BIO-FORMATS

Bio-Formats Documentation

Release 4.4.8-DEV

The Open Microscopy Environment

May 01, 2013

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/

CHAPTER

ONE

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

CHAPTER TWO

HELP

For help, see the Bio-Formats[1], File Formats[2] and OME-XML and OME-TIFF[3] sections of the OME FAQ[4] for answers to some common questions. Please contact us[5] 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-Formats[6]. 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/
[14] http://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 (.sld)

- 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.

CHAPTER

THREE

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 1.39l
- Support for hyperstacks and virtual stacks in ImageJ - requires ImageJ 1.39l
- 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 colorizing 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 Improvision 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

CHAPTER

FOUR

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

Fiji[17] 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/utils/macros/basicMetadata.txt
[9] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/planeTimings.txt
[10] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/recursiveTiffConvert.txt
[11] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/bfOpenAsHyperstack.txt
[12] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/zvi2HyperStack.txt
[13] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/dvSplitTimePoints.txt
[14] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/macros/batchTiffConvert.txt
[15] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/Read_Image.java
[16] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/Mass_Importer.java
[17] http://fiji.sc/
[18] http://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.

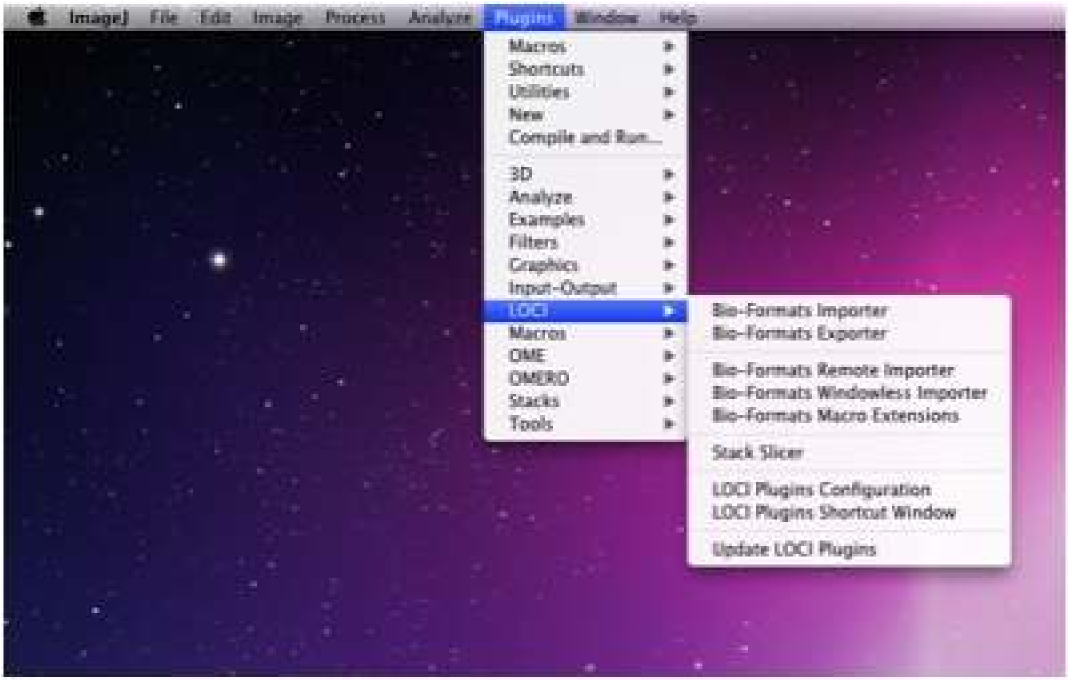
We often **recommend that most people simply use the trunk build** for two reasons. First, trunk may contain bug-fixes or new features you want anyway; secondly, you will have to reproduce any bug you encounter in Bio-Formats against the latest trunk build before submitting a bug report. Rather than 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

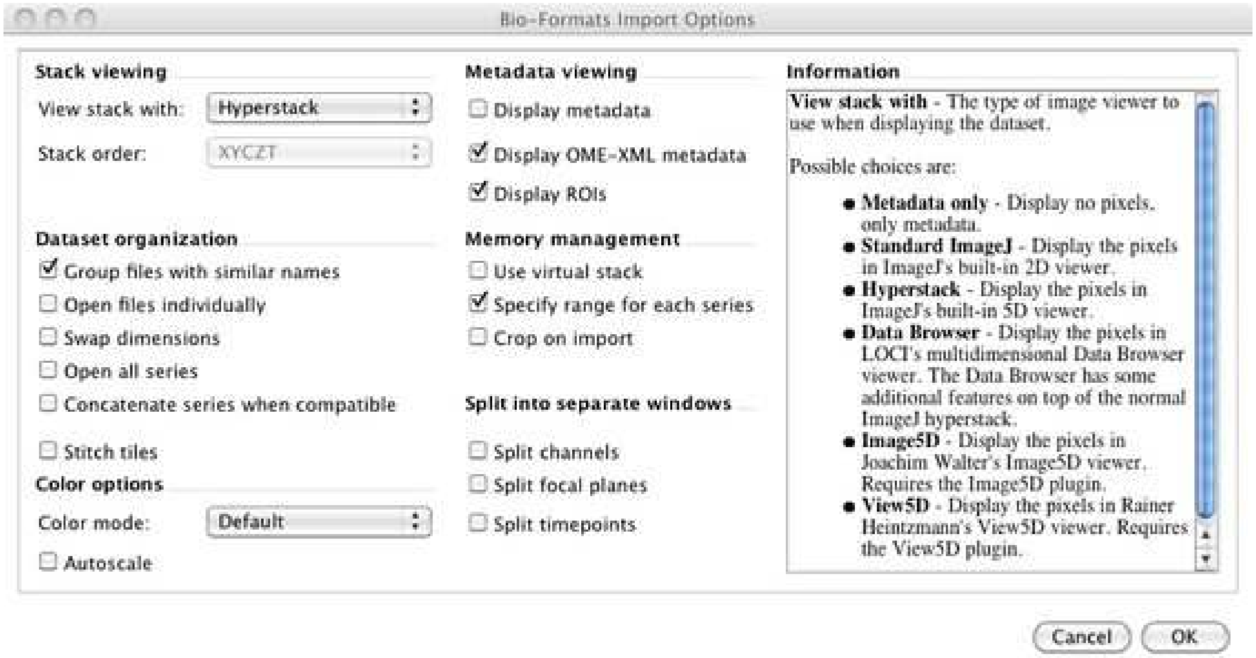
This section will explain how to use Bio-Formats to import files into ImageJ and how to use the settings on the Bio-Formats Import Options screen.

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.

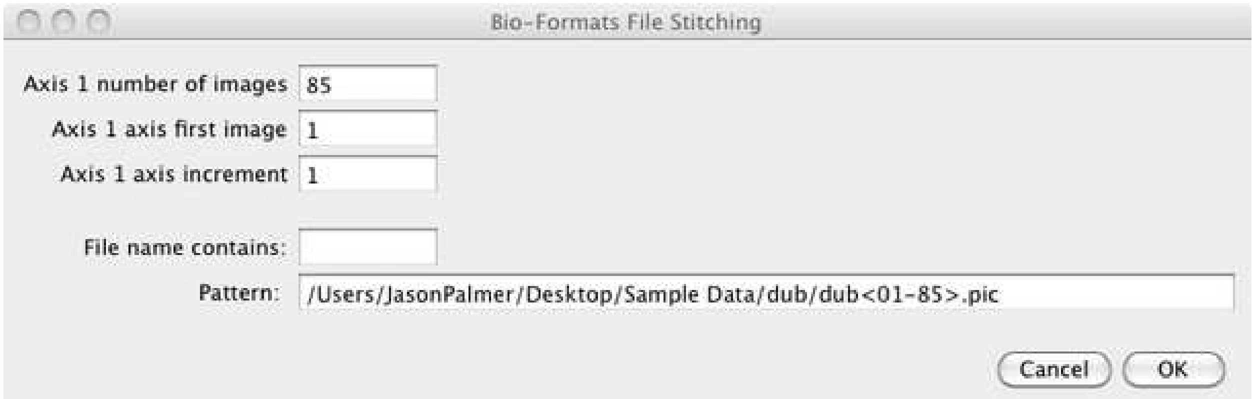
4.5.3 Group files with similar names

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[24] data set available under LOCI's 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 thorough 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".

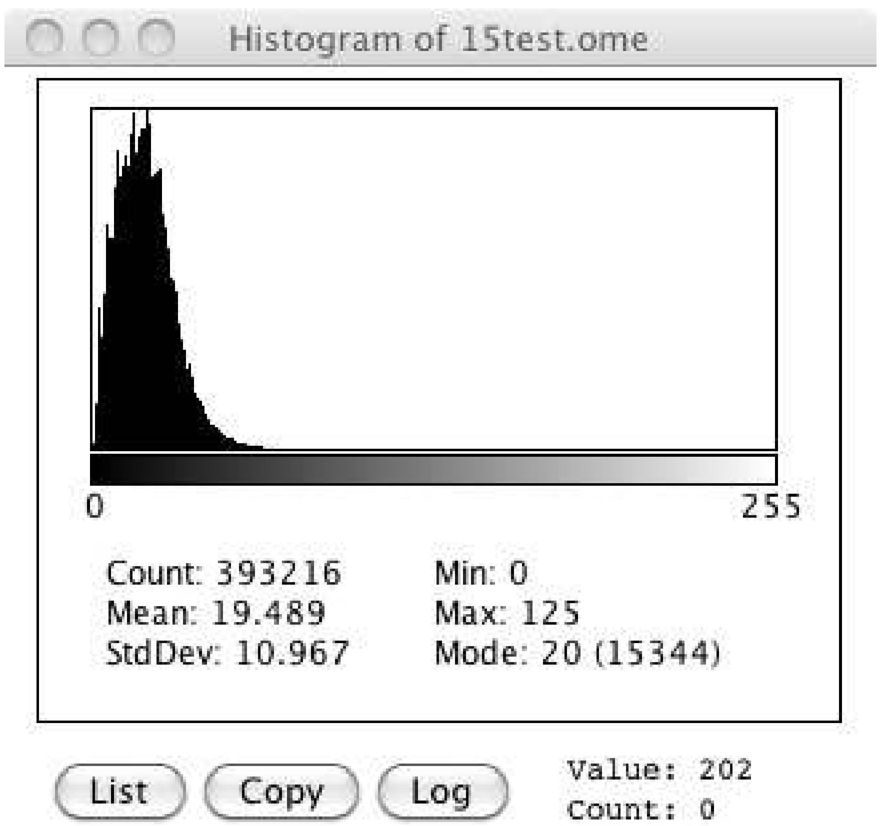
It can also accept a Java regular expression[26].

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:

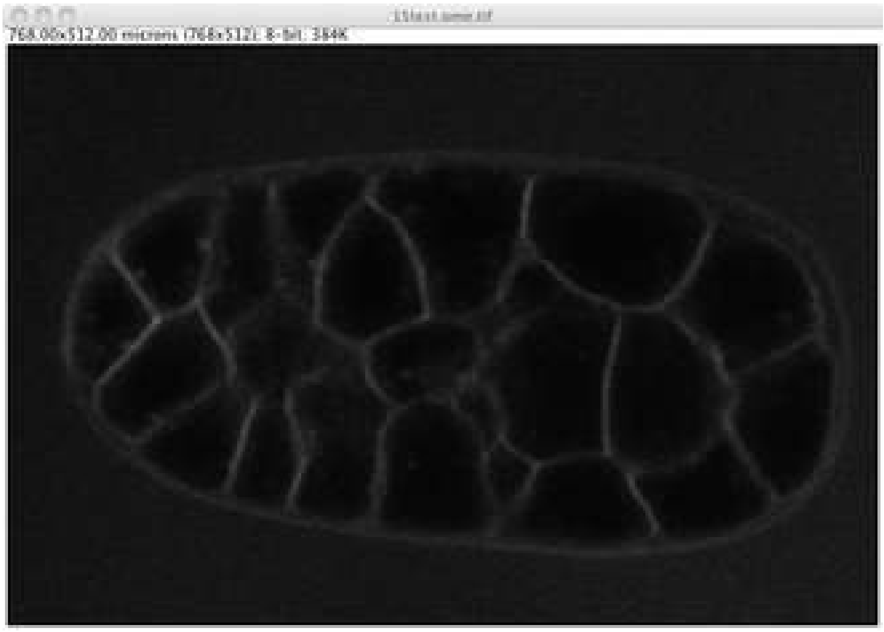


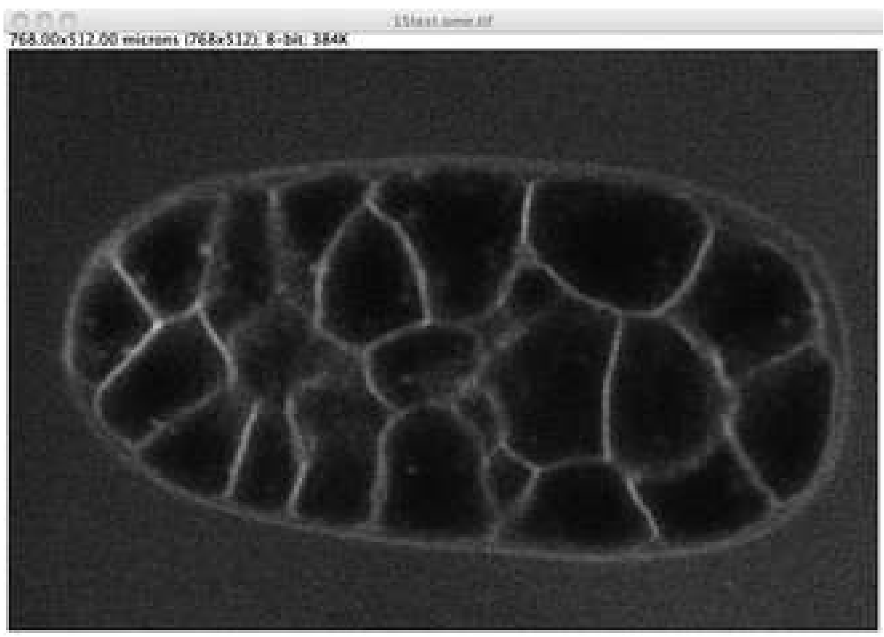
Notice that the histogram heavily skews right. Even though there are 256 possible values, only 0 thorough 125 are being used.

[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:



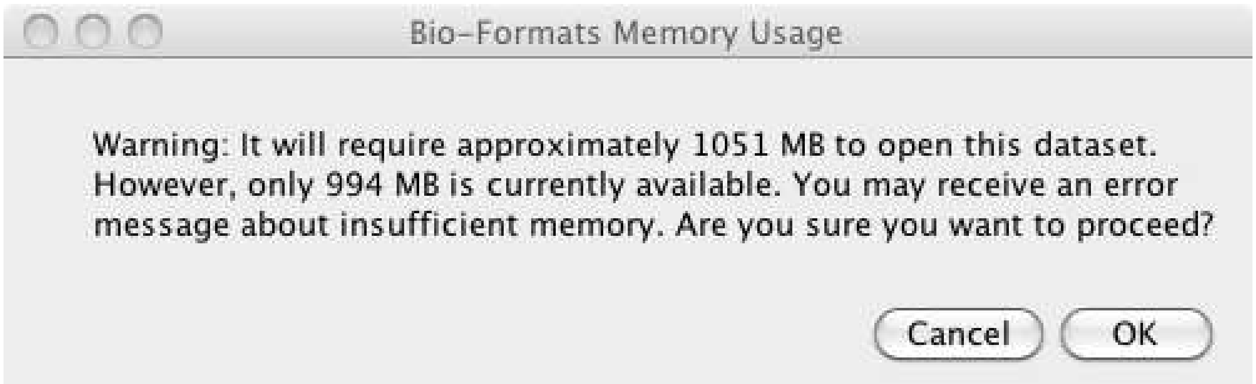


Autoscale readjusts the image based on the highest value in the entire data set. This means if the highest value in your dataset is close to maximum display value, Autoscale's adjusting may be undetectable to the eye.

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:

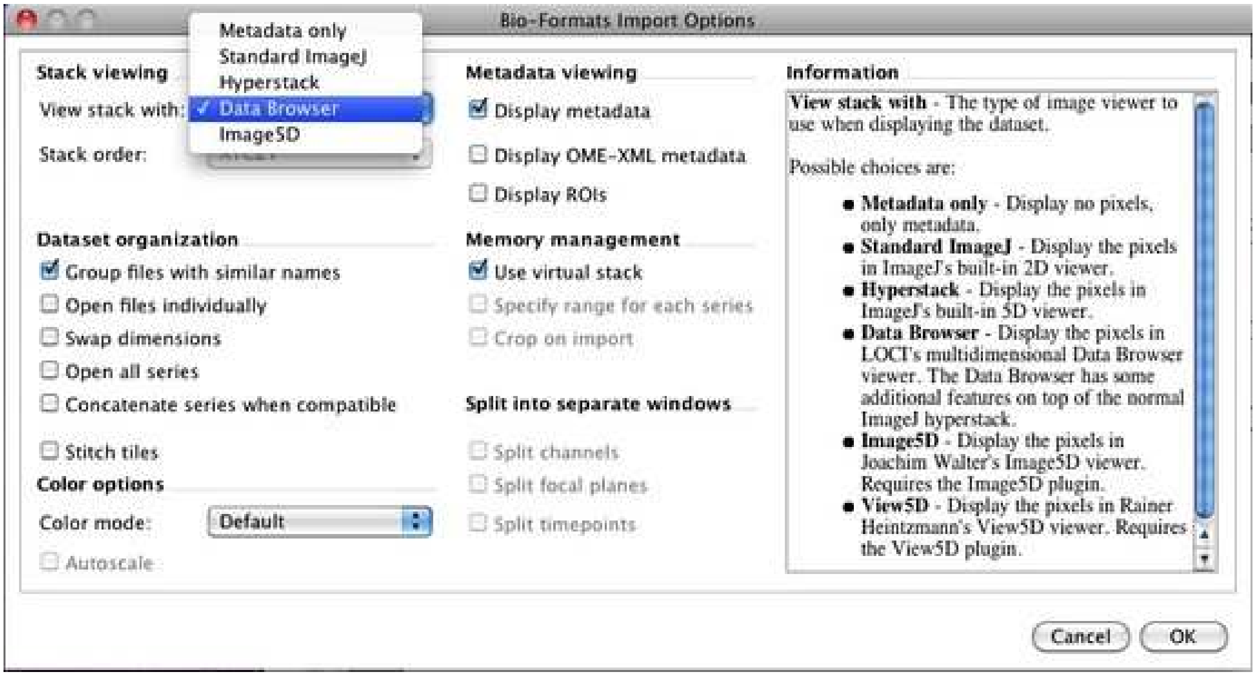
- View your stack with Data Browser
- Crop the view area
- Open only a subset of images
- Use Virtual Stack
- Increase ImageJ/Fiji's memory.

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 page[27].

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.

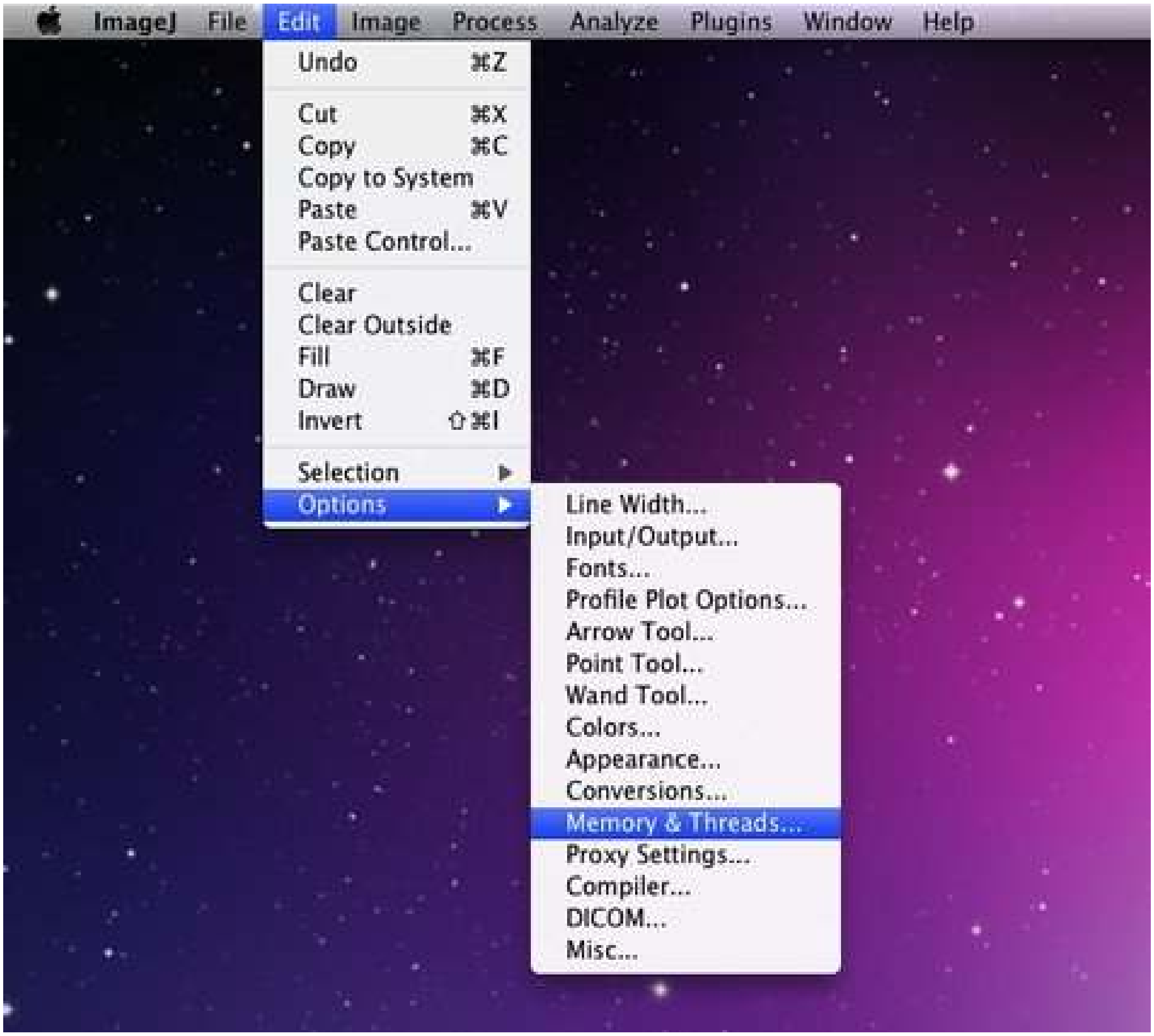
4.6.4 Use Virtual Stack

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 documentation[28].

