Name³⁶⁴⁴
- Pixels : BinDataBigEndian³⁶⁴⁵
- Pixels : DimensionOrder³⁶⁴⁶
- Pixels : ID³⁶⁴⁷
- Pixels : SizeC³⁶⁴⁸
- Pixels : SizeT³⁶⁴⁹
- Pixels : SizeX³⁶⁵⁰

³⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

³⁶³⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY³⁶⁵¹
- Pixels : SizeZ³⁶⁵²
- Pixels : Type³⁶⁵³
- Plane : TheC³⁶⁵⁴
- Plane : TheT³⁶⁵⁵
- Plane : TheZ³⁶⁵⁶

Total supported: 17

Total unknown or missing: 456

18.2.114 UnisokuReader

This page lists supported metadata fields for the Bio-Formats Unisoku STM format reader.

These fields are from the [OME data model](#)³⁶⁵⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Unisoku STM format reader:

- Channel : ID³⁶⁵⁸
- Channel : SamplesPerPixel³⁶⁵⁹
- Image : AcquisitionDate³⁶⁶⁰
- Image : Description³⁶⁶¹
- Image : ID³⁶⁶²
- Image : Name³⁶⁶³
- Pixels : BinDataBigEndian³⁶⁶⁴
- Pixels : DimensionOrder³⁶⁶⁵

³⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁶⁵⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID³⁶⁶⁶
- Pixels : PhysicalSizeX³⁶⁶⁷
- Pixels : PhysicalSizeY³⁶⁶⁸
- Pixels : SizeC³⁶⁶⁹
- Pixels : SizeT³⁶⁷⁰
- Pixels : SizeX³⁶⁷¹
- Pixels : SizeY³⁶⁷²
- Pixels : SizeZ³⁶⁷³
- Pixels : Type³⁶⁷⁴
- Plane : TheC³⁶⁷⁵
- Plane : TheT³⁶⁷⁶
- Plane : TheZ³⁶⁷⁷

Total supported: 20

Total unknown or missing: 453

18.2.115 VarianFDFReader

This page lists supported metadata fields for the Bio-Formats Varian FDF format reader.

These fields are from the [OME data model](#)³⁶⁷⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 23 of them (4%).
- Of those, Bio-Formats fully or partially converts 23 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Varian FDF format reader:

- Channel : ID³⁶⁷⁹
- Channel : SamplesPerPixel³⁶⁸⁰

³⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁶⁷⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³⁶⁸¹
- Image : ID³⁶⁸²
- Image : Name³⁶⁸³
- Pixels : BinDataBigEndian³⁶⁸⁴
- Pixels : DimensionOrder³⁶⁸⁵
- Pixels : ID³⁶⁸⁶
- Pixels : PhysicalSizeX³⁶⁸⁷
- Pixels : PhysicalSizeY³⁶⁸⁸
- Pixels : PhysicalSizeZ³⁶⁸⁹
- Pixels : SizeC³⁶⁹⁰
- Pixels : SizeT³⁶⁹¹
- Pixels : SizeX³⁶⁹²
- Pixels : SizeY³⁶⁹³
- Pixels : SizeZ³⁶⁹⁴
- Pixels : Type³⁶⁹⁵
- Plane : PositionX³⁶⁹⁶
- Plane : PositionY³⁶⁹⁷
- Plane : PositionZ³⁶⁹⁸
- Plane : TheC³⁶⁹⁹
- Plane : TheT³⁷⁰⁰
- Plane : TheZ³⁷⁰¹

Total supported: 23

Total unknown or missing: 450

-
- ³⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
 - ³⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
 - ³⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
 - ³⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
 - ³⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
 - ³⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
 - ³⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ³⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ³⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
 - ³⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
 - ³⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
 - ³⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
 - ³⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
 - ³⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
 - ³⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
 - ³⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
 - ³⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
 - ³⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
 - ³⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
 - ³⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
 - ³⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

18.2.116 VGSAMReader

This page lists supported metadata fields for the Bio-Formats VG SAM format reader.

These fields are from the OME data model³⁷⁰². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats VG SAM format reader:

- Channel : ID³⁷⁰³
- Channel : SamplesPerPixel³⁷⁰⁴
- Image : AcquisitionDate³⁷⁰⁵
- Image : ID³⁷⁰⁶
- Image : Name³⁷⁰⁷
- Pixels : BinDataBigEndian³⁷⁰⁸
- Pixels : DimensionOrder³⁷⁰⁹
- Pixels : ID³⁷¹⁰
- Pixels : SizeC³⁷¹¹
- Pixels : SizeT³⁷¹²
- Pixels : SizeX³⁷¹³
- Pixels : SizeY³⁷¹⁴
- Pixels : SizeZ³⁷¹⁵
- Pixels : Type³⁷¹⁶
- Plane : TheC³⁷¹⁷
- Plane : TheT³⁷¹⁸

³⁷⁰²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁷¹⁹

Total supported: 17

Total unknown or missing: 456

18.2.117 VisitechReader

This page lists supported metadata fields for the Bio-Formats Visitech XYX format reader.

These fields are from the [OME data model](#)³⁷²⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Visitech XYX format reader:

- Channel : ID³⁷²¹
- Channel : SamplesPerPixel³⁷²²
- Image : AcquisitionDate³⁷²³
- Image : ID³⁷²⁴
- Image : Name³⁷²⁵
- Pixels : BinDataBigEndian³⁷²⁶
- Pixels : DimensionOrder³⁷²⁷
- Pixels : ID³⁷²⁸
- Pixels : SizeC³⁷²⁹
- Pixels : SizeT³⁷³⁰
- Pixels : SizeX³⁷³¹
- Pixels : SizeY³⁷³²
- Pixels : SizeZ³⁷³³

³⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁷²⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³⁷³⁴
- Plane : TheC³⁷³⁵
- Plane : TheT³⁷³⁶
- Plane : TheZ³⁷³⁷

Total supported: 17

Total unknown or missing: 456

18.2.118 VolocityClippingReader

This page lists supported metadata fields for the Bio-Formats Volocity Library Clipping format reader.

These fields are from the [OME data model](#)³⁷³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Volocity Library Clipping format reader:

- Channel : ID³⁷³⁹
- Channel : SamplesPerPixel³⁷⁴⁰
- Image : AcquisitionDate³⁷⁴¹
- Image : ID³⁷⁴²
- Image : Name³⁷⁴³
- Pixels : BinDataBigEndian³⁷⁴⁴
- Pixels : DimensionOrder³⁷⁴⁵
- Pixels : ID³⁷⁴⁶
- Pixels : SizeC³⁷⁴⁷
- Pixels : SizeT³⁷⁴⁸

³⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁷³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁷⁴⁹
- Pixels : SizeY³⁷⁵⁰
- Pixels : SizeZ³⁷⁵¹
- Pixels : Type³⁷⁵²
- Plane : TheC³⁷⁵³
- Plane : TheT³⁷⁵⁴
- Plane : TheZ³⁷⁵⁵

Total supported: 17

Total unknown or missing: 456

18.2.119 VolocityReader

This page lists supported metadata fields for the Bio-Formats Volocity Library format reader.

These fields are from the [OME data model](#)³⁷⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 35 of them (7%).
- Of those, Bio-Formats fully or partially converts 35 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Volocity Library format reader:

- Channel : ID³⁷⁵⁷
- Channel : Name³⁷⁵⁸
- Channel : SamplesPerPixel³⁷⁵⁹
- Detector : ID³⁷⁶⁰
- Detector : Model³⁷⁶¹
- DetectorSettings : ID³⁷⁶²
- Image : AcquisitionDate³⁷⁶³

³⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁷⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

³⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

³⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

³⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description³⁷⁶⁴
- Image : ID³⁷⁶⁵
- Image : InstrumentRef³⁷⁶⁶
- Image : Name³⁷⁶⁷
- Instrument : ID³⁷⁶⁸
- Objective : Correction³⁷⁶⁹
- Objective : ID³⁷⁷⁰
- Objective : Immersion³⁷⁷¹
- Objective : NominalMagnification³⁷⁷²
- ObjectiveSettings : ID³⁷⁷³
- Pixels : BinDataBigEndian³⁷⁷⁴
- Pixels : DimensionOrder³⁷⁷⁵
- Pixels : ID³⁷⁷⁶
- Pixels : PhysicalSizeX³⁷⁷⁷
- Pixels : PhysicalSizeY³⁷⁷⁸
- Pixels : PhysicalSizeZ³⁷⁷⁹
- Pixels : SizeC³⁷⁸⁰
- Pixels : SizeT³⁷⁸¹
- Pixels : SizeX³⁷⁸²
- Pixels : SizeY³⁷⁸³
- Pixels : SizeZ³⁷⁸⁴
- Pixels : Type³⁷⁸⁵
- Plane : PositionX³⁷⁸⁶

³⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

³⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

³⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

³⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

³⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

³⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

³⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

- Plane : PositionY³⁷⁸⁷
- Plane : PositionZ³⁷⁸⁸
- Plane : TheC³⁷⁸⁹
- Plane : TheT³⁷⁹⁰
- Plane : TheZ³⁷⁹¹

Total supported: 35

Total unknown or missing: 438

18.2.120 WATOPReader

This page lists supported metadata fields for the Bio-Formats WA Technology TOP format reader.