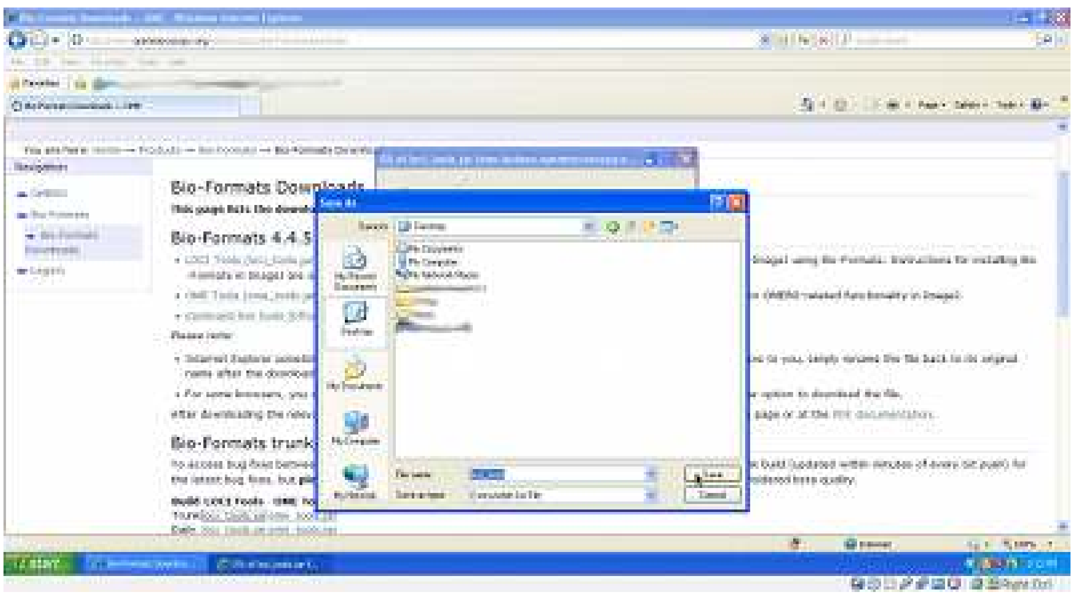
4.7 Upgrading the Bio-Formats importer for ImageJ to the latest trunk build

1) Download the latest trunk build of **loci_tools.jar** from Bio-Formats downloads[29]

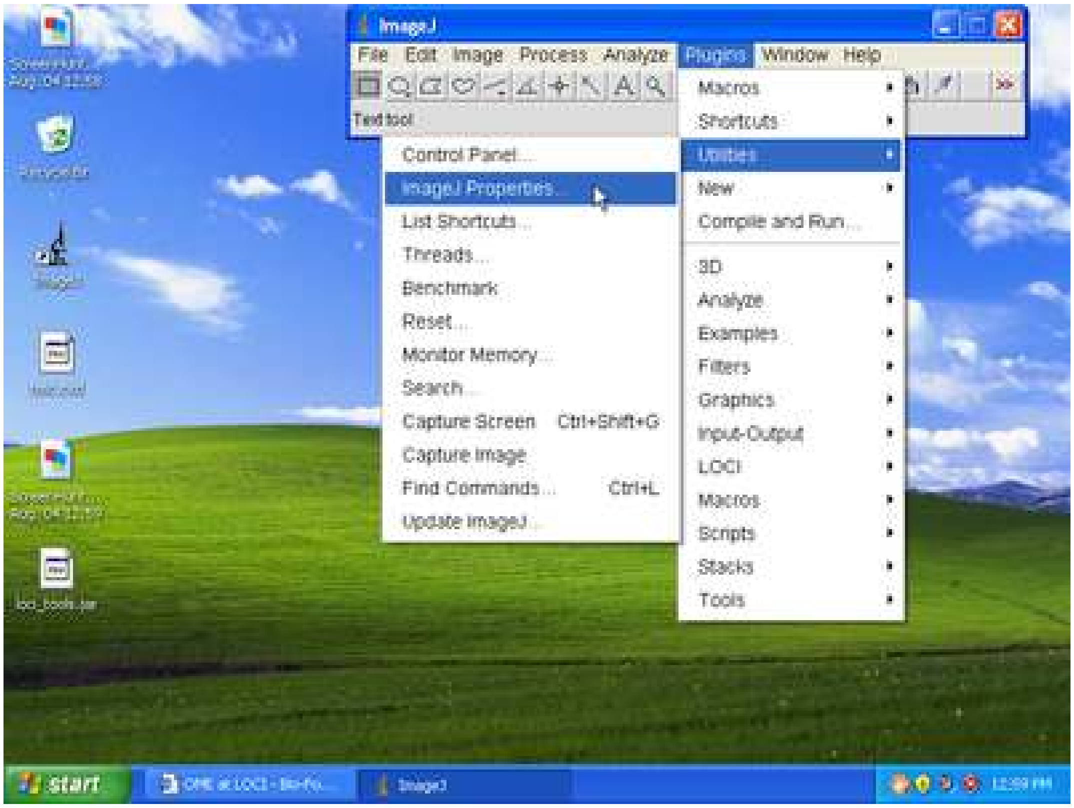
[28] http://rsbweb.nih.gov/ij/docs/menus/edit.html#options

[29] http://www.openmicroscopy.org/site/products/bio-formats/downloads/

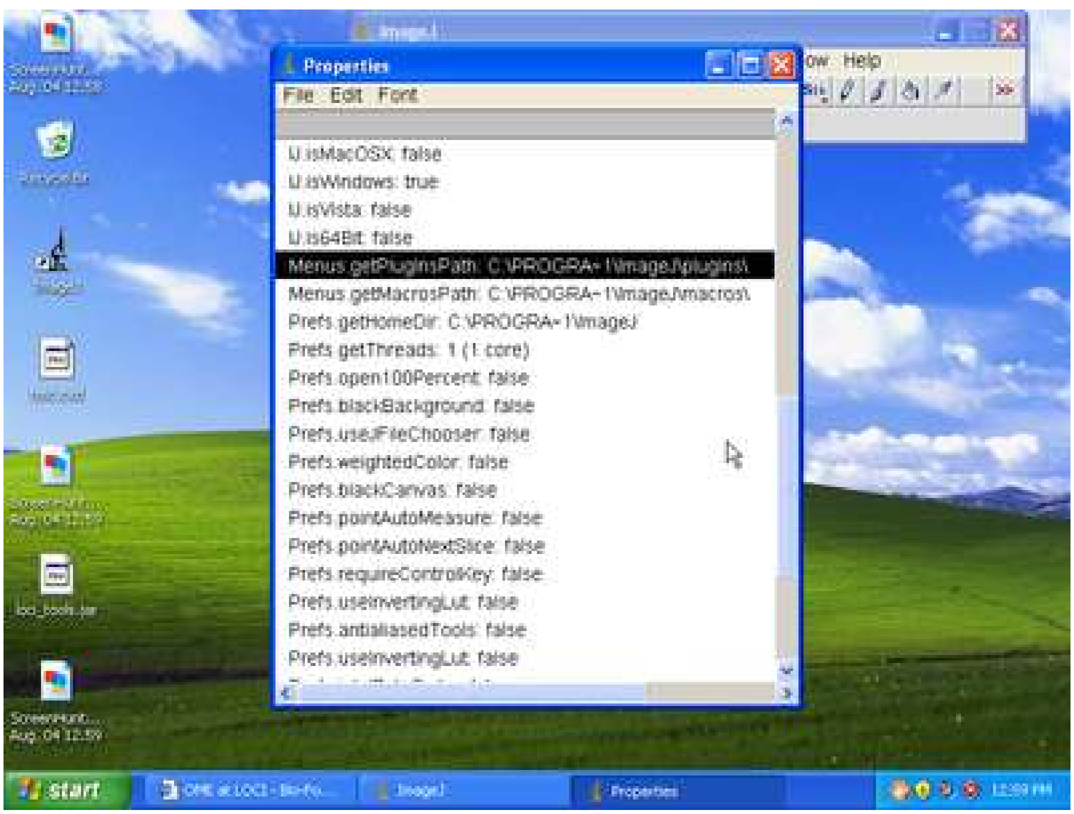
2) Internet Explorer will ask you where it should save **loci_tools.jar**. Select 'Desktop'.



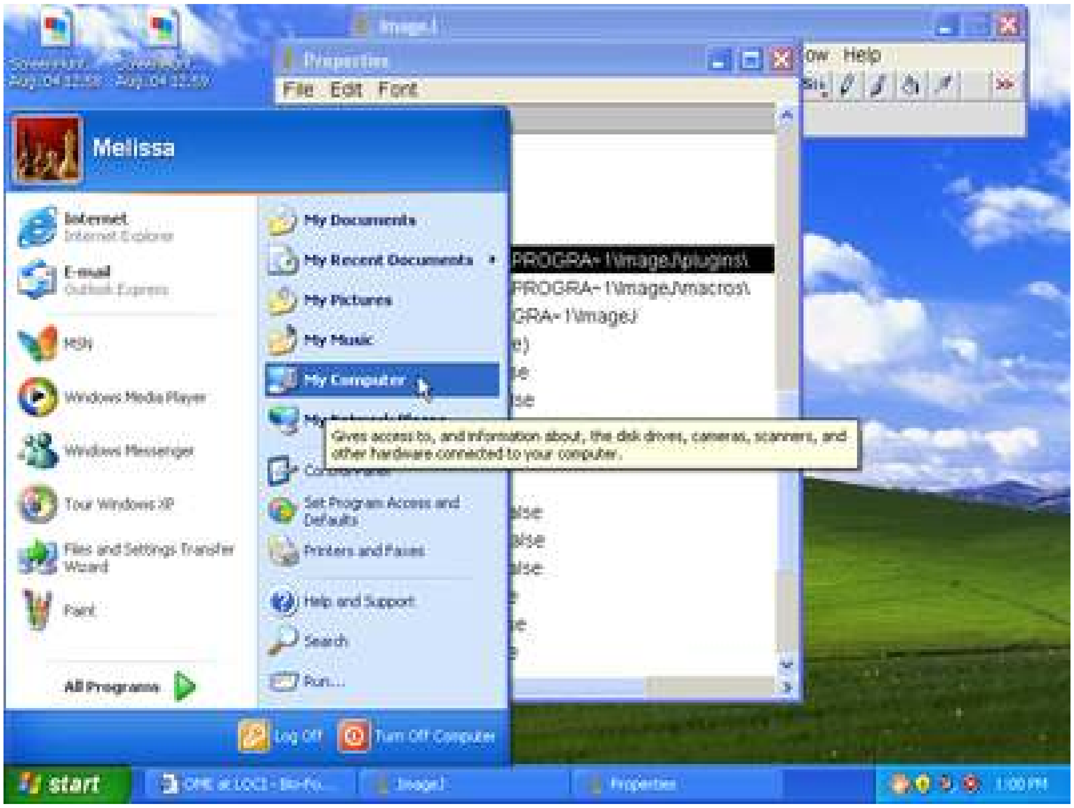
3. Start ImageJ.
4. Select "Plugins > Utilities > ImageJ Properties..."



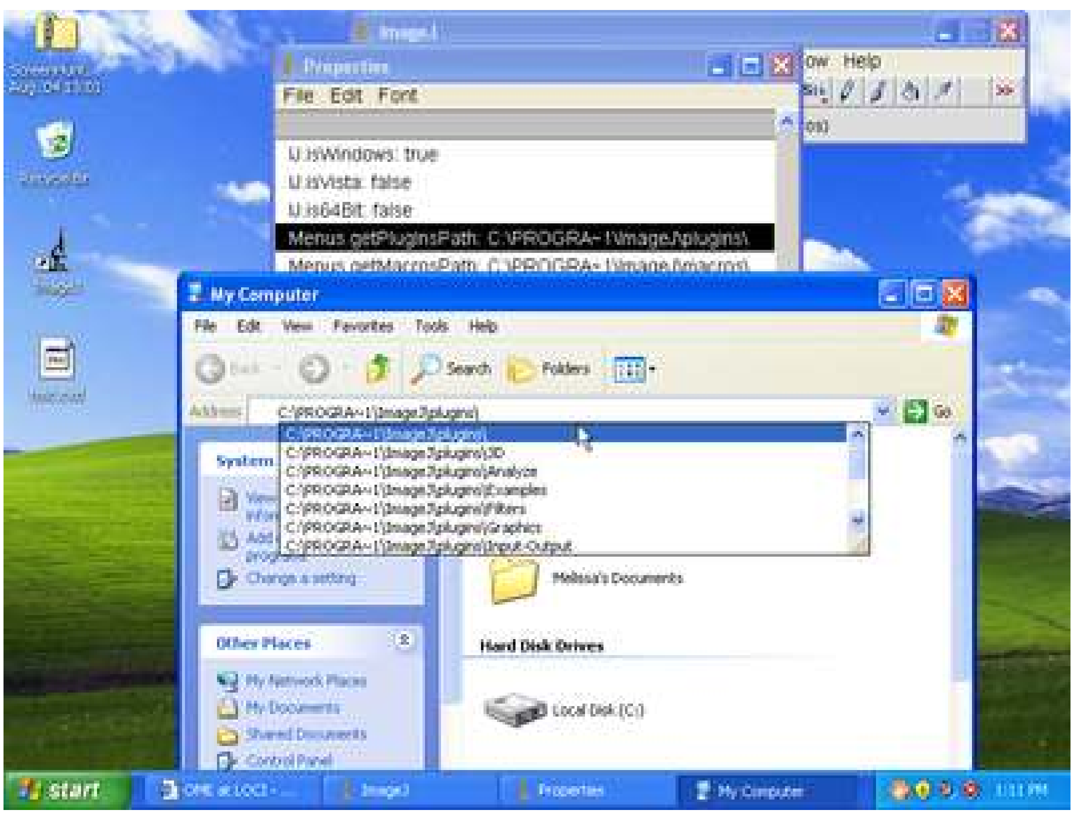
5) Scroll through the **Properties** window until you find a line that starts with “Menus.getPlugInsPath” (highlighted).



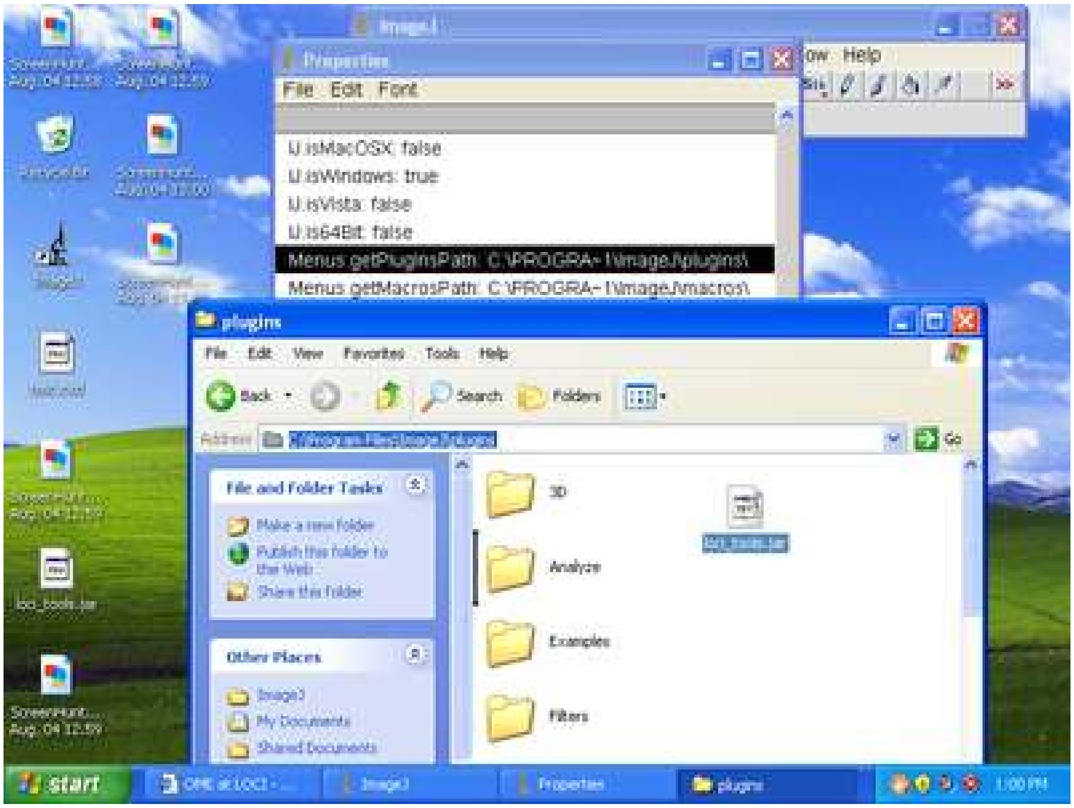
6) Leaving ImageJ and the Properties window open, click the **Start** button, then **My Computer**.



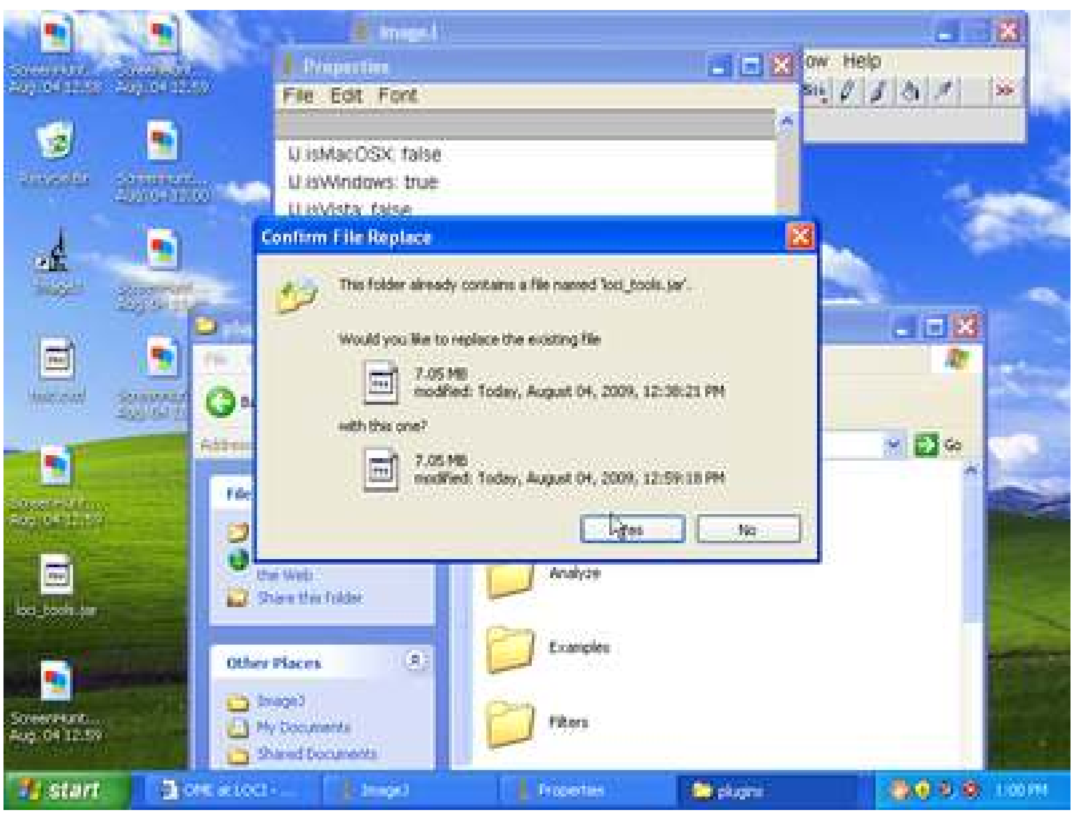
7) Type the path from step 5 into the address bar in the **My Computer** window, then hit the **Enter** key. The path should look something like this `C:\PROGRA~1\ImageJ\plugins\`



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.

CHAPTER

FIVE

OMERO

OMERO.importer uses Bio-Formats to read image pixels and propagate metadata into the OMERO.server system. Please refer to the OMERO documentation[1] for further information.

[1] http://www.openmicroscopy.org/site/support/omero4/

CHAPTER

SIX

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

OME[2] 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 ticket[5] 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

CHAPTER

SEVEN

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.

xmlindent 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.

xmlvalid 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/
[3] http://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

FARSIGHT[4] 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

[4] http://www.farsight-toolkit.org/wiki/Main_Page
[5] http://www.rpi.edu/
[6] http://www.farsight-toolkit.org/wiki/NucleusEditor
[7] http://www.farsight-toolkit.org/wiki/FARSIGHT_HowToBuild
[8] http://www.farsight-toolkit.org/wiki/FARSIGHT_Tutorials/Building_Software/Bio-Formats
[9] http://www.farsight-toolkit.org/wiki/Special:FarsightDownloads
[10] http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dcore/index.html

the Centre for Biomedical Image Analysis[11]. 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
[12] http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dalgo/index.html
[13] http://cbia.fi.muni.cz/user_dirs/of_doc/libi4d.html
[14] http://java4cpp.kapott.org/
[15] http://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
[19] http://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, `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 MATLAB[28] 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

Subimager[30], 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 Institute[31] to facilitate integration with their CellProfiler[32] image analysis application.

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

CHAPTER

EIGHT

NUMERICAL DATA PROCESSING APPLICATIONS

8.1 IDL

IDL[1] (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 version[4] and restart IDL.

8.2 KNIME

KNIME[5] (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 Processing[6] (a.k.a. KNIP) plugin.

8.3 MATLAB

MATLAB[7] 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
[2] http://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/

CHAPTER

NINE

VISUALIZATION AND ANALYSIS APPLICATIONS

9.1 Bitplane Imaris

Imaris[1] 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 7.2[2], Imaris integrates with *Fiji*, which includes Bio-Formats. See this page[3] for a detailed list of Imaris' features.

9.2 CellProfiler

CellProfiler[4]—developed by the Broad Institute[5]'s Imaging Platform[6]—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 site[7]

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 Vorregaard[8].

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 biofilms[9]

9.4 Endrov

Endrov[10] (or http://www.endrov.net) (EV) is a multi-purpose image analysis program developed by the Thomas Burglin group[11] at Karolinska Institute[12], 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

FocalPoint[14] is an image browser, similar to Windows Explorer[15] or other file manager[16] 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/
[9] http://www2.imm.dtu.dk/pubdb/views/publication_details.php?id=5628
[10] https://github.com/mahogny/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/
[15] http://en.wikipedia.org/wiki/Windows_Explorer
[16] http://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

Macnification[23] is a Mac OS X application for organizing, editing, analyzing and annotating microscopic images, designed for ease of use. It is being developed by Orbicule[24].

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 MIPAV[26] (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/utils/mipav/PlugInBioFormatsImporter.java
[31] https://github.com/openmicroscopy/bioformats/blob/develop/components/scifio/utils/mipav/readme.txt
[32] http://www.openmicroscopy.org/site/products/bio-formats/downloads/

9.12 Vaa3D

Vaa3D[33], developed by the Peng Lab[34] at the HHMI Janelia Farm Research Campus[35], 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

VisBio[37] 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

XuvTools[39] 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/
[36] http://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

CHAPTER

TEN

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/utils
[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)
[6] 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()
[8] 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()
[10] 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()
[12] 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()
[14] 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()
[16] 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()
[18] 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()
[20] 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()
[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 BufferedImages 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

CHAPTER

ELEVEN

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	poi-loci.jar[5]	Apache	For OLE-based formats (zvi, oib, ipw, cxd)
MDB Tools project[6] Java port, LOCI fork	mdbtools-java.jar[7]	LGPL	For Olympus CellR and Zeiss LSM metadata (mdb)
JAI Image I/O Tools[8] pure Java implementation, LOCI fork	jai_imageio.jar[9]	BSD	For JPEG2000-based formats (nd2, jp2)
NetCDF Java library[10]	netcdf-4.0.jar[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
[9] http://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/utils/MinimumWriter.java
[18] https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/utils/PrintTimestamps.java
[19] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/Simple_Read.java
[20] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/Read_Image.java
[21] https://github.com/openmicroscopy/bioformats/blob/develop/components/loci-plugins/utils/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 tickets[25]

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 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 = bfopen('/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 bfopen.

- **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/

CHAPTER

TWELVE

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, JuggerNET*
- *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
[2] http://en.wikipedia.org/wiki/Java_Native_Interface
[3] http://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).

[5] http://en.wikipedia.org/wiki/Inter-process_communication
[6] http://en.wikipedia.org/wiki/Middleware
[7] http://en.wikipedia.org/wiki/Marshalling_%28computer_science%29
[8] http://en.wikipedia.org/wiki/Standard_streams
[9] http://en.wikipedia.org/wiki/Client-server
[10] http://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 JNI[14]

- 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.

Jace[17]

- 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++ion[18]

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

JuggerNET[20]

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

GCJ[22]

- 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.NET[24]

- 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.

Pipes[25]

- 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.

Files[27]

- 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.

Sockets[29]

- 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-RPC[31]

- 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]

Ice[34]

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

CORBA[37]

[23] http://gcc.gnu.org/java/papers/cni/t1.html
[24] http://www.ikvm.net/
[25] http://en.wikipedia.org/wiki/Pipeline_%28Unix%29
[26] http://www.openmicroscopy.org/site/products/legacy/ome-server
[27] http://en.wikipedia.org/wiki/Computer_file
[28] http://www.openmicroscopy.org/site/products/legacy/ome-server
[29] http://en.wikipedia.org/wiki/Unix_domain_socket
[30] http://www.loci.wisc.edu/software/jvmlink
[31] http://en.wikipedia.org/wiki/XML-RPC
[32] http://en.wikipedia.org/wiki/Remote_procedure_call
[33] http://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 JVM[39]

- 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/
[39] http://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
[44] https://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
```

CHAPTER

THIRTEEN

SCIFIO

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-XML[1] 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[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.

CHAPTER

FOURTEEN

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)
[4] 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)
[6] 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)

`FormatException` if the image number is invalid (less than 0 or >= 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)
[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)
[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 package[24].
- 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 team[38].

[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

CHAPTER FIFTEEN

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 usage[6] 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 #4086[7]).

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 (Download[8]) (*)

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

[8] http://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 #463[13] and #464[14].

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.
```

9 http://en.wikipedia.org/wiki/Dependency_injection
10 http://en.wikipedia.org/wiki/Dependency_inversion_principle
11 http://en.wikipedia.org/wiki/Component-based_software_engineering
12 http://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 `ClassNotFound` 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

CHAPTER

SIXTEEN

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	.1sc	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.tiff 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. *.FocalPlane-*, .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 XYS	.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\<username>\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.