These fields are from the [OME data model](#)³⁷⁹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 20 of them (4%).
- Of those, Bio-Formats fully or partially converts 20 (100%).

Supported fields

These fields are fully supported by the Bio-Formats WA Technology TOP format reader:

- Channel : ID³⁷⁹³
- Channel : SamplesPerPixel³⁷⁹⁴
- Image : AcquisitionDate³⁷⁹⁵
- Image : Description³⁷⁹⁶
- Image : ID³⁷⁹⁷
- Image : Name³⁷⁹⁸
- Pixels : BinDataBigEndian³⁷⁹⁹
- Pixels : DimensionOrder³⁸⁰⁰
- Pixels : ID³⁸⁰¹

³⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

³⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁷⁹²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

³⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX³⁸⁰²
- Pixels : PhysicalSizeY³⁸⁰³
- Pixels : SizeC³⁸⁰⁴
- Pixels : SizeT³⁸⁰⁵
- Pixels : SizeX³⁸⁰⁶
- Pixels : SizeY³⁸⁰⁷
- Pixels : SizeZ³⁸⁰⁸
- Pixels : Type³⁸⁰⁹
- Plane : TheC³⁸¹⁰
- Plane : TheT³⁸¹¹
- Plane : TheZ³⁸¹²

Total supported: 20

Total unknown or missing: 453

18.2.121 BMPReader

This page lists supported metadata fields for the Bio-Formats Windows Bitmap format reader.

These fields are from the [OME data model](#)³⁸¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (4%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Windows Bitmap format reader:

- Channel : ID³⁸¹⁴
- Channel : SamplesPerPixel³⁸¹⁵
- Image : AcquisitionDate³⁸¹⁶

³⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁸¹³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID³⁸¹⁷
- Image : Name³⁸¹⁸
- Pixels : BinDataBigEndian³⁸¹⁹
- Pixels : DimensionOrder³⁸²⁰
- Pixels : ID³⁸²¹
- Pixels : PhysicalSizeX³⁸²²
- Pixels : PhysicalSizeY³⁸²³
- Pixels : SizeC³⁸²⁴
- Pixels : SizeT³⁸²⁵
- Pixels : SizeX³⁸²⁶
- Pixels : SizeY³⁸²⁷
- Pixels : SizeZ³⁸²⁸
- Pixels : Type³⁸²⁹
- Plane : TheC³⁸³⁰
- Plane : TheT³⁸³¹
- Plane : TheZ³⁸³²

Total supported: 19

Total unknown or missing: 454

18.2.122 ZeissTIFFReader

This page lists supported metadata fields for the Bio-Formats Zeiss AxioVision TIFF format reader.

These fields are from the [OME data model](#)³⁸³³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

³⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

³⁸³³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Zeiss AxioVision TIFF format reader:

- Channel : ID³⁸³⁴
- Channel : SamplesPerPixel³⁸³⁵
- Image : AcquisitionDate³⁸³⁶
- Image : ID³⁸³⁷
- Image : Name³⁸³⁸
- Pixels : BinDataBigEndian³⁸³⁹
- Pixels : DimensionOrder³⁸⁴⁰
- Pixels : ID³⁸⁴¹
- Pixels : SizeC³⁸⁴²
- Pixels : SizeT³⁸⁴³
- Pixels : SizeX³⁸⁴⁴
- Pixels : SizeY³⁸⁴⁵
- Pixels : SizeZ³⁸⁴⁶
- Pixels : Type³⁸⁴⁷
- Plane : TheC³⁸⁴⁸
- Plane : TheT³⁸⁴⁹
- Plane : TheZ³⁸⁵⁰

Total supported: 17

Total unknown or missing: 456

18.2.123 ZeissZVIReader

This page lists supported metadata fields for the Bio-Formats Zeiss Vision Image (ZVI) format reader.