CHAPTER SEVENTEEN

SUPPORTED FORMATS

Ratings legend and definitions

Format	Extensions							
3i SlideBook	.sld							
Andor Bio-Imaging Division (ABD) TIFF	.tif							
AIM	.aim							
Alicona 3D	.al3d							
Amersham Bio-sciences Gel	.gel							
Amira Mesh	.am, .amiramesh, .grey, .hx, .labels							
Analyze 7.5	.img, .hdr							
Animated PNG	.png							
Aperio SVS TIFF	.svs							
Applied Precision CellWorX	.htd, .pnl							
AVI (Audio Video Interleave)	.avi							
Axon Raw Format	.arf							
BD Pathway	.exp, .tif							
Becker & Hickl SPCImage	.sdt							
Bio-Rad Gel	.1sc							
Bio-Rad PIC	.pic, .raw, .xml							
Bitplane Imaris	.ims							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
Bruker MRI	.ims							
Burleigh	.img							
Canon DNG	.cr2, .crw							
Cellomics	.c01							
cellSens VSI	.vsi							
DeltaVision	.dv, .r3d							
DICOM	.dcm, .dicom							
ECAT7	.v							
EPS (Encapsulated PostScript)	.eps, .epsi, .ps							
Evotec/PerkinElmer Opera Flex	.flex, .mea, .res							
FEI	.img							
FEI TIFF	.tiff							
FITS (Flexible Image Transport System)	.fits							
Gatan Digital Micrograph	.dm3							
Gatan Digital Micrograph 2	.dm2							
GIF (Graphics Interchange Format)	.gif							
Hamamatsu Aquacosmos NAF	.naf							
Hamamatsu HIS	.his							
Hamamatsu ndpi	.ndpi							
Hamamatsu VMS	.vms							
Hitachi S-4800	.txt, .tif, .bmp, .jpg							
ICS (Image Cytometry Standard)	.ics, .ids							
Imacon	.fff							
ImagePro Sequence	.seq							
ImagePro Workspace	.ipw							
IMAGIC	.hed, .img							
IMOD	.mod							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
Improvision Openlab LIFF	.liff							
Improvision Openlab Raw	.raw							
Improvision TIFF	.tif							
InCell 1000	.xdce, .tif							
InCell 3000	.frm							
INR	.inr							
IPLab	.ipl							
IPLab-Mac	.ipm							
JEOL	.dat, .img, .par							
JPEG	.jpg							
JPEG 2000	.jp2							
JPK	.jpk							
JPX	.jpx							
Khoros VIFF (Visualization Image File Format) Bitmap	.xv							
Kodak BIP	.bip							
Lambert Instruments FLIM	.fli							
Leica LCS LEI	.lei, .tif							
Leica LAS AF LIF (Leica Image File Format)	.lif							
Leica SCN	.scn							
LEO	.sxm							
Li-Cor L2D	.l2d, .tif, .scn							
LIM (Laboratory Imaging/Nikon)	.lim							
MetaMorph 7.5 TIFF	.tiff							
MetaMorph Stack (STK)	.stk, .nd							
MIAS (Maia Scientific)	.tif							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
Micro-Manager	.tif, .txt, .xml							
MINC MRI	.mnc							
Minolta MRW	.mrw							
MNG (Multiple-image Network Graphics)	.mng							
Molecular Imaging	.stp							
MRC (Medical Research Council)	.mrc							
NEF (Nikon Electronic Format)	.nef, .tif							
NIfTI	.img, .hdr							
Nikon Elements TIFF	.tiff							
Nikon EZ-C1 TIFF	.tiff							
Nikon NIS-Elements ND2	.nd2							
NRRD (Nearly Raw Raster Data)	.nrrd, .nhdr, .raw, .txt							
Olympus CellR/APL	.apl, .mtb, .tnb, .tif, .obsep							
Olympus FluoView FV1000	.oib, .oif							
Olympus FluoView TIFF	.tif							
Olympus ScanR	.xml, .dat, .tif							
Olympus SIS TIFF	.tiff							
OME-TIFF	.ome.tiff							
OME-XML	.ome							
Oxford Instruments	.top							
PCX (PC Paintbrush)	.pcx							
Perkin Elmer Densitometer	.pds							
PerkinElmer Operetta	.tiff, .xml							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
PerkinElmer UltraView	.tif, .2, .3, .4							
PGM (Portable Gray Map)	.pgm							
Adobe Photoshop PSD	.psd							
Photoshop TIFF	.tif, .tiff							
PICT (Macintosh Picture)	.pict							
PNG (Portable Network Graphics)	.png							
Prairie Technologies TIFF	.tif, .xml, .cfg							
Quesant	.afm							
QuickTime Movie	.mov							
RHK	.sm2, .sm3							
SBIG	.sm2, .sm3							
Seiko	.xqd, .xqf							
SimplePCI & HCImage	.cxd							
SimplePCI & HCImage TIFF	.tiff							
SM Camera	.tiff							
SPIDER	.spi, .stk							
Targa	.tga							
Text	.txt							
TIFF (Tagged Image File Format)	.tif							
TillPhotonics TillVision	.vws							
Topometrix	.tfr, .ffr, .zfr, .zfp, .2fl							
Trestle	.tif, .sld, .jpg							
UBM	.pr3							
Unisoku	.dat, .hdr							
Varian FDF	.fdf							

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions							
VG SAM	.dti							
VisiTech XYS	.xys, .html							
Volocity	.mvd2							
Volocity Library Clipping	.acff							
WA-TOP	.wat							
Windows Bitmap	.bmp							
Zeiss AxioVision TIFF	.xml, .tiff							
Zeiss AxioVision ZVI (Zeiss Vision Image)	.zvi							
Zeiss CZI	.czi							
Zeiss LSM (Laser Scanning Microscope) 510/710	.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 Technology[5]

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.alicona.com/
[10] http://www.alicona.com/home/fileadmin/alicona/downloads/AL3DFormat.pdf

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source 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 Resource[17]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Analyze 7.5*

We currently have:

- an Analyze 7.5 specification document[18]
- 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 Project[20]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Animated PNG*

Freely Available Software:

[17] http://www.mayo.edu/bir

[18] http://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]
- KSquirrel[23]

We currently have:

- a specification document[24]
- 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
[24] http://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 BioSystems[37]

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
[36]http://en.wikipedia.org/wiki/Audio_Video_Interleave
[37]http://www.indecbiosystems.com/
[38]http://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 SPCImage

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: .1sc

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 Information

Source 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 Information

Source 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 Imaris[72]
  - SVI Huygens[73]
  - Image-Pro Plus[74]

See also:

DeltaVision system description[75]

17.24 DICOM

Extensions: .dcm, .dicom

Developer: National Electrical Manufacturers Association[76]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *DICOM*

Freely Available Software:

- OsiriX Medical Imaging Software[77]
- ezDICOM[78]
- Wikipedia's list of freeware health software[79]

Sample Datasets:

- MRI Chest from FreeVol-3D web site[80]
- Medical Image Samples from Sebastien Barre's Medical Imaging page[81]
- DICOM sample image sets from OsiriX web site[82]

We currently have:

- DICOM specification documents[83] (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
[79] http://en.wikipedia.org/wiki/List_of_freeware_health_software#Imaging.2FVisualization
[80] http://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 PerkinElmer[92]

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: FEI[95]

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/
[100] http://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: Gatan[104]

Support

SCIFIO:

Export:

Officially Supported Versions: 3

Supported Metadata Fields: *Gatan Digital Micrograph*

Freely Available Software:

- DM3 Reader plugin for ImageJ[105]
- EMAN[106]

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: Gatan[109]

[104] http://www.gatan.com/
[105] http://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 Information

Source Code: GatanDM2Reader.java[110]

Notes:

17.33 GIF (Graphics Interchange Format)

Extensions: .gif

Developer: CompuServe[111]

Owner: 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 ImageJ[114]

We currently have:

- a GIF specification document[115] (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
[122] http://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
[129] http://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/
[132] http://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 Cybernetics[140]

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 Cybernetics[143]

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 Improvision Openlab LIFF

Extensions: .liff

Developer: Improvision[156]

Owner: PerkinElmer[157]

Support

SCIFIO:

Export:

Officially Supported Versions: 2.0, 5.0

Supported Metadata Fields: *Improvision Openlab LIFF*

We currently have:

- an Openlab specification document (from 2000 February 8, in DOC)
- Improvision'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.improvision.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 Improvision Openlab Raw

Extensions: .raw

Developer: Improvision[160]

Owner: PerkinElmer[161]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Improvision 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.improvision.com/products/openlab/
[160] http://www.improvision.com/
[161] http://www.perkinelmer.com/
[162] http://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 Improvision TIFF

Extensions: .tif

Developer: Improvision[165]

Owner: PerkinElmer[166]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Improvision TIFF*

We currently have:

- an Improvision TIFF specification document
- a few Improvision TIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: ImprovisionTiffReader.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.improvision.com/products/openlab/
[165] http://www.improvision.com/
[166] http://www.perkinelmer.com/
[167] https://github.com/openmicroscopy/bioformats/blob/develop/components/bio-formats/src/loci/formats/in/ImprovisionTiffReader.java
[168] http://www.improvision.com/products/openlab/

17.48 InCell 1000

Extensions: .xdce, .tif

Developer: GE[169]

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: GE[171]

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: INRReader.java[174]

Notes:

17.51 IPLab

Extensions: .ipl

Developer: Scanalytics

Owner: was BD Biosystems[175], now BioVision Technologies[176]

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/INRReader.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 document[194] (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: Khoral[202]

Owner: AccuSoft[203]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Khoros VIFF (Visualization Image File Format) Bitmap*

Sample Datasets:

- VIFF Images[204]

We currently have:

- several VIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: KhorosReader.java[205]

Notes:

See also:

VisiQuest software overview (formerly known as KhorosPro)[206]

17.59 Kodak BIP

Extensions: .bip

Developer: Kodak/Carestream[207]

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 206 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 Biosciences[230]

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 Imaging[232]

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 Imaris[239]
- SVI Huygens[240]
- DIMIN[241]

See also:

Metamorph imaging system overview[242]

17.69 MIAS (Maia Scientific)

Extensions: .tif

Developer: Maia Scientific[243]

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.java[244]

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 Biology[264]

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/
[265] http://bio3d.colorado.edu/imod/files/imod_data.tar.gz
[266] http://ami.scripps.edu/software/mrctools/mrc_specification.php
[267] http://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/
[270] http://en.wikipedia.org/wiki/MRC_%28file_format%29

17.76 NEF (Nikon Electronic Format)

Extensions: .nef, .tif

Developer: Nikon[271]

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/
[272] http://www.outbackphoto.com/workshop/NEF_conversion/neffile1.zip
[273] http://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
[275] http://www.outbackphoto.com/workshop/NEF_conversion/nefconversion.html

17.77 NIfTI

Extensions: .img, .hdr

Developer: National Institutes of Health[276]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *NIfTI*

Sample Datasets:

- Official test data[277]

We currently have:

- NIfTI specification documents[278]
- several NIfTI datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: NiftiReader.java[279]

Notes:

17.78 Nikon Elements TIFF

Extensions: .tiff

Developer: Nikon[280]

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 developers[290]

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: Olympus[295]

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: Olympus[297]

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 Olympus[298]

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]

[298] http://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 Imaris[318]
- SVI Huygens[319]

See also:

OME-TIFF technical overview[320]

17.88 OME-XML

Extensions: .ome

Developer: Open Microscopy Environment[321]

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 documents[322]
- 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 Imaris[326]
- SVI Huygens[327]

17.89 Oxford Instruments

Extensions: .top

Owner: Oxford Instruments[328]

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 filse

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
[332] http://www.perkinelmer.com

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source 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 Information

Source 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/ultraviewvoxsystemsoverview.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 Computer[348]

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 Java[350] 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 Group[353]

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 Information

Source 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 Information

Source 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 document[373]
- 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 & HCImage

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 Information

Source 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 Information

Source 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 Center[384]

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: Truevision[388]

Support

SCIFIO:

Export:

[384] http://www.wadsworth.org/spider_doc/spider/docs/spider.html
[385] http://www.wadsworth.org/spider_doc/spider/docs/spider.html
[386] http://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: Adobe[391]

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
[392] http://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 overview[397] BigTIFF technical overview[398]

17.112 TillPhotonics TillVision

Extensions: .vws

Developer: TILL Photonics[399]

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 GmbH[427]

Owner: Carl Zeiss MicroImaging GmbH[428]

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
[429] http://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 GmbH[432]

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 GmbH[438]

Support

SCIFIO:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Zeiss CZI*

Freely Available Software:

- Zeiss ZEN 2011[439]

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 GmbH[441]

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
[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 Plus[451]

[451] http://www.mediacy.com/

CHAPTER

EIGHTEEN

SUMMARY OF SUPPORTED METADATA FIELDS

18.1 Format readers

Format	Supported	Unsupported	Partial	Unknown/Missing
AIMReader	20	0	0	453
APLReader	19	0	0	454
APNGReader	17	0	0	456
ARFReader	17	0	0	456
AVIReader	17	0	0	456
AliconaReader	31	0	0	442
AmiraReader	20	0	0	453
AnalyzeReader	22	0	0	451
BDReader	55	0	0	418
BIFormatReader	17	0	0	456
BMPReader	19	0	0	454
BaseTiffReader	25	0	0	448
BaseZeissReader	81	0	0	392
BioRadGelReader	19	0	0	454
BioRadReader	38	0	0	435
BrukerReader	21	0	0	452
BurleighReader	20	0	0	453
CanonRawReader	17	0	0	456
CellSensReader	17	0	0	456
CellWorxReader	41	0	0	432
CellomicsReader	29	0	0	444
DNGReader	17	0	0	456
DeltavisionReader	50	0	0	423
DicomReader	21	0	0	452
EPSReader	17	0	0	456
Ecat7Reader	21	0	0	452
FEIReader	17	0	0	456
FEITiffReader	37	0	0	436
FV1000Reader	107	0	0	366
FakeReader	17	0	0	456
FitsReader	17	0	0	456
FlexReader	67	0	0	406
FluoviewReader	47	0	0	426
FujiReader	21	0	0	452

Continued on next page

Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
GIFReader	17	0	0	456
GatanDM2Reader	28	0	0	445
GatanReader	34	0	0	439
GelReader	19	0	0	454
HISReader	25	0	0	448
HRDGDFReader	19	0	0	454
HamamatsuVMSReader	24	0	0	449
HitachiReader	29	0	0	444
ICSReader	70	0	0	403
IMODReader	42	0	0	431
INRReader	20	0	0	453
IPLabReader	29	0	0	444
IPWReader	18	0	0	455
ImaconReader	21	0	0	452
ImageIOReader	17	0	0	456
ImagicReader	20	0	0	453
ImarisHDFReader	22	0	0	451
ImarisReader	30	0	0	443
ImarisTiffReader	21	0	0	452
ImprovisionTiffReader	23	0	0	450
InCell3000Reader	17	0	0	456
InCellReader	65	0	0	408
IvisionReader	32	0	0	441
JEOLReader	17	0	0	456
JPEG2000Reader	17	0	0	456
JPEGReader	17	0	0	456
JPKReader	17	0	0	456
JPXReader	17	0	0	456
KhorosReader	17	0	0	456
KodakReader	24	0	0	449
L2DReader	27	0	0	446
LEOReader	25	0	0	448
LIFReader	83	0	0	390
LIMReader	17	0	0	456
LegacyND2Reader	17	0	0	456
LegacyQTReader	17	0	0	456
LeicaReader	54	0	0	419
LeicaSCNReader	31	0	0	442
LiFlimReader	23	0	0	450
MIASReader	62	0	0	411
MINCReader	21	0	0	452
MNGReader	17	0	0	456
MRCReader	20	0	0	453
MRWReader	17	0	0	456
MetamorphReader	41	0	0	432
MetamorphTiffReader	35	0	0	438
MicromanagerReader	36	0	0	437
MinimalTiffReader	17	0	0	456
MolecularImagingReader	19	0	0	454

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Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
NAFReader	17	0	0	456
ND2Reader	17	0	0	456
NDPIReader	19	0	0	454
NDPISReader	17	0	0	456
NRRDReader	20	0	0	453
NativeND2Reader	50	0	0	423
NativeQTReader	17	0	0	456
NiftiReader	22	0	0	451
NikonElementsTiffReader	48	0	0	425
NikonReader	17	0	0	456
NikonTiffReader	45	0	0	428
OMETiffReader	17	0	0	456
OMEXMLReader	17	0	0	456
OpenlabRawReader	17	0	0	456
OpenlabReader	30	0	0	443
OperettaReader	41	0	0	432
OxfordInstrumentsReader	20	0	0	453
PCIReader	27	0	0	446
PCXReader	17	0	0	456
PDSReader	21	0	0	452
PGMReader	17	0	0	456
PSDReader	17	0	0	456
PerkinElmerReader	28	0	0	445
PhotoshopTiffReader	17	0	0	456
PictReader	17	0	0	456
PovrayReader	17	0	0	456
PrairieReader	43	0	0	430
PyramidTiffReader	17	0	0	456
QTReader	17	0	0	456
QuesantReader	20	0	0	453
RHKReader	20	0	0	453
SBIGReader	20	0	0	453
SDTReader	17	0	0	456
SEQReader	17	0	0	456
SIFReader	18	0	0	455
SISReader	31	0	0	442
SMCameraReader	17	0	0	456
SVSReader	18	0	0	455
ScanrReader	41	0	0	432
ScreenReader	32	0	0	441
SeikoReader	20	0	0	453
SimplePCITiffReader	31	0	0	442
SlidebookReader	32	0	0	441
SlidebookTiffReader	28	0	0	445
SpiderReader	19	0	0	454
TCSReader	20	0	0	453
TargaReader	18	0	0	455
TextReader	17	0	0	456
TiffDelegateReader	17	0	0	456

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Table 18.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
TiffJAIReader	17	0	0	456
TiffReader	20	0	0	453
TileJPEGReader	17	0	0	456
TillVisionReader	20	0	0	453
TopometrixReader	20	0	0	453
TrestleReader	24	0	0	449
UBMReader	17	0	0	456
UnisokuReader	20	0	0	453
VGSAMReader	17	0	0	456
VarianFDFReader	23	0	0	450
VisitechReader	17	0	0	456
VolocityClippingReader	17	0	0	456
VolocityReader	35	0	0	438
WATOPReader	20	0	0	453
ZeissCZIReader	149	0	0	324
ZeissLSMReader	99	0	0	374
ZeissTIFFReader	17	0	0	456
ZeissZVIReader	17	0	0	456
ZipReader	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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[1] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[4] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[5] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[6] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[7] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Arc_Type
[8] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[9] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[10] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[11] http://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 - ContrastMethod[16]	0	0	0	151
Channel - EmissionWavelength[17]	14	0	0	137
Channel - ExcitationWavelength[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 - LightSourceSettingsAttenuation[23]	1	0	0	150
Channel - LightSourceSettingsID[24]	5	0	0	146
Channel - LightSourceSettingsWavelength[25]	2	0	0	149
Channel - NDFilter[26]	2	0	0	149
Channel - Name[27]	29	0	0	122
Channel - PinholeSize[28]	9	0	0	142
Channel - PockelCellSetting[29]	0	0	0	151

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[12] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#BooleanAnnotation_Value
[13] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode
[14] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[15] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[16] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ContrastMethod
[17] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[18] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[19] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSetRef_ID
[20] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Fluor
[21] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[22] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType
[23] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation
[24] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[25] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength
[26] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter
[27] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[28] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[29] http://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 - SamplesPerPixel[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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[30] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[31] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[32] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[33] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[34] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[35] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#CommentAnnotation_Value
[36] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[37] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_Description
[38] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID
[39] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[40] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_ID
[41] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[42] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dataset_Name
[43] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain
[44] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain
[45] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[46] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[47] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[48] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[49] http://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 - SerialNumber[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 - SerialNumber[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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[50] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[51] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[52] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage
[53] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom
[54] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[55] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[56] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[57] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[58] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate
[59] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[60] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[61] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[62] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[63] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[64] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[65] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[66] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[67] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[68] http://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

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[69] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#DoubleAnnotation_Value
[70] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[71] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[72] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
[73] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[74] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
[75] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[76] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[77] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[78] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX
[79] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY
[80] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[81] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[82] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[83] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[84] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[85] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[86] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[87] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[88] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[89] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X
[90] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y
[91] http://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 - FirstName[97]	5	0	0	146
Experimenter - ID[98]	10	0	0	141
Experimenter - Institution[99]	3	0	0	148
Experimenter - LastName[100]	9	0	0	142
Experimenter - MiddleName[101]	1	0	0	150
Experimenter - UserName[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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[92] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[93] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[94] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type
[95] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[96] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Email
[97] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName
[98] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[99] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution
[100] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[101] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_MiddleName
[102] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName
[103] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[104] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_Description
[105] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[106] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_ID
[107] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Leader_ID
[108] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroup_Name
[109] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[110] http://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 - SerialNumber[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 - FilterWheel[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 - EmissionFilterRef[128]	2	0	0	149
FilterSet - ExcitationFilterRef[129]	2	0	0	149
FilterSet - ID[130]	2	0	0	149

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[111] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[112] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[113] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[114] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[115] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filament_Type
[116] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[117] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[118] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[119] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[120] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel
[121] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[122] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[123] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[124] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[125] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[126] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type
[127] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[128] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[129] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[130] http://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 - SerialNumber[134]	1	0	0	150
Image - AcquisitionDate[135]	151	0	0	0
Image - AnnotationRef[136]	0	0	0	151
Image - Description[137]	40	0	0	111
Image - ExperimentRef[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 - MicrobeamManipulationRef[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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[131] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[132] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[133] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[134] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[135] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[136] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[137] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[138] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimentRef_ID
[139] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID
[140] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[141] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[142] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[143] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulationRef_ID
[144] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[145] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[146] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_AirPressure
[147] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_CO2Percent
[148] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Humidity
[149] http://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 - FrequencyMultiplication[170]	0	0	0	151
Laser - ID[171]	9	0	0	142
Laser - LaserMedium[172]	8	0	0	143

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150 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
151 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
152 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
153 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
154 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
155 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
156 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
157 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
158 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
159 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
160 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
161 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
162 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
163 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
164 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
165 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
166 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
167 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
168 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X
169 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y
170 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_FrequencyMultiplication
171 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
172 http://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 - RepetitionRate[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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[173] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[174] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[175] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[176] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_PockelCell
[177] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[178] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Pulse
[179] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pump_ID
[180] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_RepetitionRate
[181] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[182] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Tuneable
[183] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[184] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[185] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[186] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[187] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[188] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[189] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[190] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[191] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[192] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID

Table 18.2 – continued from previous page

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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[193] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[194] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[195] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[196] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
[197] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[198] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
[199] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[200] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[201] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[202] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_MarkerEnd
[203] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_MarkerStart
[204] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[205] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[206] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[207] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[208] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[209] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[210] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[211] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[212] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[213] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1
[214] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2
[215] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1
[216] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2
[217] http://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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[218] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[219] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[220] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[221] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[222] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[223] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[224] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[225] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#LongAnnotation_Value
[226] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[227] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[228] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
[229] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[230] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height
[231] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[232] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[233] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[234] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[235] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[236] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[237] http://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 - LotNumber[253]	1	0	0	150
Microscope - Manufacturer[254]	2	0	0	149
Microscope - Model[255]	9	0	0	142
Microscope - SerialNumber[256]	3	0	0	148
Microscope - Type[257]	3	0	0	148

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[238] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[239] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[240] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[241] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[242] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[243] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width
[244] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X
[245] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y
[246] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[247] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulation_ID
[248] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[249] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#MicrobeamManipulation_Type
[250] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation
[251] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[252] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength
[253] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[254] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[255] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[256] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[257] http://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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[258] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[259] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[260] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[261] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[262] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris
[263] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[264] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[265] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[266] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[267] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[268] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[269] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[270] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar
[271] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[272] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_Medium
[273] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[274] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[275] http://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 - PhysicalSizeX[278]	79	0	0	72
Pixels - PhysicalSizeY[279]	79	0	0	72
Pixels - PhysicalSizeZ[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 - AnnotationRef[288]	0	0	0	151
Plane - DeltaT[289]	22	0	0	129
Plane - ExposureTime[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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[276] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[277] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[278] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[279] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[280] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[281] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[282] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[283] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[284] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[285] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[286] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[287] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[288] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[289] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[290] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[291] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_HashSHA1
[292] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[293] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[294] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[295] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[296] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[297] http://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 - AnnotationRef[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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[298] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[299] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[300] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns
[301] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description
[302] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier
[303] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[304] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[305] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[306] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows
[307] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Status
[308] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginX
[309] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginY
[310] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[311] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_Description
[312] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_EndTime
[313] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[314] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[315] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_Name
[316] http://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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[317] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[318] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[319] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[320] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
[321] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[322] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
[323] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[324] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[325] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[326] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[327] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[328] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[329] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[330] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[331] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[332] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[333] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[334] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[335] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X
[336] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y
[337] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[338] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[339] http://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 - FontSize[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 - StrokeColor[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 - FillColor[355]	0	0	0	151
Polyline - FillRule[356]	0	0	0	151
Polyline - FontFamily[357]	0	0	0	151
Polyline - FontSize[358]	2	0	0	149
Polyline - FontStyle[359]	0	0	0	151
Polyline - ID[360]	5	0	0	146

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[340] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[341] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
[342] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[343] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[344] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[345] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[346] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[347] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[348] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[349] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[350] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[351] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[352] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[353] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[354] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[355] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[356] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
[357] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
[358] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[359] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
[360] http://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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[361] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
[362] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Locked
[363] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_MarkerEnd
[364] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_MarkerStart
[365] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points
[366] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[367] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[368] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[369] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[370] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[371] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[372] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[373] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[374] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[375] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[376] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DatasetRef_ID
[377] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Project_Description
[378] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterGroupRef_ID
[379] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[380] http://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 - AnnotationRef[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 - FillColor[392]	0	0	0	151
Rectangle - FillRule[393]	0	0	0	151
Rectangle - FontFamily[394]	0	0	0	151
Rectangle - FontSize[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

Continued on next page

381 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Project_Name
382 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
383 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Description
384 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
385 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name
386 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Namespace
387 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
388 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_Description
389 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_ID
390 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_Name
391 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Reagent_ReagentIdentifier
392 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
393 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillRule
394 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontFamily
395 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
396 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontStyle
397 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
398 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
399 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_LineCap
400 http://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 - StrokeColor[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 - AnnotationRef[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 - ReagentSetDescription[420]	0	0	0	151
Screen - ReagentSetIdentifier[421]	0	0	0	151

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[401] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[402] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[403] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[404] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[405] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheC
[406] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[407] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[408] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[409] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Visible
[410] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[411] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[412] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[413] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[414] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Description
[415] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ID
[416] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Name
[417] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Screen_PlateRef_ID
[418] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ProtocolDescription
[419] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ProtocolIdentifier
[420] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_ReagentSetDescription
[421] http://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

Continued on next page

[422] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Screen_Type
[423] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name
[424] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_X
[425] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Y
[426] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Z
[427] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[428] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[429] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[430] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[431] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TagAnnotation_Value
[432] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[433] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[434] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[435] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[436] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TermAnnotation_Value
[437] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstC
[438] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstT
[439] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_FirstZ
[440] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_IFD
[441] http://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 - AnnotationRef[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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[442] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[443] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Description
[444] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
[445] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
[446] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#TimestampAnnotation_Value
[447] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[448] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutInTolerance
[449] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut
[450] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOutTolerance
[451] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_Transmittance
[452] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TiffData_TiffData_UUID_FileName
[453] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#UniversallyUniqueIdentifier
[454] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
[455] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Color
[456] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[457] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ExternalDescription
[458] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ExternalIdentifier
[459] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[460] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#ReagentRef_ID
[461] http://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[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:

462 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Type
463 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
464 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
465 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
466 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
467 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX
468 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY
469 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Timepoint
470 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#AnnotationRef_ID
471 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_ID
472 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#Annotation_Namespace
473 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SA_xsd.html#XMLAnnotation_Value
474 http://www.openmicroscopy.org/site/support/ome-model/

- Channel : ID[475]
- Channel : NDFilter[476]
- Channel : Name[477]
- Channel : SamplesPerPixel[478]
- Image : AcquisitionDate[479]
- Image : Description[480]
- Image : ID[481]
- Image : InstrumentRef[482]
- Image : Name[483]
- Instrument : ID[484]
- Objective : Correction[485]
- Objective : ID[486]
- Objective : Immersion[487]
- Objective : Model[488]
- Objective : NominalMagnification[489]
- ObjectiveSettings : ID[490]
- Pixels : BinDataBigEndian[491]
- Pixels : DimensionOrder[492]
- Pixels : ID[493]
- Pixels : PhysicalSizeX[494]
- Pixels : PhysicalSizeY[495]
- Pixels : PhysicalSizeZ[496]
- Pixels : SizeC[497]

[475] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[476] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter
[477] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[478] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[479] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[480] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[481] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[482] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[483] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[484] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[485] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[486] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[487] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[488] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[489] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[490] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[491] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[492] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[493] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[494] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[495] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[496] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[497] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT[498]
- Pixels : SizeX[499]
- Pixels : SizeY[500]
- Pixels : SizeZ[501]
- Pixels : Type[502]
- Plane : ExposureTime[503]
- Plane : TheC[504]
- Plane : TheT[505]
- Plane : TheZ[506]

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 : ID[508]
- Channel : SamplesPerPixel[509]
- Image : AcquisitionDate[510]
- Image : ID[511]
- Image : Name[512]

[498] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[499] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[500] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[501] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[502] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[503] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[504] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[505] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[506] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[507] http://www.openmicroscopy.org/site/support/ome-model/
[508] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[509] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[510] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[511] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[512] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Pixels : BinDataBigEndian[513]
- Pixels : DimensionOrder[514]
- Pixels : ID[515]
- Pixels : PhysicalSizeX[516]
- Pixels : PhysicalSizeY[517]
- Pixels : PhysicalSizeZ[518]
- Pixels : SizeC[519]
- Pixels : SizeT[520]
- Pixels : SizeX[521]
- Pixels : SizeY[522]
- Pixels : SizeZ[523]
- Pixels : Type[524]
- Plane : TheC[525]
- Plane : TheT[526]
- Plane : TheZ[527]

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%).

[513] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[514] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[515] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[516] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[517] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[518] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[519] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[520] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[521] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[522] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[523] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[524] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[525] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[526] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[527] http://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 : ID[529]
- Channel : SamplesPerPixel[530]
- Detector : ID[531]
- Detector : Type[532]
- DetectorSettings : ID[533]
- DetectorSettings : Voltage[534]
- Image : AcquisitionDate[535]
- Image : ID[536]
- Image : InstrumentRef[537]
- Image : Name[538]
- Instrument : ID[539]
- Objective : CalibratedMagnification[540]
- Objective : Correction[541]
- Objective : ID[542]
- Objective : Immersion[543]
- Objective : WorkingDistance[544]
- ObjectiveSettings : ID[545]
- Pixels : BinDataBigEndian[546]
- Pixels : DimensionOrder[547]
- Pixels : ID[548]
- Pixels : PhysicalSizeX[549]

[529] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[530] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[531] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[532] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[533] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[534] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[535] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[536] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[537] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[538] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[539] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[540] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[541] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[542] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[543] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[544] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[545] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[546] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[547] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[548] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[549] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY[550]
- Pixels : SizeC[551]
- Pixels : SizeT[552]
- Pixels : SizeX[553]
- Pixels : SizeY[554]
- Pixels : SizeZ[555]
- Pixels : Type[556]
- Plane : TheC[557]
- Plane : TheT[558]
- Plane : TheZ[559]

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 : ID[561]
- Channel : SamplesPerPixel[562]
- Image : AcquisitionDate[563]
- Image : ID[564]

550 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
551 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
552 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
553 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
554 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
555 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
556 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
557 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
558 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
559 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
560 http://www.openmicroscopy.org/site/support/ome-model/
561 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
562 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
563 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
564 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name[565]
- Pixels : BinDataBigEndian[566]
- Pixels : DimensionOrder[567]
- Pixels : ID[568]
- Pixels : PhysicalSizeX[569]
- Pixels : PhysicalSizeY[570]
- Pixels : SizeC[571]
- Pixels : SizeT[572]
- Pixels : SizeX[573]
- Pixels : SizeY[574]
- Pixels : SizeZ[575]
- Pixels : Type[576]
- Plane : TheC[577]
- Plane : TheT[578]
- Plane : TheZ[579]

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%).

[565] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[566] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[567] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[568] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[569] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[570] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[571] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[572] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[573] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[574] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[575] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[576] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[577] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[578] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[579] http://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 : ID[581]
- Channel : SamplesPerPixel[582]
- Image : AcquisitionDate[583]
- Image : ID[584]
- Image : Name[585]
- Pixels : BinDataBigEndian[586]
- Pixels : DimensionOrder[587]
- Pixels : ID[588]
- Pixels : PhysicalSizeX[589]
- Pixels : PhysicalSizeY[590]
- Pixels : PhysicalSizeZ[591]
- Pixels : SizeC[592]
- Pixels : SizeT[593]
- Pixels : SizeX[594]
- Pixels : SizeY[595]
- Pixels : SizeZ[596]
- Pixels : Type[597]
- Plane : TheC[598]
- Plane : TheT[599]
- Plane : TheZ[600]

Total supported: 20

Total unknown or missing: 453

[581] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[582] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[583] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[584] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[585] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[586] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[587] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[588] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[589] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[590] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[591] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[592] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[593] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[594] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[595] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[596] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[597] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[598] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[599] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[600] http://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 : ID[602]
- Channel : SamplesPerPixel[603]
- Image : AcquisitionDate[604]
- Image : Description[605]
- Image : ID[606]
- Image : Name[607]
- Pixels : BinDataBigEndian[608]
- Pixels : DimensionOrder[609]
- Pixels : ID[610]
- Pixels : PhysicalSizeX[611]
- Pixels : PhysicalSizeY[612]
- Pixels : PhysicalSizeZ[613]
- Pixels : SizeC[614]
- Pixels : SizeT[615]
- Pixels : SizeX[616]
- Pixels : SizeY[617]

[601] http://www.openmicroscopy.org/site/support/ome-model/
[602] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[603] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[604] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[605] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[606] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[607] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[608] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[609] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[610] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[611] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[612] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[613] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[614] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[615] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[616] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[617] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ[618]
- Pixels : TimeIncrement[619]
- Pixels : Type[620]
- Plane : TheC[621]
- Plane : TheT[622]
- Plane : TheZ[623]

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 : ID[625]
- Channel : SamplesPerPixel[626]
- Image : AcquisitionDate[627]
- Image : Description[628]
- Image : ID[629]
- Image : Name[630]
- Pixels : BinDataBigEndian[631]
- Pixels : DimensionOrder[632]

[618] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[619] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[620] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[621] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[622] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[623] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[624] http://www.openmicroscopy.org/site/support/ome-model/
[625] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[626] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[627] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[628] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[629] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[630] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[631] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[632] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[633]
- Pixels : SizeC[634]
- Pixels : SizeT[635]
- Pixels : SizeX[636]
- Pixels : SizeY[637]
- Pixels : SizeZ[638]
- Pixels : Type[639]
- Plane : TheC[640]
- Plane : TheT[641]
- Plane : TheZ[642]

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 : EmissionWavelength[644]
- Channel : ExcitationWavelength[645]
- Channel : ID[646]
- Channel : Name[647]

[633] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[634] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[635] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[636] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[637] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[638] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[639] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[640] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[641] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[642] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[643] http://www.openmicroscopy.org/site/support/ome-model/
[644] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[645] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[646] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[647] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

- Channel : SamplesPerPixel[648]
- Detector : ID[649]
- DetectorSettings : Gain[650]
- DetectorSettings : ID[651]
- Image : AcquisitionDate[652]
- Image : ID[653]
- Image : InstrumentRef[654]
- Image : Name[655]
- Instrument : ID[656]
- Microscope : SerialNumber[657]
- Pixels : BinDataBigEndian[658]
- Pixels : DimensionOrder[659]
- Pixels : ID[660]
- Pixels : PhysicalSizeX[661]
- Pixels : PhysicalSizeY[662]
- Pixels : SizeC[663]
- Pixels : SizeT[664]
- Pixels : SizeX[665]
- Pixels : SizeY[666]
- Pixels : SizeZ[667]
- Pixels : Type[668]
- Plane : TheC[669]
- Plane : TheT[670]

[648]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[649]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[650]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[651]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[652]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[653]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[654]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[655]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[656]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[657]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[658]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[659]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[660]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[661]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[662]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[663]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[664]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[665]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[666]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[667]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[668]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[669]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[670]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[671]
- Plate : ID[672]
- Plate : Name[673]
- PlateAcquisition : ID[674]
- PlateAcquisition : MaximumFieldCount[675]
- PlateAcquisition : WellSampleRef[676]
- Well : Column[677]
- Well : ID[678]
- Well : Row[679]
- WellSample : ID[680]
- WellSample : ImageRef[681]
- WellSample : Index[682]
- WellSample : PositionX[683]
- WellSample : PositionY[684]

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%).

[671] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[672] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[673] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[674] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[675] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[676] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[677] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[678] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[679] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[680] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[681] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[682] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[683] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX
[684] http://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 : ID[686]
- Channel : SamplesPerPixel[687]
- Image : AcquisitionDate[688]
- Image : ID[689]
- Image : Name[690]
- Pixels : BinDataBigEndian[691]
- Pixels : DimensionOrder[692]
- Pixels : ID[693]
- Pixels : SizeC[694]
- Pixels : SizeT[695]
- Pixels : SizeX[696]
- Pixels : SizeY[697]
- Pixels : SizeZ[698]
- Pixels : Type[699]
- Plane : TheC[700]
- Plane : TheT[701]
- Plane : TheZ[702]

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.

[686] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[687] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[688] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[689] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[690] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[691] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[692] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[693] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[694] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[695] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[696] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[697] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[698] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[699] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[700] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[701] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[702] http://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 : ID[704]
- Channel : SamplesPerPixel[705]
- Image : AcquisitionDate[706]
- Image : ID[707]
- Image : Name[708]
- Pixels : BinDataBigEndian[709]
- Pixels : DimensionOrder[710]
- Pixels : ID[711]
- Pixels : SizeC[712]
- Pixels : SizeT[713]
- Pixels : SizeX[714]
- Pixels : SizeY[715]
- Pixels : SizeZ[716]
- Pixels : Type[717]
- Plane : TheC[718]
- Plane : TheT[719]
- Plane : TheZ[720]

703 http://www.openmicroscopy.org/site/support/ome-model/
704 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
705 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
706 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
707 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
708 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
709 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
710 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
711 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
712 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
713 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
714 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
715 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
716 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
717 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
718 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
719 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
720 http://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/
[722] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[723] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[724] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[725] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[726] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[727] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[728] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[729] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[730] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[731] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[732] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[733] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[734] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[735] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Image : ROIRef[736]
- Instrument : ID[737]
- Objective : ID[738]
- Objective : LensNA[739]
- Objective : Manufacturer[740]
- Objective : NominalMagnification[741]
- ObjectiveSettings : ID[742]
- Pixels : BinDataBigEndian[743]
- Pixels : DimensionOrder[744]
- Pixels : ID[745]
- Pixels : SizeC[746]
- Pixels : SizeT[747]
- Pixels : SizeX[748]
- Pixels : SizeY[749]
- Pixels : SizeZ[750]
- Pixels : Type[751]
- Plane : DeltaT[752]
- Plane : ExposureTime[753]
- Plane : TheC[754]
- Plane : TheT[755]
- Plane : TheZ[756]
- Plate : ColumnNamingConvention[757]
- Plate : Description[758]

[736] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[737] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[738] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[739] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[740] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[741] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[742] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[743] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[744] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[745] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[746] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[747] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[748] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[749] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[750] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[751] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[752] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[753] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[754] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[755] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[756] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[757] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[758] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description

- Plate : ID[759]
- Plate : Name[760]
- Plate : RowNamingConvention[761]
- PlateAcquisition : ID[762]
- PlateAcquisition : MaximumFieldCount[763]
- PlateAcquisition : WellSampleRef[764]
- ROI : ID[765]
- Rectangle : Height[766]
- Rectangle : ID[767]
- Rectangle : Width[768]
- Rectangle : X[769]
- Rectangle : Y[770]
- Well : Column[771]
- Well : ID[772]
- Well : Row[773]
- WellSample : ID[774]
- WellSample : ImageRef[775]
- WellSample : Index[776]

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.

[759] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[760] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[761] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[762] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[763] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[764] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[765] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[766] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[767] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[768] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[769] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[770] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[771] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[772] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[773] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[774] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[775] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[776] http://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 : ID[778]
- Channel : SamplesPerPixel[779]
- Image : AcquisitionDate[780]
- Image : ID[781]
- Image : Name[782]
- Pixels : BinDataBigEndian[783]
- Pixels : DimensionOrder[784]
- Pixels : ID[785]
- Pixels : SizeC[786]
- Pixels : SizeT[787]
- Pixels : SizeX[788]
- Pixels : SizeY[789]
- Pixels : SizeZ[790]
- Pixels : Type[791]
- Plane : TheC[792]
- Plane : TheT[793]
- Plane : TheZ[794]

Total supported: 17

Total unknown or missing: 456

[778] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[779] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[780] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[781] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[782] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[783] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[784] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[785] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[786] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[787] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[788] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[789] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[790] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[791] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[792] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[793] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[794] http://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 : ID[796]
- Channel : SamplesPerPixel[797]
- Image : AcquisitionDate[798]
- Image : ID[799]
- Image : Name[800]
- Pixels : BinDataBigEndian[801]
- Pixels : DimensionOrder[802]
- Pixels : ID[803]
- Pixels : PhysicalSizeX[804]
- Pixels : PhysicalSizeY[805]
- Pixels : SizeC[806]
- Pixels : SizeT[807]
- Pixels : SizeX[808]
- Pixels : SizeY[809]
- Pixels : SizeZ[810]
- Pixels : Type[811]

[795] http://www.openmicroscopy.org/site/support/ome-model/
[796] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[797] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[798] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[799] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[800] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[801] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[802] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[803] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[804] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[805] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[806] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[807] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[808] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[809] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[810] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[811] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[812]
- Plane : TheT[813]
- Plane : TheZ[814]

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 : ID[816]
- Channel : SamplesPerPixel[817]
- Detector : Gain[818]
- Detector : ID[819]
- Detector : Offset[820]
- Detector : Type[821]
- DetectorSettings : Gain[822]
- DetectorSettings : ID[823]
- DetectorSettings : Offset[824]
- Experiment : ID[825]
- Experiment : Type[826]

[812] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[813] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[814] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[815] http://www.openmicroscopy.org/site/support/ome-model/
[816] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[817] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[818] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain
[819] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[820] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset
[821] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[822] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[823] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[824] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[825] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[826] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type

- Image : AcquisitionDate[827]
- Image : ID[828]
- Image : InstrumentRef[829]
- Image : Name[830]
- Instrument : ID[831]
- Objective : Correction[832]
- Objective : ID[833]
- Objective : Immersion[834]
- Objective : LensNA[835]
- Objective : Model[836]
- Objective : NominalMagnification[837]
- ObjectiveSettings : ID[838]
- Pixels : BinDataBigEndian[839]
- Pixels : DimensionOrder[840]
- Pixels : ID[841]
- Pixels : PhysicalSizeX[842]
- Pixels : PhysicalSizeY[843]
- Pixels : PhysicalSizeZ[844]
- Pixels : SizeC[845]
- Pixels : SizeT[846]
- Pixels : SizeX[847]
- Pixels : SizeY[848]
- Pixels : SizeZ[849]

[827] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[828] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[829] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[830] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[831] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[832] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[833] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[834] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[835] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[836] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[837] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[838] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[839] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[840] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[841] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[842] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[843] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[844] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[845] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[846] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[847] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[848] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[849] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type[850]
- Plane : TheC[851]
- Plane : TheT[852]
- Plane : TheZ[853]

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 : Color[855]
- Channel : ID[856]
- Channel : SamplesPerPixel[857]
- DetectorSettings : Gain[858]
- Image : AcquisitionDate[859]
- Image : ID[860]
- Image : Name[861]
- Pixels : BinDataBigEndian[862]
- Pixels : DimensionOrder[863]
- Pixels : ID[864]

[850] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[851] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[852] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[853] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[854] http://www.openmicroscopy.org/site/support/ome-model/
[855] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[856] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[857] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[858] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[859] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[860] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[861] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[862] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[863] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[864] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX[865]
- Pixels : PhysicalSizeY[866]
- Pixels : PhysicalSizeZ[867]
- Pixels : SizeC[868]
- Pixels : SizeT[869]
- Pixels : SizeX[870]
- Pixels : SizeY[871]
- Pixels : SizeZ[872]
- Pixels : Type[873]
- Plane : TheC[874]
- Plane : TheT[875]
- Plane : TheZ[876]

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 : ID[878]
- Channel : SamplesPerPixel[879]

[865] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[866] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[867] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[868] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[869] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[870] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[871] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[872] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[873] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[874] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[875] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[876] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[877] http://www.openmicroscopy.org/site/support/ome-model/
[878] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[879] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Experimenter : ID[880]
- Experimenter : Institution[881]
- Experimenter : LastName[882]
- Image : AcquisitionDate[883]
- Image : ExperimenterRef[884]
- Image : ID[885]
- Image : Name[886]
- Pixels : BinDataBigEndian[887]
- Pixels : DimensionOrder[888]
- Pixels : ID[889]
- Pixels : SizeC[890]
- Pixels : SizeT[891]
- Pixels : SizeX[892]
- Pixels : SizeY[893]
- Pixels : SizeZ[894]
- Pixels : Type[895]
- Plane : TheC[896]
- Plane : TheT[897]
- Plane : TheZ[898]

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.

[880] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[881] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution
[882] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[883] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[884] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[885] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[886] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[887] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[888] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[889] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[890] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[891] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[892] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[893] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[894] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[895] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[896] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[897] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[898] http://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 : ID[900]
- Channel : SamplesPerPixel[901]
- Image : AcquisitionDate[902]
- Image : ID[903]
- Image : Name[904]
- Pixels : BinDataBigEndian[905]
- Pixels : DimensionOrder[906]
- Pixels : ID[907]
- Pixels : PhysicalSizeX[908]
- Pixels : PhysicalSizeY[909]
- Pixels : PhysicalSizeZ[910]
- Pixels : SizeC[911]
- Pixels : SizeT[912]
- Pixels : SizeX[913]
- Pixels : SizeY[914]
- Pixels : SizeZ[915]
- Pixels : Type[916]

[899] http://www.openmicroscopy.org/site/support/ome-model/
[900] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[901] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[902] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[903] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[904] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[905] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[906] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[907] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[908] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[909] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[910] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[911] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[912] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[913] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[914] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[915] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[916] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[917]
- Plane : TheT[918]
- Plane : TheZ[919]

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 : ID[921]
- Channel : SamplesPerPixel[922]
- Image : AcquisitionDate[923]
- Image : ID[924]
- Image : Name[925]
- Pixels : BinDataBigEndian[926]
- Pixels : DimensionOrder[927]
- Pixels : ID[928]
- Pixels : SizeC[929]
- Pixels : SizeT[930]
- Pixels : SizeX[931]

[917] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[918] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[919] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[920] http://www.openmicroscopy.org/site/support/ome-model/
[921] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[922] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[923] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[924] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[925] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[926] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[927] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[928] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[929] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[930] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[931] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY[932]
- Pixels : SizeZ[933]
- Pixels : Type[934]
- Plane : TheC[935]
- Plane : TheT[936]
- Plane : TheZ[937]

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 : ID[939]
- Channel : SamplesPerPixel[940]
- Image : AcquisitionDate[941]
- Image : ID[942]
- Image : Name[943]
- Pixels : BinDataBigEndian[944]
- Pixels : DimensionOrder[945]
- Pixels : ID[946]

932 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
933 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
934 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
935 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
936 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
937 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
938 http://www.openmicroscopy.org/site/support/ome-model/
939 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
940 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
941 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
942 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
943 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
944 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
945 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
946 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX[947]
- Pixels : PhysicalSizeY[948]
- Pixels : SizeC[949]
- Pixels : SizeT[950]
- Pixels : SizeX[951]
- Pixels : SizeY[952]
- Pixels : SizeZ[953]
- Pixels : Type[954]
- Plane : TheC[955]
- Plane : TheT[956]
- Plane : TheZ[957]
- Plate : ColumnNamingConvention[958]
- Plate : ID[959]
- Plate : Name[960]
- Plate : RowNamingConvention[961]
- Well : Column[962]
- Well : ID[963]
- Well : Row[964]
- WellSample : ID[965]
- WellSample : ImageRef[966]
- WellSample : Index[967]

Total supported: 29

Total unknown or missing: 444

[947] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[948] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[949] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[950] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[951] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[952] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[953] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[954] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[955] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[956] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[957] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[958] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[959] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[960] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[961] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[962] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[963] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[964] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[965] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[966] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[967] http://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 : ID[969]
- Channel : SamplesPerPixel[970]
- Image : AcquisitionDate[971]
- Image : ID[972]
- Image : Name[973]
- Pixels : BinDataBigEndian[974]
- Pixels : DimensionOrder[975]
- Pixels : ID[976]
- Pixels : SizeC[977]
- Pixels : SizeT[978]
- Pixels : SizeX[979]
- Pixels : SizeY[980]
- Pixels : SizeZ[981]
- Pixels : Type[982]
- Plane : TheC[983]
- Plane : TheT[984]

[968] http://www.openmicroscopy.org/site/support/ome-model/
[969] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[970] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[971] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[972] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[973] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[974] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[975] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[976] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[977] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[978] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[979] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[980] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[981] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[982] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[983] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[984] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[985]

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 : EmissionWavelength[987]
- Channel : ExcitationWavelength[988]
- Channel : ID[989]
- Channel : NDFilter[990]
- Channel : Name[991]
- Channel : SamplesPerPixel[992]
- Detector : ID[993]
- Detector : Model[994]
- Detector : Type[995]
- DetectorSettings : Binning[996]
- DetectorSettings : Gain[997]
- DetectorSettings : ID[998]
- DetectorSettings : ReadOutRate[999]

[985] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[986] http://www.openmicroscopy.org/site/support/ome-model/
[987] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[988] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[989] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[990] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_NDFilter
[991] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[992] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[993] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[994] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[995] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[996] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[997] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[998] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[999] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate

- Image : AcquisitionDate[1000]
- Image : Description[1001]
- Image : ID[1002]
- Image : InstrumentRef[1003]
- Image : Name[1004]
- ImagingEnvironment : Temperature[1005]
- Instrument : ID[1006]
- Objective : CalibratedMagnification[1007]
- Objective : Correction[1008]
- Objective : ID[1009]
- Objective : Immersion[1010]
- Objective : LensNA[1011]
- Objective : Manufacturer[1012]
- Objective : Model[1013]
- Objective : NominalMagnification[1014]
- Objective : WorkingDistance[1015]
- ObjectiveSettings : ID[1016]
- Pixels : BinDataBigEndian[1017]
- Pixels : DimensionOrder[1018]
- Pixels : ID[1019]
- Pixels : PhysicalSizeX[1020]
- Pixels : PhysicalSizeY[1021]
- Pixels : PhysicalSizeZ[1022]

[1000] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1001] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1002] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1003] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1004] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1005] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[1006] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1007] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[1008] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1009] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1010] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1011] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[1012] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[1013] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1014] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[1015] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[1016] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1017] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1018] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1019] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1020] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1021] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1022] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC[1023]
- Pixels : SizeT[1024]
- Pixels : SizeX[1025]
- Pixels : SizeY[1026]
- Pixels : SizeZ[1027]
- Pixels : Type[1028]
- Plane : DeltaT[1029]
- Plane : ExposureTime[1030]
- Plane : PositionX[1031]
- Plane : PositionY[1032]
- Plane : PositionZ[1033]
- Plane : TheC[1034]
- Plane : TheT[1035]
- Plane : TheZ[1036]

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%).