- ³⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
- ³⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
- ³⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
- ³⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
- ³⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
- ³⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
- ³⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
- ³⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
- ³⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
- ³⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
- ³⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
- ³⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
- ³⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
- ³⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
- ³⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
- ³⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model³⁸⁵¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the *metadata summary table*:

- The file format itself supports 17 of them (3%).
- Of those, Bio-Formats fully or partially converts 17 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Zeiss Vision Image (ZVI) format reader:

- Channel : ID³⁸⁵²
- Channel : SamplesPerPixel³⁸⁵³
- Image : AcquisitionDate³⁸⁵⁴
- Image : ID³⁸⁵⁵
- Image : Name³⁸⁵⁶
- Pixels : BinDataBigEndian³⁸⁵⁷
- Pixels : DimensionOrder³⁸⁵⁸
- Pixels : ID³⁸⁵⁹
- Pixels : SizeC³⁸⁶⁰
- Pixels : SizeT³⁸⁶¹
- Pixels : SizeX³⁸⁶²
- Pixels : SizeY³⁸⁶³
- Pixels : SizeZ³⁸⁶⁴
- Pixels : Type³⁸⁶⁵
- Plane : TheC³⁸⁶⁶
- Plane : TheT³⁸⁶⁷
- Plane : TheZ³⁸⁶⁸

³⁸⁵¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

Total supported: 17

Total unknown or missing: 456

18.2.124 ZeissCZIReader

This page lists supported metadata fields for the Bio-Formats Zeiss CZI format reader.

These fields are from the [OME data model](#)³⁸⁶⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 149 of them (31%).
- Of those, Bio-Formats fully or partially converts 149 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Zeiss CZI format reader:

- Arc : LotNumber³⁸⁷⁰
- Arc : Manufacturer³⁸⁷¹
- Arc : Model³⁸⁷²
- Arc : Power³⁸⁷³
- Arc : SerialNumber³⁸⁷⁴
- Channel : Color³⁸⁷⁵
- Channel : EmissionWavelength³⁸⁷⁶
- Channel : ExcitationWavelength³⁸⁷⁷
- Channel : ID³⁸⁷⁸
- Channel : Name³⁸⁷⁹
- Channel : PinholeSize³⁸⁸⁰
- Channel : SamplesPerPixel³⁸⁸¹
- Detector : AmplificationGain³⁸⁸²
- Detector : Gain³⁸⁸³

³⁸⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

³⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

³⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

³⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength

³⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

³⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

³⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

³⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain

³⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

- Detector : ID³⁸⁸⁴
- Detector : LotNumber³⁸⁸⁵
- Detector : Manufacturer³⁸⁸⁶
- Detector : Model³⁸⁸⁷
- Detector : Offset³⁸⁸⁸
- Detector : SerialNumber³⁸⁸⁹
- Detector : Type³⁸⁹⁰
- Detector : Zoom³⁸⁹¹
- DetectorSettings : Binning³⁸⁹²
- DetectorSettings : ID³⁸⁹³
- Dichroic : ID³⁸⁹⁴
- Dichroic : LotNumber³⁸⁹⁵
- Dichroic : Manufacturer³⁸⁹⁶
- Dichroic : Model³⁸⁹⁷
- Dichroic : SerialNumber³⁸⁹⁸
- Ellipse : ID³⁸⁹⁹
- Ellipse : RadiusX³⁹⁰⁰
- Ellipse : RadiusY³⁹⁰¹
- Ellipse : Text³⁹⁰²
- Ellipse : X³⁹⁰³
- Ellipse : Y³⁹⁰⁴
- Experimenter : Email³⁹⁰⁵
- Experimenter : FirstName³⁹⁰⁶

³⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

³⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset

³⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

³⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom

³⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

³⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

³⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

³⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

³⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX

³⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY

³⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

³⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X

³⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y

³⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Email

³⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName

- Experimenter : ID³⁹⁰⁷
- Experimenter : Institution³⁹⁰⁸
- Experimenter : LastName³⁹⁰⁹
- Experimenter : MiddleName³⁹¹⁰
- Experimenter : UserName³⁹¹¹
- Filament : LotNumber³⁹¹²
- Filament : Manufacturer³⁹¹³
- Filament : Model³⁹¹⁴
- Filament : Power³⁹¹⁵
- Filament : SerialNumber³⁹¹⁶
- Filter : FilterWheel³⁹¹⁷
- Filter : ID³⁹¹⁸
- Filter : LotNumber³⁹¹⁹
- Filter : Manufacturer³⁹²⁰
- Filter : Model³⁹²¹
- Filter : SerialNumber³⁹²²
- Filter : Type³⁹²³
- FilterSet : DichroicRef³⁹²⁴
- FilterSet : EmissionFilterRef³⁹²⁵
- FilterSet : ExcitationFilterRef³⁹²⁶
- FilterSet : ID³⁹²⁷
- FilterSet : LotNumber³⁹²⁸
- FilterSet : Manufacturer³⁹²⁹

³⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

³⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution

³⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName

³⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_MiddleName

³⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName

³⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

³⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel

³⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

³⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type

³⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

³⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

³⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

³⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSet_ID

³⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

- FilterSet : Model³⁹³⁰
- FilterSet : SerialNumber³⁹³¹
- Image : AcquisitionDate³⁹³²
- Image : ExperimenterRef³⁹³³
- Image : ID³⁹³⁴
- Image : Name³⁹³⁵
- Image : ROIRef³⁹³⁶
- ImagingEnvironment : AirPressure³⁹³⁷
- ImagingEnvironment : CO2Percent³⁹³⁸
- ImagingEnvironment : Humidity³⁹³⁹
- ImagingEnvironment : Temperature³⁹⁴⁰
- Instrument : ID³⁹⁴¹
- Laser : LotNumber³⁹⁴²
- Laser : Manufacturer³⁹⁴³
- Laser : Model³⁹⁴⁴
- Laser : Power³⁹⁴⁵
- Laser : SerialNumber³⁹⁴⁶
- LightEmittingDiode : LotNumber³⁹⁴⁷
- LightEmittingDiode : Manufacturer³⁹⁴⁸
- LightEmittingDiode : Model³⁹⁴⁹
- LightEmittingDiode : Power³⁹⁵⁰
- LightEmittingDiode : SerialNumber³⁹⁵¹
- Line : ID³⁹⁵²

³⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

³⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID

³⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

³⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

³⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

³⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_AirPressure

³⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_CO2Percent

³⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Humidity

³⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

³⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

³⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power

³⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Line : Text³⁹⁵³
- Line : X1³⁹⁵⁴
- Line : X2³⁹⁵⁵
- Line : Y1³⁹⁵⁶
- Line : Y2³⁹⁵⁷
- Microscope : LotNumber³⁹⁵⁸
- Microscope : Manufacturer³⁹⁵⁹
- Microscope : Model³⁹⁶⁰
- Microscope : SerialNumber³⁹⁶¹
- Microscope : Type³⁹⁶²
- Objective : CalibratedMagnification³⁹⁶³
- Objective : Correction³⁹⁶⁴
- Objective : ID³⁹⁶⁵
- Objective : Immersion³⁹⁶⁶
- Objective : Iris³⁹⁶⁷
- Objective : LensNA³⁹⁶⁸
- Objective : LotNumber³⁹⁶⁹
- Objective : Manufacturer³⁹⁷⁰
- Objective : Model³⁹⁷¹
- Objective : NominalMagnification³⁹⁷²
- Objective : SerialNumber³⁹⁷³
- Objective : WorkingDistance³⁹⁷⁴
- ObjectiveSettings : CorrectionCollar³⁹⁷⁵

³⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

³⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1

³⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2

³⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1

³⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2

³⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type

³⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification

³⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

³⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

³⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

³⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris

³⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

³⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber

³⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

³⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

³⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance

³⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar

- ObjectiveSettings : ID³⁹⁷⁶
- ObjectiveSettings : Medium³⁹⁷⁷
- ObjectiveSettings : RefractiveIndex³⁹⁷⁸
- Pixels : BinDataBigEndian³⁹⁷⁹
- Pixels : DimensionOrder³⁹⁸⁰
- Pixels : ID³⁹⁸¹
- Pixels : PhysicalSizeX³⁹⁸²
- Pixels : PhysicalSizeY³⁹⁸³
- Pixels : PhysicalSizeZ³⁹⁸⁴
- Pixels : SizeC³⁹⁸⁵
- Pixels : SizeT³⁹⁸⁶
- Pixels : SizeX³⁹⁸⁷
- Pixels : SizeY³⁹⁸⁸
- Pixels : SizeZ³⁹⁸⁹
- Pixels : Type³⁹⁹⁰
- Plane : DeltaT³⁹⁹¹
- Plane : ExposureTime³⁹⁹²
- Plane : PositionX³⁹⁹³
- Plane : PositionY³⁹⁹⁴
- Plane : PositionZ³⁹⁹⁵
- Plane : TheC³⁹⁹⁶
- Plane : TheT³⁹⁹⁷
- Plane : TheZ³⁹⁹⁸

³⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

³⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_Medium

³⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

³⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

³⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

³⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

³⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

³⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

³⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

³⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

³⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

³⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

³⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

³⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

³⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

³⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

³⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

³⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

- Polygon : ID³⁹⁹⁹
- Polygon : Points⁴⁰⁰⁰
- Polygon : Text⁴⁰⁰¹
- Polyline : ID⁴⁰⁰²
- Polyline : Points⁴⁰⁰³
- Polyline : Text⁴⁰⁰⁴
- ROI : Description⁴⁰⁰⁵
- ROI : ID⁴⁰⁰⁶
- ROI : Name⁴⁰⁰⁷
- Rectangle : Height⁴⁰⁰⁸
- Rectangle : ID⁴⁰⁰⁹
- Rectangle : Text⁴⁰¹⁰
- Rectangle : Width⁴⁰¹¹
- Rectangle : X⁴⁰¹²
- Rectangle : Y⁴⁰¹³
- TransmittanceRange : CutIn⁴⁰¹⁴
- TransmittanceRange : CutInTolerance⁴⁰¹⁵
- TransmittanceRange : CutOut⁴⁰¹⁶
- TransmittanceRange : CutOutTolerance⁴⁰¹⁷
- TransmittanceRange : Transmittance⁴⁰¹⁸

Total supported: 149

Total unknown or missing: 324

³⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

⁴⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁴⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points

⁴⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁴⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Description

⁴⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

⁴⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name

⁴⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

⁴⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁴⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

⁴⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

⁴⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

⁴⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutInTolerance

⁴⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

⁴⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOutTolerance

⁴⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_Transmittance

18.2.125 ZeissLSMReader

This page lists supported metadata fields for the Bio-Formats Zeiss Laser-Scanning Microscopy format reader.

These fields are from the [OME data model](#)⁴⁰¹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 473 fields documented in the [metadata summary table](#):

- The file format itself supports 99 of them (20%).
- Of those, Bio-Formats fully or partially converts 99 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Zeiss Laser-Scanning Microscopy format reader:

- Channel : Color⁴⁰²⁰
- Channel : ID⁴⁰²¹
- Channel : Name⁴⁰²²
- Channel : PinholeSize⁴⁰²³
- Channel : SamplesPerPixel⁴⁰²⁴
- Detector : AmplificationGain⁴⁰²⁵
- Detector : Gain⁴⁰²⁶
- Detector : ID⁴⁰²⁷
- Detector : Type⁴⁰²⁸
- Detector : Zoom⁴⁰²⁹
- DetectorSettings : Binning⁴⁰³⁰
- DetectorSettings : ID⁴⁰³¹
- Dichroic : ID⁴⁰³²
- Dichroic : Model⁴⁰³³
- Ellipse : FontSize⁴⁰³⁴
- Ellipse : ID⁴⁰³⁵

⁴⁰¹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

⁴⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

⁴⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

⁴⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize

⁴⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain

⁴⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

⁴⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

⁴⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type

⁴⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom

⁴⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning

⁴⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

⁴⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID

⁴⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Ellipse : RadiusX⁴⁰³⁶
- Ellipse : RadiusY⁴⁰³⁷
- Ellipse : StrokeWidth⁴⁰³⁸
- Ellipse : Transform⁴⁰³⁹
- Ellipse : X⁴⁰⁴⁰
- Ellipse : Y⁴⁰⁴¹
- Experimenter : ID⁴⁰⁴²
- Experimenter : UserName⁴⁰⁴³
- Filter : ID⁴⁰⁴⁴
- Filter : Model⁴⁰⁴⁵
- Filter : Type⁴⁰⁴⁶
- Image : AcquisitionDate⁴⁰⁴⁷
- Image : Description⁴⁰⁴⁸
- Image : ID⁴⁰⁴⁹
- Image : InstrumentRef⁴⁰⁵⁰
- Image : Name⁴⁰⁵¹
- Image : ROIRef⁴⁰⁵²
- Instrument : ID⁴⁰⁵³
- Label : FontSize⁴⁰⁵⁴
- Label : ID⁴⁰⁵⁵
- Label : StrokeWidth⁴⁰⁵⁶
- Label : Text⁴⁰⁵⁷
- Label : X⁴⁰⁵⁸