[1023] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1024] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1025] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1026] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1027] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1028] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1029] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[1030] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1031] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1032] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1033] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1034] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1035] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1036] http://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 : ID[1038]
- Channel : SamplesPerPixel[1039]
- Image : AcquisitionDate[1040]
- Image : Description[1041]
- Image : ID[1042]
- Image : Name[1043]
- Pixels : BinDataBigEndian[1044]
- Pixels : DimensionOrder[1045]
- Pixels : ID[1046]
- Pixels : PhysicalSizeX[1047]
- Pixels : PhysicalSizeY[1048]
- Pixels : PhysicalSizeZ[1049]
- Pixels : SizeC[1050]
- Pixels : SizeT[1051]
- Pixels : SizeX[1052]
- Pixels : SizeY[1053]
- Pixels : SizeZ[1054]
- Pixels : Type[1055]
- Plane : TheC[1056]
- Plane : TheT[1057]
- Plane : TheZ[1058]

[1038] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1039] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1040] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1041] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1042] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1043] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1044] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1045] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1046] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1047] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1048] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1049] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1050] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1051] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1052] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1053] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1054] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1055] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1056] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1057] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1058] http://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 : ID[1060]
- Channel : SamplesPerPixel[1061]
- Image : AcquisitionDate[1062]
- Image : Description[1063]
- Image : ID[1064]
- Image : Name[1065]
- Pixels : BinDataBigEndian[1066]
- Pixels : DimensionOrder[1067]
- Pixels : ID[1068]
- Pixels : PhysicalSizeX[1069]
- Pixels : PhysicalSizeY[1070]
- Pixels : PhysicalSizeZ[1071]
- Pixels : SizeC[1072]
- Pixels : SizeT[1073]

[1059] http://www.openmicroscopy.org/site/support/ome-model/
[1060] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1061] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1062] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1063] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1064] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1065] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1066] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1067] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1068] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1069] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1070] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1071] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1072] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1073] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[1074]
- Pixels : SizeY[1075]
- Pixels : SizeZ[1076]
- Pixels : Type[1077]
- Plane : TheC[1078]
- Plane : TheT[1079]
- Plane : TheZ[1080]

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 : ID[1082]
- Channel : SamplesPerPixel[1083]
- Image : AcquisitionDate[1084]
- Image : ID[1085]
- Image : Name[1086]
- Pixels : BinDataBigEndian[1087]
- Pixels : DimensionOrder[1088]

[1074] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1075] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1076] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1077] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1078] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1079] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1080] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1081] http://www.openmicroscopy.org/site/support/ome-model/
[1082] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1083] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1084] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1085] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1086] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1087] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1088] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[1089]
- Pixels : SizeC[1090]
- Pixels : SizeT[1091]
- Pixels : SizeX[1092]
- Pixels : SizeY[1093]
- Pixels : SizeZ[1094]
- Pixels : Type[1095]
- Plane : TheC[1096]
- Plane : TheT[1097]
- Plane : TheZ[1098]

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 : ID[1100]
- Channel : LightSourceSettingsID[1101]
- Channel : Name[1102]
- Channel : SamplesPerPixel[1103]

[1089] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1090] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1091] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1092] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1093] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1094] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1095] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1096] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1097] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1098] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1099] http://www.openmicroscopy.org/site/support/ome-model/
[1100] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1101] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[1102] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[1103] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID[1104]
- Detector : Type[1105]
- DetectorSettings : Binning[1106]
- DetectorSettings : ID[1107]
- Dichroic : ID[1108]
- Dichroic : Model[1109]
- Filter : FilterWheel[1110]
- Filter : ID[1111]
- Filter : Model[1112]
- Image : AcquisitionDate[1113]
- Image : ID[1114]
- Image : InstrumentRef[1115]
- Image : Name[1116]
- Instrument : ID[1117]
- Laser : ID[1118]
- Laser : LaserMedium[1119]
- Laser : Type[1120]
- Laser : Wavelength[1121]
- LightPath : DichroicRef[1122]
- LightPath : EmissionFilterRef[1123]
- LightPath : ExcitationFilterRef[1124]
- Objective : CalibratedMagnification[1125]
- Objective : Correction[1126]

[1104] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1105] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1106] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[1107] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1108] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[1109] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1110] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel
[1111] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[1112] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1113] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1114] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1115] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1116] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1117] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1118] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[1119] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[1120] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[1121] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[1122] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[1123] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[1124] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[1125] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[1126] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

- Objective : ID[1127]
- Objective : Immersion[1128]
- Objective : LensNA[1129]
- ObjectiveSettings : ID[1130]
- Pixels : BinDataBigEndian[1131]
- Pixels : DimensionOrder[1132]
- Pixels : ID[1133]
- Pixels : PhysicalSizeX[1134]
- Pixels : PhysicalSizeY[1135]
- Pixels : SizeC[1136]
- Pixels : SizeT[1137]
- Pixels : SizeX[1138]
- Pixels : SizeY[1139]
- Pixels : SizeZ[1140]
- Pixels : Type[1141]
- Plane : DeltaT[1142]
- Plane : ExposureTime[1143]
- Plane : PositionX[1144]
- Plane : PositionY[1145]
- Plane : PositionZ[1146]
- Plane : TheC[1147]
- Plane : TheT[1148]
- Plane : TheZ[1149]

[1127] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1128] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1129] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[1130] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1131] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1132] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1133] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1134] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1135] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1136] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1137] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1138] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1139] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1140] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1141] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1142] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[1143] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1144] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1145] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1146] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1147] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1148] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1149] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

- Plate : ColumnNamingConvention[1150]
- Plate : ExternalIdentifier[1151]
- Plate : ID[1152]
- Plate : Name[1153]
- Plate : RowNamingConvention[1154]
- PlateAcquisition : ID[1155]
- PlateAcquisition : MaximumFieldCount[1156]
- PlateAcquisition : StartTime[1157]
- PlateAcquisition : WellSampleRef[1158]
- Well : Column[1159]
- Well : ID[1160]
- Well : Row[1161]
- WellSample : ID[1162]
- WellSample : ImageRef[1163]
- WellSample : Index[1164]
- WellSample : PositionX[1165]
- WellSample : PositionY[1166]

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*:

[1150] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[1151] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier
[1152] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[1153] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[1154] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[1155] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[1156] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[1157] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_StartTime
[1158] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[1159] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[1160] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[1161] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[1162] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[1163] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[1164] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[1165] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX
[1166] http://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 : ID[1168]
- Channel : SamplesPerPixel[1169]
- Image : AcquisitionDate[1170]
- Image : ID[1171]
- Image : Name[1172]
- Pixels : BinDataBigEndian[1173]
- Pixels : DimensionOrder[1174]
- Pixels : ID[1175]
- Pixels : SizeC[1176]
- Pixels : SizeT[1177]
- Pixels : SizeX[1178]
- Pixels : SizeY[1179]
- Pixels : SizeZ[1180]
- Pixels : Type[1181]
- Plane : TheC[1182]
- Plane : TheT[1183]
- Plane : TheZ[1184]

Total supported: 17

Total unknown or missing: 456

[1168] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1169] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1170] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1171] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1172] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1173] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1174] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1175] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1176] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1177] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1178] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1179] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1180] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1181] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1182] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1183] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1184] http://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 : ID[1186]
- Channel : SamplesPerPixel[1187]
- Detector : ID[1188]
- Detector : Model[1189]
- Detector : Type[1190]
- Experimenter : ID[1191]
- Experimenter : LastName[1192]
- Image : AcquisitionDate[1193]
- Image : Description[1194]
- Image : ID[1195]
- Image : InstrumentRef[1196]
- Image : Name[1197]
- Instrument : ID[1198]
- Microscope : Model[1199]
- Objective : Correction[1200]
- Objective : ID[1201]

[1185] http://www.openmicroscopy.org/site/support/ome-model/
[1186] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1187] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1188] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1189] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1190] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1191] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[1192] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[1193] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1194] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1195] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1196] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1197] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1198] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1199] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1200] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1201] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion[1202]
- Objective : NominalMagnification[1203]
- Pixels : BinDataBigEndian[1204]
- Pixels : DimensionOrder[1205]
- Pixels : ID[1206]
- Pixels : PhysicalSizeX[1207]
- Pixels : PhysicalSizeY[1208]
- Pixels : SizeC[1209]
- Pixels : SizeT[1210]
- Pixels : SizeX[1211]
- Pixels : SizeY[1212]
- Pixels : SizeZ[1213]
- Pixels : TimeIncrement[1214]
- Pixels : Type[1215]
- Plane : TheC[1216]
- Plane : TheT[1217]
- Plane : TheZ[1218]
- StageLabel : Name[1219]
- StageLabel : X[1220]
- StageLabel : Y[1221]
- StageLabel : Z[1222]

Total supported: 37

Total unknown or missing: 436

[1202] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1203] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[1204] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1205] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1206] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1207] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1208] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1209] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1210] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1211] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1212] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1213] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1214] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[1215] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1216] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1217] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1218] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1219] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name
[1220] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_X
[1221] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Y
[1222] http://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 : ID[1224]
- Channel : SamplesPerPixel[1225]
- Image : AcquisitionDate[1226]
- Image : ID[1227]
- Image : Name[1228]
- Pixels : BinDataBigEndian[1229]
- Pixels : DimensionOrder[1230]
- Pixels : ID[1231]
- Pixels : SizeC[1232]
- Pixels : SizeT[1233]
- Pixels : SizeX[1234]
- Pixels : SizeY[1235]
- Pixels : SizeZ[1236]
- Pixels : Type[1237]
- Plane : TheC[1238]
- Plane : TheT[1239]

[1223] http://www.openmicroscopy.org/site/support/ome-model/
[1224] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1225] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1226] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1227] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1228] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1229] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1230] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1231] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1232] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1233] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1234] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1235] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1236] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1237] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1238] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1239] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[1240]

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 : ID[1242]
- Channel : SamplesPerPixel[1243]
- Detector : ID[1244]
- DetectorSettings : Binning[1245]
- DetectorSettings : ID[1246]
- Experimenter : FirstName[1247]
- Experimenter : ID[1248]
- Experimenter : LastName[1249]
- Image : AcquisitionDate[1250]
- Image : ExperimenterRef[1251]
- Image : ID[1252]
- Image : InstrumentRef[1253]
- Image : Name[1254]

[1240] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1241] http://www.openmicroscopy.org/site/support/ome-model/
[1242] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1243] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1244] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1245] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[1246] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1247] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName
[1248] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[1249] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[1250] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1251] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[1252] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1253] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1254] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Instrument : ID[1255]
- Pixels : BinDataBigEndian[1256]
- Pixels : DimensionOrder[1257]
- Pixels : ID[1258]
- Pixels : PhysicalSizeX[1259]
- Pixels : PhysicalSizeY[1260]
- Pixels : SizeC[1261]
- Pixels : SizeT[1262]
- Pixels : SizeX[1263]
- Pixels : SizeY[1264]
- Pixels : SizeZ[1265]
- Pixels : Type[1266]
- Plane : TheC[1267]
- Plane : TheT[1268]
- Plane : TheZ[1269]

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%).

[1255]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1256]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1257]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1258]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1259]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1260]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1261]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1262]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1263]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1264]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1265]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1266]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1267]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1268]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1269]http://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 : AcquisitionMode[1271]
- Channel : ID[1272]
- Channel : SamplesPerPixel[1273]
- Detector : ID[1274]
- DetectorSettings : ID[1275]
- DetectorSettings : Voltage[1276]
- Image : AcquisitionDate[1277]
- Image : ID[1278]
- Image : Name[1279]
- Instrument : ID[1280]
- Objective : Correction[1281]
- Objective : ID[1282]
- Objective : Immersion[1283]
- Objective : NominalMagnification[1284]
- ObjectiveSettings : ID[1285]
- Pixels : BinDataBigEndian[1286]
- Pixels : DimensionOrder[1287]
- Pixels : ID[1288]
- Pixels : PhysicalSizeX[1289]
- Pixels : PhysicalSizeY[1290]
- Pixels : PhysicalSizeZ[1291]

[1271] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode
[1272] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1273] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1274] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1275] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1276] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[1277] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1278] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1279] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1280] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1281] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1282] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1283] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1284] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[1285] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1286] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1287] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1288] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1289] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1290] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1291] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC[1292]
- Pixels : SizeT[1293]
- Pixels : SizeX[1294]
- Pixels : SizeY[1295]
- Pixels : SizeZ[1296]
- Pixels : Type[1297]
- Plane : ExposureTime[1298]
- Plane : PositionX[1299]
- Plane : PositionY[1300]
- Plane : PositionZ[1301]
- Plane : TheC[1302]
- Plane : TheT[1303]
- Plane : TheZ[1304]

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 : ID[1306]

[1292] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1293] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1294] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1295] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1296] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1297] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1298] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1299] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1300] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1301] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1302] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1303] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1304] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1305] http://www.openmicroscopy.org/site/support/ome-model/
[1306] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[1307]
- Image : AcquisitionDate[1308]
- Image : ID[1309]
- Image : Name[1310]
- Pixels : BinDataBigEndian[1311]
- Pixels : DimensionOrder[1312]
- Pixels : ID[1313]
- Pixels : SizeC[1314]
- Pixels : SizeT[1315]
- Pixels : SizeX[1316]
- Pixels : SizeY[1317]
- Pixels : SizeZ[1318]
- Pixels : Type[1319]
- Plane : TheC[1320]
- Plane : TheT[1321]
- Plane : TheZ[1322]

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%).

[1307] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1308] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1309] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1310] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1311] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1312] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1313] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1314] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1315] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1316] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1317] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1318] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1319] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1320] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1321] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1322] http://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 : ID[1324]
- Channel : SamplesPerPixel[1325]
- Image : AcquisitionDate[1326]
- Image : ID[1327]
- Image : Name[1328]
- Pixels : BinDataBigEndian[1329]
- Pixels : DimensionOrder[1330]
- Pixels : ID[1331]
- Pixels : SizeC[1332]
- Pixels : SizeT[1333]
- Pixels : SizeX[1334]
- Pixels : SizeY[1335]
- Pixels : SizeZ[1336]
- Pixels : Type[1337]
- Plane : TheC[1338]
- Plane : TheT[1339]
- Plane : TheZ[1340]

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.

[1324] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1325] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1326] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1327] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1328] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1329] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1330] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1331] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1332] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1333] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1334] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1335] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1336] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1337] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1338] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1339] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1340] http://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 : ID[1342]
- Channel : SamplesPerPixel[1343]
- Detector : ID[1344]
- Detector : Offset[1345]
- Detector : Type[1346]
- DetectorSettings : Binning[1347]
- DetectorSettings : ID[1348]
- Image : AcquisitionDate[1349]
- Image : ID[1350]
- Image : InstrumentRef[1351]
- Image : Name[1352]
- Instrument : ID[1353]
- Pixels : BinDataBigEndian[1354]
- Pixels : DimensionOrder[1355]
- Pixels : ID[1356]
- Pixels : SizeC[1357]
- Pixels : SizeT[1358]

[1341] http://www.openmicroscopy.org/site/support/ome-model/
[1342] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1343] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1344] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1345] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset
[1346] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1347] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[1348] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1349] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1350] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1351] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1352] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1353] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1354] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1355] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1356] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1357] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1358] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[1359]
- Pixels : SizeY[1360]
- Pixels : SizeZ[1361]
- Pixels : Type[1362]
- Plane : ExposureTime[1363]
- Plane : TheC[1364]
- Plane : TheT[1365]
- Plane : TheZ[1366]

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 : ID[1368]
- Channel : SamplesPerPixel[1369]
- Image : AcquisitionDate[1370]
- Image : ID[1371]
- Image : Name[1372]
- Pixels : BinDataBigEndian[1373]

[1359] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1360] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1361] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1362] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1363] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1364] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1365] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1366] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1367] http://www.openmicroscopy.org/site/support/ome-model/
[1368] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1369] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1370] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1371] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1372] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1373] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[1374]
- Pixels : ID[1375]
- Pixels : PhysicalSizeX[1376]
- Pixels : PhysicalSizeY[1377]
- Pixels : SizeC[1378]
- Pixels : SizeT[1379]
- Pixels : SizeX[1380]
- Pixels : SizeY[1381]
- Pixels : SizeZ[1382]
- Pixels : Type[1383]
- Plane : TheC[1384]
- Plane : TheT[1385]
- Plane : TheZ[1386]

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 : ID[1388]

1374 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
1375 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
1376 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
1377 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
1378 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
1379 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
1380 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
1381 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
1382 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
1383 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
1384 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
1385 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
1386 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
1387 http://www.openmicroscopy.org/site/support/ome-model/
1388 http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[1389]
- Image : AcquisitionDate[1390]
- Image : ID[1391]
- Image : InstrumentRef[1392]
- Image : Name[1393]
- Instrument : ID[1394]
- Objective : ID[1395]
- Objective : NominalMagnification[1396]
- ObjectiveSettings : ID[1397]
- Pixels : BinDataBigEndian[1398]
- Pixels : DimensionOrder[1399]
- Pixels : ID[1400]
- Pixels : PhysicalSizeX[1401]
- Pixels : PhysicalSizeY[1402]
- Pixels : SizeC[1403]
- Pixels : SizeT[1404]
- Pixels : SizeX[1405]
- Pixels : SizeY[1406]
- Pixels : SizeZ[1407]
- Pixels : Type[1408]
- Plane : TheC[1409]
- Plane : TheT[1410]
- Plane : TheZ[1411]

[1389] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1390] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1391] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1392] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1393] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1394] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1395] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1396] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[1397] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1398] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1399] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1400] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1401] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1402] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1403] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1404] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1405] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1406] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1407] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1408] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1409] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1410] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1411] http://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 : ID[1413]
- Channel : SamplesPerPixel[1414]
- Image : AcquisitionDate[1415]
- Image : ID[1416]
- Image : InstrumentRef[1417]
- Image : Name[1418]
- Instrument : ID[1419]
- Microscope : Model[1420]
- Microscope : SerialNumber[1421]
- Objective : ID[1422]
- Objective : WorkingDistance[1423]
- ObjectiveSettings : ID[1424]
- Pixels : BinDataBigEndian[1425]
- Pixels : DimensionOrder[1426]

[1412] http://www.openmicroscopy.org/site/support/ome-model/
[1413] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1414] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1415] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1416] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1417] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1418] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1419] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1420] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1421] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[1422] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1423] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[1424] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1425] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1426] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[1427]
- Pixels : PhysicalSizeX[1428]
- Pixels : PhysicalSizeY[1429]
- Pixels : SizeC[1430]
- Pixels : SizeT[1431]
- Pixels : SizeX[1432]
- Pixels : SizeY[1433]
- Pixels : SizeZ[1434]
- Pixels : Type[1435]
- Plane : PositionX[1436]
- Plane : PositionY[1437]
- Plane : PositionZ[1438]
- Plane : TheC[1439]
- Plane : TheT[1440]
- Plane : TheZ[1441]

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%).

[1427] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1428] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1429] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1430] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1431] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1432] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1433] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1434] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1435] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1436] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1437] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1438] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1439] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1440] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1441] http://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 : EmissionWavelength[1443]
- Channel : ExcitationWavelength[1444]
- Channel : ID[1445]
- Channel : Name[1446]
- Channel : PinholeSize[1447]
- Channel : SamplesPerPixel[1448]
- Detector : ID[1449]
- Detector : Manufacturer[1450]
- Detector : Model[1451]
- Detector : Type[1452]
- DetectorSettings : Gain[1453]
- DetectorSettings : ID[1454]
- Dichroic : ID[1455]
- Dichroic : Model[1456]
- Experiment : ID[1457]
- Experiment : Type[1458]
- Experimenter : ID[1459]
- Experimenter : LastName[1460]
- Filter : ID[1461]
- Filter : Model[1462]
- FilterSet : DichroicRef[1463]

[1443] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[1444] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[1445] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1446] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[1447] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[1448] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1449] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1450] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[1451] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1452] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1453] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[1454] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1455] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[1456] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1457] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[1458] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type
[1459] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[1460] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[1461] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[1462] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1463] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID

- FilterSet : EmissionFilterRef[1464]
- FilterSet : ExcitationFilterRef[1465]
- FilterSet : ID[1466]
- FilterSet : Model[1467]
- Image : AcquisitionDate[1468]
- Image : Description[1469]
- Image : ID[1470]
- Image : InstrumentRef[1471]
- Image : Name[1472]
- Instrument : ID[1473]
- Laser : ID[1474]
- Laser : LaserMedium[1475]
- Laser : Manufacturer[1476]
- Laser : Model[1477]
- Laser : Power[1478]
- Laser : RepetitionRate[1479]
- Laser : Type[1480]
- Laser : Wavelength[1481]
- Microscope : Manufacturer[1482]
- Microscope : Model[1483]
- Objective : CalibratedMagnification[1484]
- Objective : Correction[1485]
- Objective : ID[1486]

[1464] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[1465] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[1466] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSet_ID
[1467] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1468] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1469] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1470] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1471] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1472] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1473] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1474] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[1475] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[1476] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[1477] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1478] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[1479] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_RepetitionRate
[1480] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[1481] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[1482] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[1483] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1484] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[1485] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1486] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion[1487]
- Objective : LensNA[1488]
- Objective : Model[1489]
- Objective : WorkingDistance[1490]
- ObjectiveSettings : ID[1491]
- Pixels : BinDataBigEndian[1492]
- Pixels : DimensionOrder[1493]
- Pixels : ID[1494]
- Pixels : PhysicalSizeX[1495]
- Pixels : PhysicalSizeY[1496]
- Pixels : PhysicalSizeZ[1497]
- Pixels : SizeC[1498]
- Pixels : SizeT[1499]
- Pixels : SizeX[1500]
- Pixels : SizeY[1501]
- Pixels : SizeZ[1502]
- Pixels : TimeIncrement[1503]
- Pixels : Type[1504]
- Plane : DeltaT[1505]
- Plane : ExposureTime[1506]
- Plane : PositionX[1507]
- Plane : PositionY[1508]
- Plane : PositionZ[1509]

[1487] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1488] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[1489] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1490] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[1491] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1492] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1493] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1494] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1495] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1496] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1497] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1498] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1499] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1500] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1501] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1502] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1503] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[1504] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1505] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[1506] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1507] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1508] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1509] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC[1510]
- Plane : TheT[1511]
- Plane : TheZ[1512]

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 : ID[1514]
- Channel : SamplesPerPixel[1515]
- Experimenter : FirstName[1516]
- Experimenter : ID[1517]
- Experimenter : LastName[1518]
- Image : AcquisitionDate[1519]
- Image : ExperimenterRef[1520]
- Image : ID[1521]
- Image : Name[1522]
- Pixels : BinDataBigEndian[1523]
- Pixels : DimensionOrder[1524]

[1510] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1511] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1512] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1513] http://www.openmicroscopy.org/site/support/ome-model/
[1514] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1515] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1516] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName
[1517] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[1518] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[1519] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1520] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[1521] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1522] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1523] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1524] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[1525]
- Pixels : SizeC[1526]
- Pixels : SizeT[1527]
- Pixels : SizeX[1528]
- Pixels : SizeY[1529]
- Pixels : SizeZ[1530]
- Pixels : Type[1531]
- Plane : TheC[1532]
- Plane : TheT[1533]
- Plane : TheZ[1534]

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 : ID[1536]
- Channel : SamplesPerPixel[1537]
- Image : AcquisitionDate[1538]
- Image : ID[1539]

[1525] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1526] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1527] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1528] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1529] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1530] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1531] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1532] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1533] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1534] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1535] http://www.openmicroscopy.org/site/support/ome-model/
[1536] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1537] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1538] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1539] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name[1540]
- Pixels : BinDataBigEndian[1541]
- Pixels : DimensionOrder[1542]
- Pixels : ID[1543]
- Pixels : SizeC[1544]
- Pixels : SizeT[1545]
- Pixels : SizeX[1546]
- Pixels : SizeY[1547]
- Pixels : SizeZ[1548]
- Pixels : Type[1549]
- Plane : TheC[1550]
- Plane : TheT[1551]
- Plane : TheZ[1552]

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 : ID[1554]

[1540] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1541] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1542] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1543] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1544] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1545] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1546] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1547] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1548] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1549] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1550] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1551] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1552] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1553] http://www.openmicroscopy.org/site/support/ome-model/
[1554] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[1555]
- Image : AcquisitionDate[1556]
- Image : Description[1557]
- Image : ID[1558]
- Image : Name[1559]
- Pixels : BinDataBigEndian[1560]
- Pixels : DimensionOrder[1561]
- Pixels : ID[1562]
- Pixels : SizeC[1563]
- Pixels : SizeT[1564]
- Pixels : SizeX[1565]
- Pixels : SizeY[1566]
- Pixels : SizeZ[1567]
- Pixels : Type[1568]
- Plane : TheC[1569]
- Plane : TheT[1570]
- Plane : TheZ[1571]

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*:

[1555] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1556] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1557] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1558] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1559] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1560] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1561] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1562] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1563] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1564] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1565] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1566] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1567] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1568] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1569] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1570] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1571] http://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 : ID[1573]
- Channel : SamplesPerPixel[1574]
- Image : AcquisitionDate[1575]
- Image : ID[1576]
- Image : Name[1577]
- Pixels : BinDataBigEndian[1578]
- Pixels : DimensionOrder[1579]
- Pixels : ID[1580]
- Pixels : PhysicalSizeX[1581]
- Pixels : PhysicalSizeY[1582]
- Pixels : PhysicalSizeZ[1583]
- Pixels : SizeC[1584]
- Pixels : SizeT[1585]
- Pixels : SizeX[1586]
- Pixels : SizeY[1587]
- Pixels : SizeZ[1588]
- Pixels : Type[1589]
- Plane : TheC[1590]
- Plane : TheT[1591]
- Plane : TheZ[1592]

[1573] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1574] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1575] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1576] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1577] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1578] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1579] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1580] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1581] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1582] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1583] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1584] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1585] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1586] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1587] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1588] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1589] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1590] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1591] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1592] http://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 : ID[1594]
- Channel : SamplesPerPixel[1595]
- Image : AcquisitionDate[1596]
- Image : ID[1597]
- Image : Name[1598]
- Image : ROIRef[1599]
- Pixels : BinDataBigEndian[1600]
- Pixels : DimensionOrder[1601]
- Pixels : ID[1602]
- Pixels : PhysicalSizeX[1603]
- Pixels : PhysicalSizeY[1604]
- Pixels : PhysicalSizeZ[1605]
- Pixels : SizeC[1606]
- Pixels : SizeT[1607]

[1593] http://www.openmicroscopy.org/site/support/ome-model/
[1594] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1595] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1596] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1597] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1598] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1599] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[1600] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1601] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1602] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1603] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1604] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1605] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1606] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1607] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[1608]
- Pixels : SizeY[1609]
- Pixels : SizeZ[1610]
- Pixels : Type[1611]
- Plane : TheC[1612]
- Plane : TheT[1613]
- Plane : TheZ[1614]
- Point : ID[1615]
- Point : StrokeColor[1616]
- Point : StrokeDashArray[1617]
- Point : StrokeWidth[1618]
- Point : TheZ[1619]
- Point : X[1620]
- Point : Y[1621]
- Polygon : ID[1622]
- Polygon : Points[1623]
- Polygon : StrokeColor[1624]
- Polygon : StrokeDashArray[1625]
- Polygon : StrokeWidth[1626]
- Polygon : TheZ[1627]
- Polyline : ID[1628]
- Polyline : Points[1629]
- Polyline : StrokeColor[1630]

[1608] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1609] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1610] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1611] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1612] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1613] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1614] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1615] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[1616] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[1617] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[1618] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[1619] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[1620] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X
[1621] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y
[1622] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[1623] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[1624] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[1625] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[1626] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[1627] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[1628] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[1629] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points
[1630] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor

- Polyline : StrokeDashArray[1631]
- Polyline : StrokeWidth[1632]
- Polyline : TheZ[1633]
- ROI : ID[1634]
- ROI : Name[1635]

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 : ID[1637]
- Channel : Name[1638]
- Channel : SamplesPerPixel[1639]
- Detector : ID[1640]
- Detector : Type[1641]
- DetectorSettings : Gain[1642]
- DetectorSettings : ID[1643]
- DetectorSettings : Offset[1644]
- Image : AcquisitionDate[1645]

[1631] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeDashArray
[1632] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[1633] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[1634] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[1635] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name
[1636] http://www.openmicroscopy.org/site/support/ome-model/
[1637] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1638] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[1639] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1640] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1641] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1642] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[1643] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1644] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[1645] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID[1646]
- Image : InstrumentRef[1647]
- Image : Name[1648]
- Instrument : ID[1649]
- Pixels : BinDataBigEndian[1650]
- Pixels : DimensionOrder[1651]
- Pixels : ID[1652]
- Pixels : PhysicalSizeX[1653]
- Pixels : PhysicalSizeY[1654]
- Pixels : SizeC[1655]
- Pixels : SizeT[1656]
- Pixels : SizeX[1657]
- Pixels : SizeY[1658]
- Pixels : SizeZ[1659]
- Pixels : Type[1660]
- Plane : PositionX[1661]
- Plane : PositionY[1662]
- Plane : PositionZ[1663]
- Plane : TheC[1664]
- Plane : TheT[1665]
- Plane : TheZ[1666]

Total supported: 30

Total unknown or missing: 443

[1646] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1647] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1648] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1649] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1650] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1651] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1652] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1653] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1654] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1655] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1656] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1657] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1658] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1659] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1660] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1661] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1662] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1663] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1664] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1665] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1666] http://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 : ID[1668]
- Channel : SamplesPerPixel[1669]
- Image : AcquisitionDate[1670]
- Image : ID[1671]
- Image : Name[1672]
- Pixels : BinDataBigEndian[1673]
- Pixels : DimensionOrder[1674]
- Pixels : ID[1675]
- Pixels : SizeC[1676]
- Pixels : SizeT[1677]
- Pixels : SizeX[1678]
- Pixels : SizeY[1679]
- Pixels : SizeZ[1680]
- Pixels : Type[1681]
- Plane : TheC[1682]
- Plane : TheT[1683]

[1667] http://www.openmicroscopy.org/site/support/ome-model/
[1668] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1669] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1670] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1671] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1672] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1673] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1674] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1675] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1676] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1677] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1678] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1679] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1680] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1681] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1682] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1683] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[1684]

Total supported: 17

Total unknown or missing: 456

18.2.45 ImprovisionTiffReader

This page lists supported metadata fields for the Bio-Formats Improvision 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 Improvision TIFF format reader:

- Channel : ID[1686]
- Channel : Name[1687]
- Channel : SamplesPerPixel[1688]
- Image : AcquisitionDate[1689]
- Image : Description[1690]
- Image : ID[1691]
- Image : Name[1692]
- Pixels : BinDataBigEndian[1693]
- Pixels : DimensionOrder[1694]
- Pixels : ID[1695]
- Pixels : PhysicalSizeX[1696]
- Pixels : PhysicalSizeY[1697]
- Pixels : PhysicalSizeZ[1698]

[1684] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1685] http://www.openmicroscopy.org/site/support/ome-model/
[1686] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1687] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[1688] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1689] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1690] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1691] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1692] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1693] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1694] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1695] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1696] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1697] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1698] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC[1699]
- Pixels : SizeT[1700]
- Pixels : SizeX[1701]
- Pixels : SizeY[1702]
- Pixels : SizeZ[1703]
- Pixels : TimeIncrement[1704]
- Pixels : Type[1705]
- Plane : TheC[1706]
- Plane : TheT[1707]
- Plane : TheZ[1708]

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 : EmissionWavelength[1710]
- Channel : ExcitationWavelength[1711]
- Channel : ID[1712]
- Channel : Name[1713]

[1699] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1700] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1701] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1702] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1703] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1704] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[1705] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1706] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1707] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1708] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1709] http://www.openmicroscopy.org/site/support/ome-model/
[1710] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[1711] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[1712] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1713] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name

- Channel : SamplesPerPixel[1714]
- Detector : ID[1715]
- Detector : Model[1716]
- Detector : Type[1717]
- DetectorSettings : Binning[1718]
- DetectorSettings : Gain[1719]
- DetectorSettings : ID[1720]
- Experiment : ID[1721]
- Experiment : Type[1722]
- Image : AcquisitionDate[1723]
- Image : Description[1724]
- Image : ExperimentRef[1725]
- Image : ID[1726]
- Image : InstrumentRef[1727]
- Image : Name[1728]
- ImagingEnvironment : Temperature[1729]
- Instrument : ID[1730]
- Objective : Correction[1731]
- Objective : ID[1732]
- Objective : Immersion[1733]
- Objective : LensNA[1734]
- Objective : Manufacturer[1735]
- Objective : NominalMagnification[1736]

[1714] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1715] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1716] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1717] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1718] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[1719] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[1720] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1721] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[1722] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type
[1723] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1724] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1725] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimentRef_ID
[1726] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1727] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1728] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1729] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[1730] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1731] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1732] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1733] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1734] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[1735] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[1736] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification

- ObjectiveSettings : ID[1737]
- ObjectiveSettings : RefractiveIndex[1738]
- Pixels : BinDataBigEndian[1739]
- Pixels : DimensionOrder[1740]
- Pixels : ID[1741]
- Pixels : PhysicalSizeX[1742]
- Pixels : PhysicalSizeY[1743]
- Pixels : SizeC[1744]
- Pixels : SizeT[1745]
- Pixels : SizeX[1746]
- Pixels : SizeY[1747]
- Pixels : SizeZ[1748]
- Pixels : Type[1749]
- Plane : DeltaT[1750]
- Plane : ExposureTime[1751]
- Plane : PositionX[1752]
- Plane : PositionY[1753]
- Plane : PositionZ[1754]
- Plane : TheC[1755]
- Plane : TheT[1756]
- Plane : TheZ[1757]
- Plate : ColumnNamingConvention[1758]
- Plate : ID[1759]

[1737] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1738] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[1739] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1740] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1741] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1742] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1743] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1744] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1745] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1746] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1747] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1748] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1749] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1750] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[1751] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[1752] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[1753] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[1754] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[1755] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1756] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1757] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1758] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[1759] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID

- Plate : Name[1760]
- Plate : RowNamingConvention[1761]
- Plate : WellOriginX[1762]
- Plate : WellOriginY[1763]
- PlateAcquisition : ID[1764]
- PlateAcquisition : MaximumFieldCount[1765]
- PlateAcquisition : WellSampleRef[1766]
- Well : Column[1767]
- Well : ID[1768]
- Well : Row[1769]
- WellSample : ID[1770]
- WellSample : ImageRef[1771]
- WellSample : Index[1772]
- WellSample : PositionX[1773]
- WellSample : PositionY[1774]

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%).

[1760] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[1761] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[1762] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginX
[1763] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_WellOriginY
[1764] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[1765] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[1766] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[1767] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[1768] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[1769] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[1770] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[1771] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[1772] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[1773] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX
[1774] http://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 : ID[1776]
- Channel : SamplesPerPixel[1777]
- Image : AcquisitionDate[1778]
- Image : ID[1779]
- Image : Name[1780]
- Pixels : BinDataBigEndian[1781]
- Pixels : DimensionOrder[1782]
- Pixels : ID[1783]
- Pixels : SizeC[1784]
- Pixels : SizeT[1785]
- Pixels : SizeX[1786]
- Pixels : SizeY[1787]
- Pixels : SizeZ[1788]
- Pixels : Type[1789]
- Plane : TheC[1790]
- Plane : TheT[1791]
- Plane : TheZ[1792]

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.

[1776] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1777] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1778] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1779] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1780] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1781] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1782] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1783] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1784] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1785] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1786] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1787] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1788] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1789] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1790] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1791] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1792] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model[1793]. 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 : ID[1794]
- Channel : SamplesPerPixel[1795]
- Image : AcquisitionDate[1796]
- Image : ID[1797]
- Image : Name[1798]
- Pixels : BinDataBigEndian[1799]
- Pixels : DimensionOrder[1800]
- Pixels : ID[1801]
- Pixels : PhysicalSizeX[1802]
- Pixels : PhysicalSizeY[1803]
- Pixels : PhysicalSizeZ[1804]
- Pixels : SizeC[1805]
- Pixels : SizeT[1806]
- Pixels : SizeX[1807]
- Pixels : SizeY[1808]
- Pixels : SizeZ[1809]
- Pixels : Type[1810]

[1793] http://www.openmicroscopy.org/site/support/ome-model/
[1794] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1795] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1796] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1797] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1798] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1799] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1800] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1801] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1802] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1803] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1804] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[1805] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1806] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1807] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1808] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1809] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1810] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[1811]
- Plane : TheT[1812]
- Plane : TheZ[1813]

Total supported: 20

Total unknown or missing: 453

18.2.49 IvisionReader

This page lists supported metadata fields for the Bio-Formats IVision 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 IVision format reader:

- Channel : ID[1815]
- Channel : SamplesPerPixel[1816]
- Detector : ID[1817]
- Detector : Type[1818]
- DetectorSettings : Binning[1819]
- DetectorSettings : Gain[1820]
- DetectorSettings : ID[1821]
- Image : AcquisitionDate[1822]
- Image : ID[1823]
- Image : InstrumentRef[1824]
- Image : Name[1825]

[1811] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1812] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1813] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1814] http://www.openmicroscopy.org/site/support/ome-model/
[1815] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1816] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1817] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[1818] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[1819] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[1820] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[1821] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[1822] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1823] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1824] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[1825] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Instrument : ID[1826]
- Objective : Correction[1827]
- Objective : ID[1828]
- Objective : Immersion[1829]
- Objective : LensNA[1830]
- Objective : NominalMagnification[1831]
- ObjectiveSettings : ID[1832]
- ObjectiveSettings : RefractiveIndex[1833]
- Pixels : BinDataBigEndian[1834]
- Pixels : DimensionOrder[1835]
- Pixels : ID[1836]
- Pixels : SizeC[1837]
- Pixels : SizeT[1838]
- Pixels : SizeX[1839]
- Pixels : SizeY[1840]
- Pixels : SizeZ[1841]
- Pixels : TimeIncrement[1842]
- Pixels : Type[1843]
- Plane : TheC[1844]
- Plane : TheT[1845]
- Plane : TheZ[1846]

Total supported: 32

Total unknown or missing: 441

[1826] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1827] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[1828] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[1829] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[1830] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[1831] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[1832] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[1833] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[1834] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1835] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1836] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1837] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1838] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1839] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1840] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1841] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1842] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[1843] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1844] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1845] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1846] http://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 : ID[1848]
- Channel : SamplesPerPixel[1849]
- Image : AcquisitionDate[1850]
- Image : Description[1851]
- Image : ID[1852]
- Image : Name[1853]
- Image : ROIRef[1854]
- Pixels : BinDataBigEndian[1855]
- Pixels : DimensionOrder[1856]
- Pixels : ID[1857]
- Pixels : PhysicalSizeX[1858]
- Pixels : PhysicalSizeY[1859]
- Pixels : SizeC[1860]
- Pixels : SizeT[1861]
- Pixels : SizeX[1862]
- Pixels : SizeY[1863]

[1847] http://www.openmicroscopy.org/site/support/ome-model/
[1848] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1849] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1850] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1851] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[1852] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1853] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1854] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[1855] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1856] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1857] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1858] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1859] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[1860] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1861] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1862] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1863] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ[1864]
- Pixels : TimeIncrement[1865]
- Pixels : Type[1866]
- Plane : DeltaT[1867]
- Plane : TheC[1868]
- Plane : TheT[1869]
- Plane : TheZ[1870]
- ROI : ID[1871]
- Rectangle : Height[1872]
- Rectangle : ID[1873]
- Rectangle : Width[1874]
- Rectangle : X[1875]
- Rectangle : Y[1876]

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 : ID[1878]

[1864] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1865] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[1866] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1867] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[1868] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1869] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1870] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1871] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[1872] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[1873] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[1874] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[1875] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[1876] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[1877] http://www.openmicroscopy.org/site/support/ome-model/
[1878] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[1879]
- Image : AcquisitionDate[1880]
- Image : ID[1881]
- Image : Name[1882]
- Pixels : BinDataBigEndian[1883]
- Pixels : DimensionOrder[1884]
- Pixels : ID[1885]
- Pixels : SizeC[1886]
- Pixels : SizeT[1887]
- Pixels : SizeX[1888]
- Pixels : SizeY[1889]
- Pixels : SizeZ[1890]
- Pixels : Type[1891]
- Plane : TheC[1892]
- Plane : TheT[1893]
- Plane : TheZ[1894]

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%).

[1879] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1880] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1881] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1882] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1883] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1884] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1885] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1886] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1887] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1888] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1889] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1890] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1891] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1892] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1893] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1894] http://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 : ID[1896]
- Channel : SamplesPerPixel[1897]
- Image : AcquisitionDate[1898]
- Image : ID[1899]
- Image : Name[1900]
- Pixels : BinDataBigEndian[1901]
- Pixels : DimensionOrder[1902]
- Pixels : ID[1903]
- Pixels : SizeC[1904]
- Pixels : SizeT[1905]
- Pixels : SizeX[1906]
- Pixels : SizeY[1907]
- Pixels : SizeZ[1908]
- Pixels : Type[1909]
- Plane : TheC[1910]
- Plane : TheT[1911]
- Plane : TheZ[1912]

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.

[1896] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1897] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1898] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1899] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1900] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1901] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1902] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1903] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1904] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1905] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1906] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1907] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1908] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1909] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1910] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1911] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1912] http://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 : ID[1914]
- Channel : SamplesPerPixel[1915]
- Image : AcquisitionDate[1916]
- Image : ID[1917]
- Image : Name[1918]
- Pixels : BinDataBigEndian[1919]
- Pixels : DimensionOrder[1920]
- Pixels : ID[1921]
- Pixels : SizeC[1922]
- Pixels : SizeT[1923]
- Pixels : SizeX[1924]
- Pixels : SizeY[1925]
- Pixels : SizeZ[1926]
- Pixels : Type[1927]
- Plane : TheC[1928]
- Plane : TheT[1929]
- Plane : TheZ[1930]

[1913] http://www.openmicroscopy.org/site/support/ome-model/
[1914] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1915] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1916] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1917] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1918] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1919] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1920] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1921] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1922] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1923] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1924] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1925] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1926] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1927] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1928] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1929] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1930] http://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 : ID[1932]
- Channel : SamplesPerPixel[1933]
- Image : AcquisitionDate[1934]
- Image : ID[1935]
- Image : Name[1936]
- Pixels : BinDataBigEndian[1937]
- Pixels : DimensionOrder[1938]
- Pixels : ID[1939]
- Pixels : SizeC[1940]
- Pixels : SizeT[1941]
- Pixels : SizeX[1942]
- Pixels : SizeY[1943]
- Pixels : SizeZ[1944]
- Pixels : Type[1945]

[1931] http://www.openmicroscopy.org/site/support/ome-model/
[1932] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1933] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1934] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1935] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1936] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1937] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1938] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1939] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1940] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1941] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1942] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1943] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1944] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1945] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[1946]
- Plane : TheT[1947]
- Plane : TheZ[1948]

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 : ID[1950]
- Channel : SamplesPerPixel[1951]
- Image : AcquisitionDate[1952]
- Image : ID[1953]
- Image : Name[1954]
- Pixels : BinDataBigEndian[1955]
- Pixels : DimensionOrder[1956]
- Pixels : ID[1957]
- Pixels : SizeC[1958]
- Pixels : SizeT[1959]
- Pixels : SizeX[1960]

[1946] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1947] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1948] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1949] http://www.openmicroscopy.org/site/support/ome-model/
[1950] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1951] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1952] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1953] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1954] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1955] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1956] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1957] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1958] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1959] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1960] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY[1961]
- Pixels : SizeZ[1962]
- Pixels : Type[1963]
- Plane : TheC[1964]
- Plane : TheT[1965]
- Plane : TheZ[1966]

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 : ID[1968]
- Channel : SamplesPerPixel[1969]
- Image : AcquisitionDate[1970]
- Image : ID[1971]
- Image : Name[1972]
- Pixels : BinDataBigEndian[1973]
- Pixels : DimensionOrder[1974]
- Pixels : ID[1975]

[1961] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1962] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1963] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1964] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1965] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1966] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1967] http://www.openmicroscopy.org/site/support/ome-model/
[1968] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1969] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1970] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1971] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1972] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1973] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1974] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1975] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : SizeC[1976]
- Pixels : SizeT[1977]
- Pixels : SizeX[1978]
- Pixels : SizeY[1979]
- Pixels : SizeZ[1980]
- Pixels : Type[1981]
- Plane : TheC[1982]
- Plane : TheT[1983]
- Plane : TheZ[1984]

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 : ID[1986]
- Channel : SamplesPerPixel[1987]
- Image : AcquisitionDate[1988]
- Image : ID[1989]
- Image : InstrumentRef[1990]

[1976] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[1977] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[1978] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[1979] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[1980] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[1981] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[1982] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[1983] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[1984] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[1985] http://www.openmicroscopy.org/site/support/ome-model/
[1986] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[1987] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[1988] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[1989] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[1990] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID

- Image : Name[1991]
- ImagingEnvironment : Temperature[1992]
- Instrument : ID[1993]
- Microscope : Model[1994]
- Pixels : BinDataBigEndian[1995]
- Pixels : DimensionOrder[1996]
- Pixels : ID[1997]
- Pixels : PhysicalSizeX[1998]
- Pixels : PhysicalSizeY[1999]
- Pixels : SizeC[2000]
- Pixels : SizeT[2001]
- Pixels : SizeX[2002]
- Pixels : SizeY[2003]
- Pixels : SizeZ[2004]
- Pixels : Type[2005]
- Plane : ExposureTime[2006]
- Plane : TheC[2007]
- Plane : TheT[2008]
- Plane : TheZ[2009]

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.

[1991] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[1992] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[1993] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[1994] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[1995] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[1996] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[1997] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[1998] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[1999] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2000] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2001] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2002] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2003] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2004] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2005] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2006] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2007] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2008] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2009] http://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 : ID[2011]
- Channel : SamplesPerPixel[2012]
- Image : AcquisitionDate[2013]
- Image : ID[2014]
- Image : Name[2015]
- Image : ROIRef[2016]
- Pixels : BinDataBigEndian[2017]
- Pixels : DimensionOrder[2018]
- Pixels : ID[2019]
- Pixels : SizeC[2020]
- Pixels : SizeT[2021]
- Pixels : SizeX[2022]
- Pixels : SizeY[2023]
- Pixels : SizeZ[2024]
- Pixels : Type[2025]
- Plane : DeltaT[2026]
- Plane : ExposureTime[2027]

[2010] http://www.openmicroscopy.org/site/support/ome-model/
[2011] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2012] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2013] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2014] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2015] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2016] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[2017] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2018] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2019] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2020] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2021] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2022] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2023] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2024] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2025] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2026] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2027] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime

- Plane : TheC[2028]
- Plane : TheT[2029]
- Plane : TheZ[2030]
- Polygon : ID[2031]
- Polygon : Points[2032]
- ROI : ID[2033]

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 : Color[2035]
- Channel : EmissionWavelength[2036]
- Channel : ExcitationWavelength[2037]
- Channel : ID[2038]
- Channel : Name[2039]
- Channel : PinholeSize[2040]
- Channel : SamplesPerPixel[2041]
- Detector : ID[2042]

[2028] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2029] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2030] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2031] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2032] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[2033] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[2034] http://www.openmicroscopy.org/site/support/ome-model/
[2035] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[2036] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[2037] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2038] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2039] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2040] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[2041] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2042] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

- Detector : Offset[2043]
- Detector : Type[2044]
- Detector : Voltage[2045]
- DetectorSettings : ID[2046]
- Filter : ID[2047]
- Filter : Model[2048]
- Image : AcquisitionDate[2049]
- Image : Description[2050]
- Image : ID[2051]
- Image : InstrumentRef[2052]
- Image : Name[2053]
- Instrument : ID[2054]
- LightPath : EmissionFilterRef[2055]
- Objective : Correction[2056]
- Objective : ID[2057]
- Objective : Immersion[2058]
- Objective : LensNA[2059]
- Objective : Model[2060]
- Objective : NominalMagnification[2061]
- Objective : SerialNumber[2062]
- ObjectiveSettings : ID[2063]
- ObjectiveSettings : RefractiveIndex[2064]
- Pixels : BinDataBigEndian[2065]

[2043] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset
[2044] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2045] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage
[2046] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2047] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[2048] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2049] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2050] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2051] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2052] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2053] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2054] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2055] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[2056] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2057] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2058] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2059] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2060] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2061] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2062] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[2063] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2064] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[2065] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[2066]
- Pixels : ID[2067]
- Pixels : PhysicalSizeX[2068]
- Pixels : PhysicalSizeY[2069]
- Pixels : PhysicalSizeZ[2070]
- Pixels : SizeC[2071]
- Pixels : SizeT[2072]
- Pixels : SizeX[2073]
- Pixels : SizeY[2074]
- Pixels : SizeZ[2075]
- Pixels : TimeIncrement[2076]
- Pixels : Type[2077]
- Plane : DeltaT[2078]
- Plane : ExposureTime[2079]
- Plane : PositionX[2080]
- Plane : PositionY[2081]
- Plane : TheC[2082]
- Plane : TheT[2083]
- Plane : TheZ[2084]
- StageLabel : Name[2085]
- StageLabel : Z[2086]
- TransmittanceRange : CutIn[2087]
- TransmittanceRange : CutOut[2088]

[2066] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2067] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2068] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2069] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2070] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2071] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2072] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2073] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2074] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2075] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2076] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[2077] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2078] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2079] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2080] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2081] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2082] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2083] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2084] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2085] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Name
[2086] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#StageLabel_Z
[2087] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[2088] http://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 : Color[2090]
- Channel : ExcitationWavelength[2091]
- Channel : ID[2092]
- Channel : LightSourceSettingsAttenuation[2093]
- Channel : LightSourceSettingsID[2094]
- Channel : Name[2095]
- Channel : PinholeSize[2096]
- Channel : SamplesPerPixel[2097]
- Detector : ID[2098]
- Detector : Model[2099]
- Detector : Offset[2100]
- Detector : Type[2101]
- Detector : Zoom[2102]
- DetectorSettings : Gain[2103]

[2089] http://www.openmicroscopy.org/site/support/ome-model/
[2090] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[2091] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2092] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2093] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Attenuation
[2094] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[2095] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2096] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[2097] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2098] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2099] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2100] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset
[2101] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2102] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom
[2103] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain

- DetectorSettings : ID[2104]
- DetectorSettings : Offset[2105]
- Filter : ID[2106]
- Filter : Model[2107]
- Image : AcquisitionDate[2108]
- Image : Description[2109]
- Image : ID[2110]
- Image : InstrumentRef[2111]
- Image : Name[2112]
- Image : ROIRef[2113]
- Instrument : ID[2114]
- Label : FontSize[2115]
- Label : ID[2116]
- Label : StrokeWidth[2117]
- Label : Text[2118]
- Label : X[2119]
- Label : Y[2120]
- Laser : ID[2121]
- Laser : LaserMedium[2122]
- Laser : Type[2123]
- Laser : Wavelength[2124]
- LightPath : EmissionFilterRef[2125]
- Line : ID[2126]

[2104] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2105] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[2106] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[2107] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2108] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2109] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2110] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2111] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2112] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2113] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[2114] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2115] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2116] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2117] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2118] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[2119] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X
[2120] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y
[2121] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2122] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[2123] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[2124] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[2125] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[2126] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Line : X1[2127]
- Line : X2[2128]
- Line : Y1[2129]
- Line : Y2[2130]
- Microscope : Model[2131]
- Microscope : Type[2132]
- Objective : Correction[2133]
- Objective : ID[2134]
- Objective : Immersion[2135]
- Objective : LensNA[2136]
- Objective : Model[2137]
- Objective : NominalMagnification[2138]
- Objective : SerialNumber[2139]
- ObjectiveSettings : ID[2140]
- ObjectiveSettings : RefractiveIndex[2141]
- Pixels : BinDataBigEndian[2142]
- Pixels : DimensionOrder[2143]
- Pixels : ID[2144]
- Pixels : PhysicalSizeX[2145]
- Pixels : PhysicalSizeY[2146]
- Pixels : PhysicalSizeZ[2147]
- Pixels : SizeC[2148]
- Pixels : SizeT[2149]

[2127] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1
[2128] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2
[2129] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1
[2130] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2
[2131] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2132] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type
[2133] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2134] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2135] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2136] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2137] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2138] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2139] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[2140] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2141] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[2142] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2143] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2144] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2145] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2146] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2147] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2148] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2149] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[2150]
- Pixels : SizeY[2151]
- Pixels : SizeZ[2152]
- Pixels : TimeIncrement[2153]
- Pixels : Type[2154]
- Plane : DeltaT[2155]
- Plane : ExposureTime[2156]
- Plane : PositionX[2157]
- Plane : PositionY[2158]
- Plane : PositionZ[2159]
- Plane : TheC[2160]
- Plane : TheT[2161]
- Plane : TheZ[2162]
- Polygon : ID[2163]
- Polygon : Points[2164]
- ROI : ID[2165]
- Rectangle : Height[2166]
- Rectangle : ID[2167]
- Rectangle : Width[2168]
- Rectangle : X[2169]
- Rectangle : Y[2170]
- TransmittanceRange : CutIn[2171]
- TransmittanceRange : CutOut[2172]

[2150] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2151] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2152] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2153] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[2154] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2155] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2156] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2157] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2158] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2159] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[2160] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2161] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2162] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2163] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2164] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[2165] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[2166] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[2167] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2168] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[2169] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[2170] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[2171] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[2172] http://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 : ID[2174]
- Channel : IlluminationType[2175]
- Channel : SamplesPerPixel[2176]
- Image : AcquisitionDate[2177]
- Image : Description[2178]
- Image : ID[2179]
- Image : InstrumentRef[2180]
- Image : Name[2181]
- Instrument : ID[2182]
- Objective : CalibratedMagnification[2183]
- Objective : ID[2184]
- Objective : LensNA[2185]
- Objective : NominalMagnification[2186]
- ObjectiveSettings : ID[2187]

[2173] http://www.openmicroscopy.org/site/support/ome-model/
[2174] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2175] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType
[2176] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2177] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2178] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2179] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2180] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2181] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2182] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2183] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[2184] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2185] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2186] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2187] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID

- Pixels : BinDataBigEndian[2188]
- Pixels : DimensionOrder[2189]
- Pixels : ID[2190]
- Pixels : PhysicalSizeX[2191]
- Pixels : PhysicalSizeY[2192]
- Pixels : PhysicalSizeZ[2193]
- Pixels : SizeC[2194]
- Pixels : SizeT[2195]
- Pixels : SizeX[2196]
- Pixels : SizeY[2197]
- Pixels : SizeZ[2198]
- Pixels : Type[2199]
- Plane : PositionX[2200]
- Plane : PositionY[2201]
- Plane : TheC[2202]
- Plane : TheT[2203]
- Plane : TheZ[2204]

Total supported: 31

Total unknown or missing: 442

18.2.62 LEOReader

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*:

[2188] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2189] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2190] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2191] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2192] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2193] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2194] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2195] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2196] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2197] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2198] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2199] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2200] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2201] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2202] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2203] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2204] http://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 : ID[2206]
- Channel : SamplesPerPixel[2207]
- Image : AcquisitionDate[2208]
- Image : ID[2209]
- Image : InstrumentRef[2210]
- Image : Name[2211]
- Instrument : ID[2212]
- Objective : Correction[2213]
- Objective : ID[2214]
- Objective : Immersion[2215]
- Objective : WorkingDistance[2216]
- Pixels : BinDataBigEndian[2217]
- Pixels : DimensionOrder[2218]
- Pixels : ID[2219]
- Pixels : PhysicalSizeX[2220]
- Pixels : PhysicalSizeY[2221]
- Pixels : SizeC[2222]
- Pixels : SizeT[2223]
- Pixels : SizeX[2224]
- Pixels : SizeY[2225]

[2206] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2207] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2208] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2209] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2210] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2211] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2212] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2213] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2214] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2215] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2216] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[2217] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2218] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2219] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2220] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2221] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2222] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2223] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2224] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2225] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ[2226]
- Pixels : Type[2227]
- Plane : TheC[2228]
- Plane : TheT[2229]
- Plane : TheZ[2230]

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 : ID[2232]
- Channel : LightSourceSettingsID[2233]
- Channel : SamplesPerPixel[2234]
- Image : AcquisitionDate[2235]
- Image : Description[2236]
- Image : ID[2237]
- Image : InstrumentRef[2238]
- Image : Name[2239]
- Instrument : ID[2240]

[2226] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2227] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2228] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2229] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2230] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2231] http://www.openmicroscopy.org/site/support/ome-model/
[2232] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2233] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[2234] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2235] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2236] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2237] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2238] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2239] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2240] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

- Laser : ID[2241]
- Laser : LaserMedium[2242]
- Laser : Type[2243]
- Laser : Wavelength[2244]
- Microscope : Model[2245]
- Microscope : Type[2246]
- Pixels : BinDataBigEndian[2247]
- Pixels : DimensionOrder[2248]
- Pixels : ID[2249]
- Pixels : SizeC[2250]
- Pixels : SizeT[2251]
- Pixels : SizeX[2252]
- Pixels : SizeY[2253]
- Pixels : SizeZ[2254]
- Pixels : Type[2255]
- Plane : TheC[2256]
- Plane : TheT[2257]
- Plane : TheZ[2258]

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.