⁴⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX

⁴⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY

⁴⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform

⁴⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X

⁴⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y

⁴⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID

⁴⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName

⁴⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID

⁴⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type

⁴⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description

⁴⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

⁴⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

⁴⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

⁴⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID

⁴⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

⁴⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text

⁴⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X

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- Laser : ID⁴⁰⁶⁰
- Laser : LaserMedium⁴⁰⁶¹
- Laser : Model⁴⁰⁶²
- Laser : Type⁴⁰⁶³
- Laser : Wavelength⁴⁰⁶⁴
- LightPath : DichroicRef⁴⁰⁶⁵
- LightPath : EmissionFilterRef⁴⁰⁶⁶
- Line : FontSize⁴⁰⁶⁷
- Line : ID⁴⁰⁶⁸
- Line : StrokeWidth⁴⁰⁶⁹
- Line : X1⁴⁰⁷⁰
- Line : X2⁴⁰⁷¹
- Line : Y1⁴⁰⁷²
- Line : Y2⁴⁰⁷³
- Objective : Correction⁴⁰⁷⁴
- Objective : ID⁴⁰⁷⁵
- Objective : Immersion⁴⁰⁷⁶
- Objective : Iris⁴⁰⁷⁷
- Objective : LensNA⁴⁰⁷⁸
- Objective : NominalMagnification⁴⁰⁷⁹
- ObjectiveSettings : ID⁴⁰⁸⁰
- Pixels : BinDataBigEndian⁴⁰⁸¹

⁴⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y

⁴⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID

⁴⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium

⁴⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type

⁴⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength

⁴⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

⁴⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

⁴⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1

⁴⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2

⁴⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1

⁴⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2

⁴⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

⁴⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

⁴⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion

⁴⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris

⁴⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA

⁴⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

⁴⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder⁴⁰⁸²
- Pixels : ID⁴⁰⁸³
- Pixels : PhysicalSizeX⁴⁰⁸⁴
- Pixels : PhysicalSizeY⁴⁰⁸⁵
- Pixels : PhysicalSizeZ⁴⁰⁸⁶
- Pixels : SizeC⁴⁰⁸⁷
- Pixels : SizeT⁴⁰⁸⁸
- Pixels : SizeX⁴⁰⁸⁹
- Pixels : SizeY⁴⁰⁹⁰
- Pixels : SizeZ⁴⁰⁹¹
- Pixels : TimeIncrement⁴⁰⁹²
- Pixels : Type⁴⁰⁹³
- Plane : DeltaT⁴⁰⁹⁴
- Plane : PositionX⁴⁰⁹⁵
- Plane : PositionY⁴⁰⁹⁶
- Plane : PositionZ⁴⁰⁹⁷
- Plane : TheC⁴⁰⁹⁸
- Plane : TheT⁴⁰⁹⁹
- Plane : TheZ⁴¹⁰⁰
- Polygon : FontSize⁴¹⁰¹
- Polygon : ID⁴¹⁰²
- Polygon : Points⁴¹⁰³
- Polygon : StrokeWidth⁴¹⁰⁴

⁴⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

⁴⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement

⁴⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

⁴⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT

⁴⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

⁴⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

⁴⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

⁴⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

⁴⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

⁴¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

⁴¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points

⁴¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

- Polyline : FontSize⁴¹⁰⁵
- Polyline : ID⁴¹⁰⁶
- Polyline : Points⁴¹⁰⁷
- Polyline : StrokeWidth⁴¹⁰⁸
- ROI : ID⁴¹⁰⁹
- Rectangle : FontSize⁴¹¹⁰
- Rectangle : Height⁴¹¹¹
- Rectangle : ID⁴¹¹²
- Rectangle : StrokeWidth⁴¹¹³
- Rectangle : Width⁴¹¹⁴
- Rectangle : X⁴¹¹⁵
- Rectangle : Y⁴¹¹⁶
- TransmittanceRange : CutIn⁴¹¹⁷
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Total supported: 99

Total unknown or missing: 374

⁴¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points

⁴¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID

⁴¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize

⁴¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height

⁴¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

⁴¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

⁴¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width

⁴¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X

⁴¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y

⁴¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn

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