[2241] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2242] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[2243] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[2244] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[2245] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2246] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type
[2247] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2248] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2249] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2250] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2251] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2252] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2253] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2254] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2255] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2256] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2257] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2258] http://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 : ID[2260]
- Channel : SamplesPerPixel[2261]
- Image : AcquisitionDate[2262]
- Image : ID[2263]
- Image : Name[2264]
- Pixels : BinDataBigEndian[2265]
- Pixels : DimensionOrder[2266]
- Pixels : ID[2267]
- Pixels : SizeC[2268]
- Pixels : SizeT[2269]
- Pixels : SizeX[2270]
- Pixels : SizeY[2271]
- Pixels : SizeZ[2272]
- Pixels : Type[2273]
- Plane : TheC[2274]
- Plane : TheT[2275]
- Plane : TheZ[2276]

Total supported: 17

Total unknown or missing: 456

[2260] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2261] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2262] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2263] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2264] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2265] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2266] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2267] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2268] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2269] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2270] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2271] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2272] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2273] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2274] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2275] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2276] http://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 model[2277]. 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 : ID[2278]
- Channel : Name[2279]
- Channel : SamplesPerPixel[2280]
- Image : AcquisitionDate[2281]
- Image : Description[2282]
- Image : ID[2283]
- Image : Name[2284]
- ImagingEnvironment : Temperature[2285]
- Pixels : BinDataBigEndian[2286]
- Pixels : DimensionOrder[2287]
- Pixels : ID[2288]
- Pixels : PhysicalSizeX[2289]
- Pixels : PhysicalSizeY[2290]
- Pixels : SizeC[2291]
- Pixels : SizeT[2292]
- Pixels : SizeX[2293]

[2277] http://www.openmicroscopy.org/site/support/ome-model/
[2278] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2279] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2280] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2281] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2282] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2283] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2284] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2285] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[2286] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2287] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2288] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2289] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2290] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2291] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2292] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2293] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY[2294]
- Pixels : SizeZ[2295]
- Pixels : Type[2296]
- Plane : DeltaT[2297]
- Plane : ExposureTime[2298]
- Plane : PositionX[2299]
- Plane : PositionY[2300]
- Plane : TheC[2301]
- Plane : TheT[2302]
- Plane : TheZ[2303]
- Plate : ColumnNamingConvention[2304]
- Plate : ID[2305]
- Plate : RowNamingConvention[2306]
- Well : Column[2307]
- Well : ID[2308]
- Well : Row[2309]
- WellSample : ID[2310]
- WellSample : ImageRef[2311]
- WellSample : Index[2312]

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.

[2294] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2295] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2296] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2297] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2298] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2299] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2300] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2301] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2302] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2303] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2304] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[2305] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[2306] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[2307] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[2308] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[2309] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[2310] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[2311] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[2312] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index

These fields are from the OME data model[2313]. 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 : ID[2314]
- Channel : LightSourceSettingsID[2315]
- Channel : LightSourceSettingsWavelength[2316]
- Channel : Name[2317]
- Channel : SamplesPerPixel[2318]
- Detector : ID[2319]
- Detector : Type[2320]
- DetectorSettings : Binning[2321]
- DetectorSettings : Gain[2322]
- DetectorSettings : ID[2323]
- DetectorSettings : ReadOutRate[2324]
- Image : AcquisitionDate[2325]
- Image : Description[2326]
- Image : ID[2327]
- Image : InstrumentRef[2328]
- Image : Name[2329]
- ImagingEnvironment : Temperature[2330]

[2313] http://www.openmicroscopy.org/site/support/ome-model/
[2314] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2315] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[2316] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength
[2317] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2318] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2319] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2320] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2321] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[2322] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[2323] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2324] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate
[2325] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2326] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2327] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2328] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2329] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2330] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature

- Instrument : ID[2331]
- Laser : ID[2332]
- Laser : LaserMedium[2333]
- Laser : Type[2334]
- Pixels : BinDataBigEndian[2335]
- Pixels : DimensionOrder[2336]
- Pixels : ID[2337]
- Pixels : PhysicalSizeX[2338]
- Pixels : PhysicalSizeY[2339]
- Pixels : PhysicalSizeZ[2340]
- Pixels : SizeC[2341]
- Pixels : SizeT[2342]
- Pixels : SizeX[2343]
- Pixels : SizeY[2344]
- Pixels : SizeZ[2345]
- Pixels : Type[2346]
- Plane : DeltaT[2347]
- Plane : ExposureTime[2348]
- Plane : PositionX[2349]
- Plane : PositionY[2350]
- Plane : PositionZ[2351]
- Plane : TheC[2352]
- Plane : TheT[2353]

[2331] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2332] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2333] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[2334] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[2335] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2336] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2337] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2338] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2339] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2340] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2341] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2342] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2343] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2344] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2345] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2346] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2347] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2348] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2349] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2350] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2351] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[2352] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2353] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[2354]

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 : Color[2356]
- Channel : ID[2357]
- Channel : Name[2358]
- Channel : SamplesPerPixel[2359]
- Ellipse : ID[2360]
- Ellipse : RadiusX[2361]
- Ellipse : RadiusY[2362]
- Ellipse : Text[2363]
- Ellipse : TheT[2364]
- Ellipse : TheZ[2365]
- Ellipse : X[2366]
- Ellipse : Y[2367]
- Experiment : Description[2368]

[2354] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2355] http://www.openmicroscopy.org/site/support/ome-model/
[2356] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[2357] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2358] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2359] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2360] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2361] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX
[2362] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY
[2363] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[2364] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2365] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2366] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X
[2367] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y
[2368] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Description

- Experiment : ID[2369]
- Experiment : Type[2370]
- Image : AcquisitionDate[2371]
- Image : ExperimentRef[2372]
- Image : ID[2373]
- Image : InstrumentRef[2374]
- Image : Name[2375]
- Image : ROIRef[2376]
- Instrument : ID[2377]
- Mask : FillColor[2378]
- Mask : Height[2379]
- Mask : ID[2380]
- Mask : StrokeColor[2381]
- Mask : Width[2382]
- Mask : X[2383]
- Mask : Y[2384]
- Objective : ID[2385]
- Objective : Model[2386]
- Objective : NominalMagnification[2387]
- Pixels : BinDataBigEndian[2388]
- Pixels : DimensionOrder[2389]
- Pixels : ID[2390]
- Pixels : PhysicalSizeX[2391]

[2369] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[2370] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type
[2371] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2372] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimentRef_ID
[2373] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2374] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2375] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2376] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[2377] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2378] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FillColor
[2379] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height
[2380] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2381] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeColor
[2382] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width
[2383] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X
[2384] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y
[2385] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2386] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2387] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2388] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2389] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2390] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2391] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY[2392]
- Pixels : SizeC[2393]
- Pixels : SizeT[2394]
- Pixels : SizeX[2395]
- Pixels : SizeY[2396]
- Pixels : SizeZ[2397]
- Pixels : Type[2398]
- Plane : ExposureTime[2399]
- Plane : TheC[2400]
- Plane : TheT[2401]
- Plane : TheZ[2402]
- Plate : ColumnNamingConvention[2403]
- Plate : ExternalIdentifier[2404]
- Plate : ID[2405]
- Plate : Name[2406]
- Plate : RowNamingConvention[2407]
- PlateAcquisition : ID[2408]
- PlateAcquisition : MaximumFieldCount[2409]
- PlateAcquisition : WellSampleRef[2410]
- ROI : ID[2411]
- Well : Column[2412]
- Well : ID[2413]
- Well : Row[2414]

[2392] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2393] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2394] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2395] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2396] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2397] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2398] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2399] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2400] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2401] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2402] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2403] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[2404] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier
[2405] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[2406] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[2407] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[2408] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[2409] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[2410] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[2411] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[2412] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[2413] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[2414] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row

- WellSample : ID[2415]
- WellSample : ImageRef[2416]
- WellSample : Index[2417]

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 model[2418]. 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 : ID[2419]
- Channel : Name[2420]
- Channel : SamplesPerPixel[2421]
- Detector : ID[2422]
- Detector : Manufacturer[2423]
- Detector : Model[2424]
- Detector : SerialNumber[2425]
- Detector : Type[2426]
- DetectorSettings : Binning[2427]
- DetectorSettings : Gain[2428]
- DetectorSettings : ID[2429]

[2415] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[2416] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[2417] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[2418] http://www.openmicroscopy.org/site/support/ome-model/
[2419] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2420] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2421] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2422] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2423] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[2424] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2425] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[2426] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2427] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[2428] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[2429] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

- DetectorSettings : Voltage[2430]
- Image : AcquisitionDate[2431]
- Image : Description[2432]
- Image : ID[2433]
- Image : InstrumentRef[2434]
- Image : Name[2435]
- ImagingEnvironment : Temperature[2436]
- Instrument : ID[2437]
- Pixels : BinDataBigEndian[2438]
- Pixels : DimensionOrder[2439]
- Pixels : ID[2440]
- Pixels : PhysicalSizeX[2441]
- Pixels : PhysicalSizeY[2442]
- Pixels : PhysicalSizeZ[2443]
- Pixels : SizeC[2444]
- Pixels : SizeT[2445]
- Pixels : SizeX[2446]
- Pixels : SizeY[2447]
- Pixels : SizeZ[2448]
- Pixels : Type[2449]
- Plane : DeltaT[2450]
- Plane : ExposureTime[2451]
- Plane : TheC[2452]

[2430] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[2431] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2432] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2433] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2434] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2435] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2436] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[2437] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2438] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2439] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2440] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2441] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2442] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2443] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2444] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2445] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2446] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2447] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2448] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2449] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2450] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2451] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2452] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT[2453]
- Plane : TheZ[2454]

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 model[2455]. 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 : ID[2456]
- Channel : SamplesPerPixel[2457]
- Image : AcquisitionDate[2458]
- Image : Description[2459]
- Image : ID[2460]
- Image : Name[2461]
- Pixels : BinDataBigEndian[2462]
- Pixels : DimensionOrder[2463]
- Pixels : ID[2464]
- Pixels : PhysicalSizeX[2465]
- Pixels : PhysicalSizeY[2466]
- Pixels : PhysicalSizeZ[2467]

[2453] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2454] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2455] http://www.openmicroscopy.org/site/support/ome-model/
[2456] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2457] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2458] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2459] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2460] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2461] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2462] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2463] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2464] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2465] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2466] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2467] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SizeC[2468]
- Pixels : SizeT[2469]
- Pixels : SizeX[2470]
- Pixels : SizeY[2471]
- Pixels : SizeZ[2472]
- Pixels : Type[2473]
- Plane : TheC[2474]
- Plane : TheT[2475]
- Plane : TheZ[2476]

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 : ID[2478]
- Channel : SamplesPerPixel[2479]
- Image : AcquisitionDate[2480]
- Image : ID[2481]
- Image : Name[2482]

[2468] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2469] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2470] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2471] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2472] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2473] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2474] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2475] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2476] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2477] http://www.openmicroscopy.org/site/support/ome-model/
[2478] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2479] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2480] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2481] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2482] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name

- Pixels : BinDataBigEndian[2483]
- Pixels : DimensionOrder[2484]
- Pixels : ID[2485]
- Pixels : SizeC[2486]
- Pixels : SizeT[2487]
- Pixels : SizeX[2488]
- Pixels : SizeY[2489]
- Pixels : SizeZ[2490]
- Pixels : Type[2491]
- Plane : TheC[2492]
- Plane : TheT[2493]
- Plane : TheZ[2494]

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 : ID[2496]
- Channel : SamplesPerPixel[2497]

[2483] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2484] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2485] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2486] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2487] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2488] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2489] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2490] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2491] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2492] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2493] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2494] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2495] http://www.openmicroscopy.org/site/support/ome-model/
[2496] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2497] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate[2498]
- Image : ID[2499]
- Image : Name[2500]
- Pixels : BinDataBigEndian[2501]
- Pixels : DimensionOrder[2502]
- Pixels : ID[2503]
- Pixels : SizeC[2504]
- Pixels : SizeT[2505]
- Pixels : SizeX[2506]
- Pixels : SizeY[2507]
- Pixels : SizeZ[2508]
- Pixels : Type[2509]
- Plane : TheC[2510]
- Plane : TheT[2511]
- Plane : TheZ[2512]

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%).

[2498] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2499] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2500] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2501] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2502] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2503] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2504] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2505] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2506] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2507] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2508] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2509] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2510] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2511] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2512] http://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 : ID[2514]
- Channel : SamplesPerPixel[2515]
- Image : AcquisitionDate[2516]
- Image : ID[2517]
- Image : Name[2518]
- Pixels : BinDataBigEndian[2519]
- Pixels : DimensionOrder[2520]
- Pixels : ID[2521]
- Pixels : PhysicalSizeX[2522]
- Pixels : PhysicalSizeY[2523]
- Pixels : SizeC[2524]
- Pixels : SizeT[2525]
- Pixels : SizeX[2526]
- Pixels : SizeY[2527]
- Pixels : SizeZ[2528]
- Pixels : Type[2529]
- Plane : TheC[2530]
- Plane : TheT[2531]
- Plane : TheZ[2532]

Total supported: 19

Total unknown or missing: 454

[2514] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2515] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2516] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2517] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2518] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2519] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2520] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2521] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2522] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2523] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2524] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2525] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2526] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2527] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2528] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2529] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2530] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2531] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2532] http://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 model[2533]. 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 : ID[2534]
- Channel : SamplesPerPixel[2535]
- Image : AcquisitionDate[2536]
- Image : ID[2537]
- Image : Name[2538]
- Pixels : BinDataBigEndian[2539]
- Pixels : DimensionOrder[2540]
- Pixels : ID[2541]
- Pixels : PhysicalSizeX[2542]
- Pixels : PhysicalSizeY[2543]
- Pixels : PhysicalSizeZ[2544]
- Pixels : SizeC[2545]
- Pixels : SizeT[2546]
- Pixels : SizeX[2547]
- Pixels : SizeY[2548]
- Pixels : SizeZ[2549]

[2533] http://www.openmicroscopy.org/site/support/ome-model/
[2534] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2535] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2536] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2537] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2538] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2539] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2540] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2541] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2542] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2543] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2544] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2545] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2546] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2547] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2548] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2549] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type[2550]
- Plane : TheC[2551]
- Plane : TheT[2552]
- Plane : TheZ[2553]

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 : ID[2555]
- Channel : SamplesPerPixel[2556]
- Image : AcquisitionDate[2557]
- Image : ID[2558]
- Image : Name[2559]
- Pixels : BinDataBigEndian[2560]
- Pixels : DimensionOrder[2561]
- Pixels : ID[2562]
- Pixels : SizeC[2563]
- Pixels : SizeT[2564]

[2550] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2551] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2552] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2553] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2554] http://www.openmicroscopy.org/site/support/ome-model/
[2555] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2556] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2557] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2558] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2559] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2560] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2561] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2562] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2563] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2564] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[2565]
- Pixels : SizeY[2566]
- Pixels : SizeZ[2567]
- Pixels : Type[2568]
- Plane : TheC[2569]
- Plane : TheT[2570]
- Plane : TheZ[2571]

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 : ID[2573]
- Channel : SamplesPerPixel[2574]
- Image : AcquisitionDate[2575]
- Image : Description[2576]
- Image : ID[2577]
- Image : Name[2578]
- Pixels : BinDataBigEndian[2579]

[2565] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2566] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2567] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2568] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2569] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2570] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2571] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2572] http://www.openmicroscopy.org/site/support/ome-model/
[2573] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2574] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2575] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2576] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2577] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2578] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2579] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[2580]
- Pixels : ID[2581]
- Pixels : PhysicalSizeX[2582]
- Pixels : PhysicalSizeY[2583]
- Pixels : PhysicalSizeZ[2584]
- Pixels : SizeC[2585]
- Pixels : SizeT[2586]
- Pixels : SizeX[2587]
- Pixels : SizeY[2588]
- Pixels : SizeZ[2589]
- Pixels : TimeIncrement[2590]
- Pixels : Type[2591]
- Plane : TheC[2592]
- Plane : TheT[2593]
- Plane : TheZ[2594]

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%).

[2580] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2581] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2582] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2583] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2584] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2585] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2586] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2587] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2588] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2589] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2590] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[2591] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2592] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2593] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2594] http://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 : AcquisitionMode[2596]
- Channel : EmissionWavelength[2597]
- Channel : ExcitationWavelength[2598]
- Channel : ID[2599]
- Channel : Name[2600]
- Channel : PinholeSize[2601]
- Channel : SamplesPerPixel[2602]
- Detector : ID[2603]
- Detector : Model[2604]
- Detector : Type[2605]
- DetectorSettings : Binning[2606]
- DetectorSettings : Gain[2607]
- DetectorSettings : ID[2608]
- DetectorSettings : ReadOutRate[2609]
- DetectorSettings : Voltage[2610]
- Image : AcquisitionDate[2611]
- Image : ID[2612]
- Image : InstrumentRef[2613]
- Image : Name[2614]
- ImagingEnvironment : Temperature[2615]
- Instrument : ID[2616]

[2596] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode
[2597] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[2598] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2599] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2600] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2601] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[2602] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2603] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2604] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2605] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2606] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[2607] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[2608] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2609] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate
[2610] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[2611] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2612] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2613] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2614] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2615] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[2616] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID

- Objective : CalibratedMagnification[2617]
- Objective : Correction[2618]
- Objective : ID[2619]
- Objective : Immersion[2620]
- Objective : LensNA[2621]
- Objective : Model[2622]
- ObjectiveSettings : ID[2623]
- ObjectiveSettings : RefractiveIndex[2624]
- Pixels : BinDataBigEndian[2625]
- Pixels : DimensionOrder[2626]
- Pixels : ID[2627]
- Pixels : PhysicalSizeX[2628]
- Pixels : PhysicalSizeY[2629]
- Pixels : PhysicalSizeZ[2630]
- Pixels : SizeC[2631]
- Pixels : SizeT[2632]
- Pixels : SizeX[2633]
- Pixels : SizeY[2634]
- Pixels : SizeZ[2635]
- Pixels : Type[2636]
- Plane : ExposureTime[2637]
- Plane : PositionX[2638]
- Plane : PositionY[2639]

[2617] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[2618] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2619] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2620] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2621] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2622] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2623] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2624] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[2625] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2626] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2627] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2628] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2629] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2630] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2631] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2632] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2633] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2634] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2635] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2636] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2637] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2638] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2639] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY

- Plane : PositionZ[2640]
- Plane : TheC[2641]
- Plane : TheT[2642]
- Plane : TheZ[2643]

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 : EmissionWavelength[2645]
- Channel : ExcitationWavelength[2646]
- Channel : ID[2647]
- Channel : PinholeSize[2648]
- Channel : SamplesPerPixel[2649]
- Detector : Gain[2650]
- Detector : ID[2651]
- Detector : Type[2652]
- Dichroic : ID[2653]
- Dichroic : Model[2654]

[2640] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[2641] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2642] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2643] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2644] http://www.openmicroscopy.org/site/support/ome-model/
[2645] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[2646] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2647] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2648] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[2649] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2650] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain
[2651] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2652] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2653] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[2654] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

- Filter : ID[2655]
- Filter : Model[2656]
- Image : AcquisitionDate[2657]
- Image : Description[2658]
- Image : ID[2659]
- Image : InstrumentRef[2660]
- Image : Name[2661]
- Instrument : ID[2662]
- Laser : ID[2663]
- Laser : LaserMedium[2664]
- Laser : Model[2665]
- Laser : Type[2666]
- Laser : Wavelength[2667]
- Objective : Correction[2668]
- Objective : ID[2669]
- Objective : Immersion[2670]
- Objective : LensNA[2671]
- Objective : NominalMagnification[2672]
- Objective : WorkingDistance[2673]
- ObjectiveSettings : ID[2674]
- Pixels : BinDataBigEndian[2675]
- Pixels : DimensionOrder[2676]
- Pixels : ID[2677]

[2655] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[2656] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2657] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2658] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2659] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2660] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2661] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2662] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2663] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2664] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[2665] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2666] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[2667] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[2668] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2669] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2670] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2671] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2672] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2673] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[2674] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2675] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2676] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2677] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX[2678]
- Pixels : PhysicalSizeY[2679]
- Pixels : PhysicalSizeZ[2680]
- Pixels : SizeC[2681]
- Pixels : SizeT[2682]
- Pixels : SizeX[2683]
- Pixels : SizeY[2684]
- Pixels : SizeZ[2685]
- Pixels : Type[2686]
- Plane : TheC[2687]
- Plane : TheT[2688]
- Plane : TheZ[2689]

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 : AcquisitionMode[2691]
- Channel : Color[2692]

[2678] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2679] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2680] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2681] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2682] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2683] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2684] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2685] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2686] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2687] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2688] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2689] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2690] http://www.openmicroscopy.org/site/support/ome-model/
[2691] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_AcquisitionMode
[2692] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color

- Channel : EmissionWavelength[2693]
- Channel : ExcitationWavelength[2694]
- Channel : ID[2695]
- Channel : Name[2696]
- Channel : PinholeSize[2697]
- Channel : SamplesPerPixel[2698]
- Detector : ID[2699]
- Detector : Model[2700]
- Detector : Type[2701]
- DetectorSettings : Binning[2702]
- DetectorSettings : Gain[2703]
- DetectorSettings : ID[2704]
- DetectorSettings : ReadOutRate[2705]
- DetectorSettings : Voltage[2706]
- Image : AcquisitionDate[2707]
- Image : ID[2708]
- Image : InstrumentRef[2709]
- Image : Name[2710]
- ImagingEnvironment : Temperature[2711]
- Instrument : ID[2712]
- Objective : CalibratedMagnification[2713]
- Objective : Correction[2714]
- Objective : ID[2715]

[2693] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[2694] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2695] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2696] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2697] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[2698] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2699] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2700] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2701] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2702] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[2703] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[2704] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2705] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate
[2706] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[2707] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2708] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2709] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2710] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2711] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[2712] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2713] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[2714] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2715] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID

- Objective : Immersion[2716]
- Objective : LensNA[2717]
- Objective : Model[2718]
- ObjectiveSettings : ID[2719]
- ObjectiveSettings : RefractiveIndex[2720]
- Pixels : BinDataBigEndian[2721]
- Pixels : DimensionOrder[2722]
- Pixels : ID[2723]
- Pixels : PhysicalSizeX[2724]
- Pixels : PhysicalSizeY[2725]
- Pixels : PhysicalSizeZ[2726]
- Pixels : SizeC[2727]
- Pixels : SizeT[2728]
- Pixels : SizeX[2729]
- Pixels : SizeY[2730]
- Pixels : SizeZ[2731]
- Pixels : Type[2732]
- Plane : DeltaT[2733]
- Plane : ExposureTime[2734]
- Plane : PositionX[2735]
- Plane : PositionY[2736]
- Plane : PositionZ[2737]
- Plane : TheC[2738]

[2716] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2717] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2718] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2719] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2720] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[2721] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2722] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2723] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2724] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2725] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2726] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2727] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2728] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2729] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2730] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2731] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2732] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2733] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2734] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2735] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2736] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2737] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[2738] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT[2739]
- Plane : TheZ[2740]

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 model[2741]. 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 : ID[2742]
- Channel : SamplesPerPixel[2743]
- Image : AcquisitionDate[2744]
- Image : ID[2745]
- Image : Name[2746]
- Pixels : BinDataBigEndian[2747]
- Pixels : DimensionOrder[2748]
- Pixels : ID[2749]
- Pixels : PhysicalSizeX[2750]
- Pixels : PhysicalSizeY[2751]
- Pixels : PhysicalSizeZ[2752]
- Pixels : SizeC[2753]

[2739] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2740] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2741] http://www.openmicroscopy.org/site/support/ome-model/
[2742] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2743] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2744] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2745] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2746] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2747] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2748] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2749] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2750] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2751] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2752] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2753] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT[2754]
- Pixels : SizeX[2755]
- Pixels : SizeY[2756]
- Pixels : SizeZ[2757]
- Pixels : Type[2758]
- Plane : TheC[2759]
- Plane : TheT[2760]
- Plane : TheZ[2761]

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 : ID[2763]
- Channel : SamplesPerPixel[2764]
- Image : AcquisitionDate[2765]
- Image : ID[2766]
- Image : Name[2767]
- Pixels : BinDataBigEndian[2768]

[2754] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2755] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2756] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2757] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2758] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2759] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2760] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2761] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2762] http://www.openmicroscopy.org/site/support/ome-model/
[2763] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2764] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2765] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2766] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2767] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2768] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[2769]
- Pixels : ID[2770]
- Pixels : PhysicalSizeX[2771]
- Pixels : PhysicalSizeY[2772]
- Pixels : SizeC[2773]
- Pixels : SizeT[2774]
- Pixels : SizeX[2775]
- Pixels : SizeY[2776]
- Pixels : SizeZ[2777]
- Pixels : Type[2778]
- Plane : TheC[2779]
- Plane : TheT[2780]
- Plane : TheZ[2781]

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 : EmissionWavelength[2783]

[2769] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2770] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2771] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2772] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2773] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2774] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2775] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2776] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2777] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2778] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2779] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2780] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2781] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2782] http://www.openmicroscopy.org/site/support/ome-model/
[2783] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength

- Channel : ExcitationWavelength[2784]
- Channel : ID[2785]
- Channel : IlluminationType[2786]
- Channel : LightSourceSettingsID[2787]
- Channel : LightSourceSettingsWavelength[2788]
- Channel : Name[2789]
- Channel : SamplesPerPixel[2790]
- Detector : Gain[2791]
- Detector : ID[2792]
- Detector : Type[2793]
- Detector : Voltage[2794]
- DetectorSettings : ID[2795]
- Dichroic : ID[2796]
- Dichroic : Model[2797]
- Ellipse : FontSize[2798]
- Ellipse : ID[2799]
- Ellipse : RadiusX[2800]
- Ellipse : RadiusY[2801]
- Ellipse : StrokeWidth[2802]
- Ellipse : TheT[2803]
- Ellipse : TheZ[2804]
- Ellipse : Transform[2805]
- Ellipse : X[2806]

[2784] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[2785] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2786] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_IlluminationType
[2787] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_ID
[2788] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSourceSettings_Wavelength
[2789] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2790] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2791] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain
[2792] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2793] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2794] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Voltage
[2795] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2796] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[2797] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2798] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2799] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2800] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX
[2801] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY
[2802] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2803] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2804] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2805] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[2806] http://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]

[2807] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y
[2808] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[2809] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2810] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2811] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2812] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2813] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2814] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[2815] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2816] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[2817] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[2818] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[2819] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[2820] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[2821] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[2822] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2823] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2824] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2825] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2826] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2827] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[2828] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1
[2829] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2

- Line : Y1[2830]
- Line : Y2[2831]
- Objective : Correction[2832]
- Objective : ID[2833]
- Objective : Immersion[2834]
- Objective : LensNA[2835]
- Objective : Model[2836]
- Objective : NominalMagnification[2837]
- Objective : WorkingDistance[2838]
- ObjectiveSettings : ID[2839]
- Pixels : BinDataBigEndian[2840]
- Pixels : DimensionOrder[2841]
- Pixels : ID[2842]
- Pixels : PhysicalSizeX[2843]
- Pixels : PhysicalSizeY[2844]
- Pixels : PhysicalSizeZ[2845]
- Pixels : SizeC[2846]
- Pixels : SizeT[2847]
- Pixels : SizeX[2848]
- Pixels : SizeY[2849]
- Pixels : SizeZ[2850]
- Pixels : TimeIncrement[2851]
- Pixels : Type[2852]

[2830] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1
[2831] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2
[2832] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2833] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2834] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2835] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2836] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2837] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2838] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[2839] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2840] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2841] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2842] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2843] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2844] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2845] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2846] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2847] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2848] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2849] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2850] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2851] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[2852] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[2853]
- Plane : TheT[2854]
- Plane : TheZ[2855]
- Point : FontSize[2856]
- Point : ID[2857]
- Point : StrokeWidth[2858]
- Point : TheT[2859]
- Point : TheZ[2860]
- Point : X[2861]
- Point : Y[2862]
- Polygon : FontSize[2863]
- Polygon : ID[2864]
- Polygon : Points[2865]
- Polygon : StrokeWidth[2866]
- Polygon : TheT[2867]
- Polygon : TheZ[2868]
- Polygon : Transform[2869]
- Polyline : FontSize[2870]
- Polyline : ID[2871]
- Polyline : Points[2872]
- Polyline : StrokeWidth[2873]
- Polyline : TheT[2874]
- Polyline : TheZ[2875]

[2853] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2854] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2855] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2856] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2857] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2858] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2859] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2860] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2861] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_X
[2862] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Point_Y
[2863] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2864] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2865] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[2866] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2867] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2868] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2869] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[2870] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2871] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2872] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points
[2873] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2874] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2875] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ

- Polyline : Transform[2876]
- ROI : ID[2877]
- Rectangle : FontSize[2878]
- Rectangle : Height[2879]
- Rectangle : ID[2880]
- Rectangle : StrokeWidth[2881]
- Rectangle : TheT[2882]
- Rectangle : TheZ[2883]
- Rectangle : Transform[2884]
- Rectangle : Width[2885]
- Rectangle : X[2886]
- Rectangle : Y[2887]
- TransmittanceRange : CutIn[2888]
- TransmittanceRange : CutOut[2889]

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%).

[2876] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[2877] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[2878] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[2879] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[2880] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[2881] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[2882] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheT
[2883] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_TheZ
[2884] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[2885] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[2886] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[2887] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[2888] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[2889] http://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 : ID[2891]
- Channel : Name[2892]
- Channel : SamplesPerPixel[2893]
- Detector : ID[2894]
- Detector : Manufacturer[2895]
- Detector : Model[2896]
- Detector : Type[2897]
- DetectorSettings : Gain[2898]
- DetectorSettings : ID[2899]
- DetectorSettings : Offset[2900]
- DetectorSettings : ReadOutRate[2901]
- DetectorSettings : Voltage[2902]
- Image : AcquisitionDate[2903]
- Image : Description[2904]
- Image : ID[2905]
- Image : InstrumentRef[2906]
- Image : Name[2907]
- ImagingEnvironment : Temperature[2908]
- Instrument : ID[2909]
- Objective : CalibratedMagnification[2910]
- Objective : Correction[2911]

[2891] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2892] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2893] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2894] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2895] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[2896] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2897] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2898] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[2899] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[2900] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[2901] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ReadOutRate
[2902] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Voltage
[2903] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2904] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[2905] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2906] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2907] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2908] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[2909] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2910] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[2911] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction

- Objective : ID[2912]
- Objective : Immersion[2913]
- Objective : LensNA[2914]
- Objective : Model[2915]
- ObjectiveSettings : ID[2916]
- Pixels : BinDataBigEndian[2917]
- Pixels : DimensionOrder[2918]
- Pixels : ID[2919]
- Pixels : PhysicalSizeX[2920]
- Pixels : PhysicalSizeY[2921]
- Pixels : PhysicalSizeZ[2922]
- Pixels : SizeC[2923]
- Pixels : SizeT[2924]
- Pixels : SizeX[2925]
- Pixels : SizeY[2926]
- Pixels : SizeZ[2927]
- Pixels : TimeIncrement[2928]
- Pixels : Type[2929]
- Plane : DeltaT[2930]
- Plane : ExposureTime[2931]
- Plane : PositionX[2932]
- Plane : PositionY[2933]
- Plane : PositionZ[2934]

[2912] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2913] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2914] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[2915] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2916] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2917] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2918] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2919] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2920] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2921] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[2922] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[2923] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2924] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2925] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2926] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2927] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2928] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[2929] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2930] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2931] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2932] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2933] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2934] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC[2935]
- Plane : TheT[2936]
- Plane : TheZ[2937]

Total supported: 47

Total unknown or missing: 426

18.2.83 ScanrReader

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 : ID[2939]
- Channel : Name[2940]
- Channel : SamplesPerPixel[2941]
- Image : AcquisitionDate[2942]
- Image : ID[2943]
- Image : Name[2944]
- Pixels : BinDataBigEndian[2945]
- Pixels : DimensionOrder[2946]
- Pixels : ID[2947]
- Pixels : PhysicalSizeX[2948]
- Pixels : PhysicalSizeY[2949]

[2935] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2936] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2937] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2938] http://www.openmicroscopy.org/site/support/ome-model/
[2939] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2940] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2941] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2942] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2943] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2944] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2945] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2946] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[2947] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[2948] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[2949] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SizeC[2950]
- Pixels : SizeT[2951]
- Pixels : SizeX[2952]
- Pixels : SizeY[2953]
- Pixels : SizeZ[2954]
- Pixels : Type[2955]
- Plane : DeltaT[2956]
- Plane : ExposureTime[2957]
- Plane : PositionX[2958]
- Plane : PositionY[2959]
- Plane : TheC[2960]
- Plane : TheT[2961]
- Plane : TheZ[2962]
- Plate : ColumnNamingConvention[2963]
- Plate : Columns[2964]
- Plate : ID[2965]
- Plate : Name[2966]
- Plate : RowNamingConvention[2967]
- Plate : Rows[2968]
- PlateAcquisition : ID[2969]
- PlateAcquisition : MaximumFieldCount[2970]
- PlateAcquisition : WellSampleRef[2971]
- Well : Column[2972]

[2950]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[2951]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[2952]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[2953]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[2954]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[2955]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[2956]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[2957]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[2958]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[2959]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[2960]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[2961]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[2962]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[2963]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ColumnNamingConvention
[2964]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns
[2965]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[2966]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[2967]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_RowNamingConvention
[2968]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows
[2969]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[2970]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[2971]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[2972]http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column

- Well : ID[2973]
- Well : Row[2974]
- WellSample : ID[2975]
- WellSample : ImageRef[2976]
- WellSample : Index[2977]
- WellSample : PositionX[2978]
- WellSample : PositionY[2979]

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 : ID[2981]
- Channel : Name[2982]
- Channel : SamplesPerPixel[2983]
- Detector : ID[2984]
- Detector : Model[2985]
- Detector : Type[2986]
- DetectorSettings : ID[2987]

[2973] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID
[2974] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[2975] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[2976] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[2977] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[2978] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionX
[2979] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_PositionY
[2980] http://www.openmicroscopy.org/site/support/ome-model/
[2981] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[2982] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[2983] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[2984] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[2985] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[2986] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[2987] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID

- Image : AcquisitionDate[2988]
- Image : ID[2989]
- Image : InstrumentRef[2990]
- Image : Name[2991]
- Instrument : ID[2992]
- Objective : Correction[2993]
- Objective : ID[2994]
- Objective : Immersion[2995]
- Objective : NominalMagnification[2996]
- ObjectiveSettings : ID[2997]
- Pixels : BinDataBigEndian[2998]
- Pixels : DimensionOrder[2999]
- Pixels : ID[3000]
- Pixels : PhysicalSizeX[3001]
- Pixels : PhysicalSizeY[3002]
- Pixels : SizeC[3003]
- Pixels : SizeT[3004]
- Pixels : SizeX[3005]
- Pixels : SizeY[3006]
- Pixels : SizeZ[3007]
- Pixels : Type[3008]
- Plane : TheC[3009]
- Plane : TheT[3010]

[2988] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[2989] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[2990] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[2991] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[2992] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[2993] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[2994] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[2995] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[2996] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[2997] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[2998] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[2999] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3000] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3001] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3002] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3003] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3004] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3005] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3006] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3007] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3008] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3009] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3010] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[3011]

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 : ID[3013]
- Channel : SamplesPerPixel[3014]
- Image : AcquisitionDate[3015]
- Image : ID[3016]
- Image : Name[3017]
- Pixels : BinDataBigEndian[3018]
- Pixels : DimensionOrder[3019]
- Pixels : ID[3020]
- Pixels : SizeC[3021]
- Pixels : SizeT[3022]
- Pixels : SizeX[3023]
- Pixels : SizeY[3024]
- Pixels : SizeZ[3025]

[3011] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3012] http://www.openmicroscopy.org/site/support/ome-model/
[3013] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3014] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3015] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3016] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3017] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3018] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3019] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3020] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3021] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3022] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3023] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3024] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3025] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type[3026]
- Plane : TheC[3027]
- Plane : TheT[3028]
- Plane : TheZ[3029]

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 : ID[3031]
- Channel : SamplesPerPixel[3032]
- Image : AcquisitionDate[3033]
- Image : ID[3034]
- Image : Name[3035]
- Pixels : BinDataBigEndian[3036]
- Pixels : DimensionOrder[3037]
- Pixels : ID[3038]
- Pixels : SizeC[3039]
- Pixels : SizeT[3040]

[3026] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3027] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3028] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3029] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3030] http://www.openmicroscopy.org/site/support/ome-model/
[3031] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3032] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3033] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3034] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3035] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3036] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3037] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3038] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3039] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3040] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[3041]
- Pixels : SizeY[3042]
- Pixels : SizeZ[3043]
- Pixels : Type[3044]
- Plane : TheC[3045]
- Plane : TheT[3046]
- Plane : TheZ[3047]

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 : ID[3049]
- Channel : SamplesPerPixel[3050]
- Image : AcquisitionDate[3051]
- Image : Description[3052]
- Image : ID[3053]
- Image : Name[3054]
- Pixels : BinDataBigEndian[3055]

[3041] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3042] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3043] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3044] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3045] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3046] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3047] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3048] http://www.openmicroscopy.org/site/support/ome-model/
[3049] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3050] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3051] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3052] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3053] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3054] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3055] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[3056]
- Pixels : ID[3057]
- Pixels : PhysicalSizeX[3058]
- Pixels : PhysicalSizeY[3059]
- Pixels : SizeC[3060]
- Pixels : SizeT[3061]
- Pixels : SizeX[3062]
- Pixels : SizeY[3063]
- Pixels : SizeZ[3064]
- Pixels : Type[3065]
- Plane : TheC[3066]
- Plane : TheT[3067]
- Plane : TheZ[3068]

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 : ID[3070]

[3056] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3057] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3058] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3059] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3060] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3061] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3062] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3063] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3064] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3065] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3066] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3067] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3068] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3069] http://www.openmicroscopy.org/site/support/ome-model/
[3070] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[3071]
- Image : AcquisitionDate[3072]
- Image : ID[3073]
- Image : Name[3074]
- Pixels : BinDataBigEndian[3075]
- Pixels : DimensionOrder[3076]
- Pixels : ID[3077]
- Pixels : SizeC[3078]
- Pixels : SizeT[3079]
- Pixels : SizeX[3080]
- Pixels : SizeY[3081]
- Pixels : SizeZ[3082]
- Pixels : Type[3083]
- Plane : TheC[3084]
- Plane : TheT[3085]
- Plane : TheZ[3086]

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%).

[3071] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3072] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3073] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3074] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3075] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3076] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3077] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3078] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3079] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3080] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3081] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3082] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3083] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3084] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3085] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3086] http://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 : ID[3088]
- Channel : SamplesPerPixel[3089]
- Image : AcquisitionDate[3090]
- Image : ID[3091]
- Image : Name[3092]
- Pixels : BinDataBigEndian[3093]
- Pixels : DimensionOrder[3094]
- Pixels : ID[3095]
- Pixels : PhysicalSizeX[3096]
- Pixels : PhysicalSizeY[3097]
- Pixels : SizeC[3098]
- Pixels : SizeT[3099]
- Pixels : SizeX[3100]
- Pixels : SizeY[3101]
- Pixels : SizeZ[3102]
- Pixels : Type[3103]
- Plane : PositionX[3104]
- Plane : PositionY[3105]
- Plane : TheC[3106]
- Plane : TheT[3107]
- Plane : TheZ[3108]

[3088] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3089] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3090] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3091] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3092] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3093] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3094] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3095] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3096] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3097] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3098] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3099] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3100] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3101] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3102] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3103] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3104] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3105] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3106] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3107] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3108] http://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 : ID[3110]
- Channel : Name[3111]
- Channel : SamplesPerPixel[3112]
- Experimenter : ID[3113]
- Experimenter : LastName[3114]
- Image : AcquisitionDate[3115]
- Image : ExperimenterRef[3116]
- Image : ID[3117]
- Image : Name[3118]
- Pixels : BinDataBigEndian[3119]
- Pixels : DimensionOrder[3120]
- Pixels : ID[3121]
- Pixels : PhysicalSizeX[3122]
- Pixels : PhysicalSizeY[3123]

[3109] http://www.openmicroscopy.org/site/support/ome-model/
[3110] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3111] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[3112] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3113] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[3114] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[3115] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3116] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[3117] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3118] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3119] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3120] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3121] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3122] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3123] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SizeC[3124]
- Pixels : SizeT[3125]
- Pixels : SizeX[3126]
- Pixels : SizeY[3127]
- Pixels : SizeZ[3128]
- Pixels : Type[3129]
- Plane : PositionX[3130]
- Plane : PositionY[3131]
- Plane : PositionZ[3132]
- Plane : TheC[3133]
- Plane : TheT[3134]
- Plane : TheZ[3135]
- Plate : Columns[3136]
- Plate : Description[3137]
- Plate : ExternalIdentifier[3138]
- Plate : ID[3139]
- Plate : Name[3140]
- Plate : Rows[3141]
- PlateAcquisition : ID[3142]
- PlateAcquisition : MaximumFieldCount[3143]
- PlateAcquisition : WellSampleRef[3144]
- Well : Column[3145]
- Well : ID[3146]

[3124] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3125] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3126] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3127] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3128] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3129] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3130] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3131] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3132] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3133] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3134] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3135] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3136] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Columns
[3137] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Description
[3138] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ExternalIdentifier
[3139] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_ID
[3140] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Name
[3141] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Plate_Rows
[3142] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_ID
[3143] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
[3144] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSampleRef_ID
[3145] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Column
[3146] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_ID

- Well : Row[3147]
- WellSample : ID[3148]
- WellSample : ImageRef[3149]
- WellSample : Index[3150]

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 : EmissionWavelength[3152]
- Channel : ExcitationWavelength[3153]
- Channel : ID[3154]
- Channel : SamplesPerPixel[3155]
- Image : AcquisitionDate[3156]
- Image : ID[3157]
- Image : InstrumentRef[3158]
- Image : Name[3159]
- Instrument : ID[3160]
- Pixels : BinDataBigEndian[3161]

[3147] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#Well_Row
[3148] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_ID
[3149] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImageRef_ID
[3150] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/SPW_xsd.html#WellSample_Index
[3151] http://www.openmicroscopy.org/site/support/ome-model/
[3152] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[3153] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[3154] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3155] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3156] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3157] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3158] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[3159] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3160] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3161] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[3162]
- Pixels : ID[3163]
- Pixels : PhysicalSizeX[3164]
- Pixels : PhysicalSizeY[3165]
- Pixels : SizeC[3166]
- Pixels : SizeT[3167]
- Pixels : SizeX[3168]
- Pixels : SizeY[3169]
- Pixels : SizeZ[3170]
- Pixels : Type[3171]
- Plane : DeltaT[3172]
- Plane : ExposureTime[3173]
- Plane : PositionX[3174]
- Plane : PositionY[3175]
- Plane : PositionZ[3176]
- Plane : TheC[3177]
- Plane : TheT[3178]
- Plane : TheZ[3179]

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.

[3162] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3163] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3164] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3165] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3166] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3167] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3168] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3169] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3170] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3171] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3172] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[3173] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[3174] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3175] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3176] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3177] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3178] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3179] http://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 : ID[3181]
- Channel : SamplesPerPixel[3182]
- Image : AcquisitionDate[3183]
- Image : ID[3184]
- Image : Name[3185]
- Pixels : BinDataBigEndian[3186]
- Pixels : DimensionOrder[3187]
- Pixels : ID[3188]
- Pixels : SizeC[3189]
- Pixels : SizeT[3190]
- Pixels : SizeX[3191]
- Pixels : SizeY[3192]
- Pixels : SizeZ[3193]
- Pixels : Type[3194]
- Plane : TheC[3195]
- Plane : TheT[3196]
- Plane : TheZ[3197]

Total supported: 17

Total unknown or missing: 456

[3181] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3182] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3183] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3184] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3185] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3186] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3187] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3188] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3189] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3190] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3191] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3192] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3193] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3194] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3195] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3196] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3197] http://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 : ID[3199]
- Channel : SamplesPerPixel[3200]
- Image : AcquisitionDate[3201]
- Image : ID[3202]
- Image : Name[3203]
- Pixels : BinDataBigEndian[3204]
- Pixels : DimensionOrder[3205]
- Pixels : ID[3206]
- Pixels : SizeC[3207]
- Pixels : SizeT[3208]
- Pixels : SizeX[3209]
- Pixels : SizeY[3210]
- Pixels : SizeZ[3211]
- Pixels : Type[3212]
- Plane : TheC[3213]
- Plane : TheT[3214]

[3198] http://www.openmicroscopy.org/site/support/ome-model/
[3199] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3200] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3201] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3202] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3203] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3204] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3205] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3206] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3207] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3208] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3209] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3210] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3211] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3212] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3213] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3214] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[3215]

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 : ID[3217]
- Channel : SamplesPerPixel[3218]
- Image : AcquisitionDate[3219]
- Image : ID[3220]
- Image : Name[3221]
- Pixels : BinDataBigEndian[3222]
- Pixels : DimensionOrder[3223]
- Pixels : ID[3224]
- Pixels : SizeC[3225]
- Pixels : SizeT[3226]
- Pixels : SizeX[3227]
- Pixels : SizeY[3228]
- Pixels : SizeZ[3229]

[3215] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3216] http://www.openmicroscopy.org/site/support/ome-model/
[3217] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3218] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3219] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3220] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3221] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3222] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3223] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3224] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3225] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3226] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3227] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3228] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3229] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type[3230]
- Plane : TheC[3231]
- Plane : TheT[3232]
- Plane : TheZ[3233]

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 : ID[3235]
- Channel : SamplesPerPixel[3236]
- Image : AcquisitionDate[3237]
- Image : ID[3238]
- Image : Name[3239]
- Pixels : BinDataBigEndian[3240]
- Pixels : DimensionOrder[3241]
- Pixels : ID[3242]
- Pixels : SizeC[3243]
- Pixels : SizeT[3244]

[3230] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3231] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3232] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3233] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3234] http://www.openmicroscopy.org/site/support/ome-model/
[3235] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3236] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3237] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3238] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3239] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3240] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3241] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3242] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3243] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3244] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[3245]
- Pixels : SizeY[3246]
- Pixels : SizeZ[3247]
- Pixels : Type[3248]
- Plane : TheC[3249]
- Plane : TheT[3250]
- Plane : TheZ[3251]

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 : ID[3253]
- Channel : SamplesPerPixel[3254]
- Image : AcquisitionDate[3255]
- Image : ID[3256]
- Image : Name[3257]
- Pixels : BinDataBigEndian[3258]
- Pixels : DimensionOrder[3259]

[3245] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3246] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3247] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3248] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3249] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3250] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3251] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3252] http://www.openmicroscopy.org/site/support/ome-model/
[3253] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3254] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3255] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3256] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3257] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3258] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3259] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[3260]
- Pixels : SizeC[3261]
- Pixels : SizeT[3262]
- Pixels : SizeX[3263]
- Pixels : SizeY[3264]
- Pixels : SizeZ[3265]
- Pixels : Type[3266]
- Plane : TheC[3267]
- Plane : TheT[3268]
- Plane : TheZ[3269]

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 : ID[3271]
- Channel : Name[3272]
- Channel : SamplesPerPixel[3273]
- Detector : ID[3274]

[3260] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3261] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3262] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3263] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3264] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3265] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3266] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3267] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3268] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3269] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3270] http://www.openmicroscopy.org/site/support/ome-model/
[3271] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3272] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[3273] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3274] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID

- Detector : Type[3275]
- Detector : Zoom[3276]
- DetectorSettings : Gain[3277]
- DetectorSettings : ID[3278]
- DetectorSettings : Offset[3279]
- Image : AcquisitionDate[3280]
- Image : ID[3281]
- Image : InstrumentRef[3282]
- Image : Name[3283]
- Instrument : ID[3284]
- Laser : ID[3285]
- Laser : Power[3286]
- Microscope : Model[3287]
- Objective : Correction[3288]
- Objective : ID[3289]
- Objective : Immersion[3290]
- Objective : LensNA[3291]
- Objective : Manufacturer[3292]
- Objective : NominalMagnification[3293]
- ObjectiveSettings : ID[3294]
- Pixels : BinDataBigEndian[3295]
- Pixels : DimensionOrder[3296]
- Pixels : ID[3297]

[3275] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[3276] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom
[3277] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Gain
[3278] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[3279] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Offset
[3280] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3281] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3282] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[3283] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3284] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3285] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[3286] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[3287] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3288] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[3289] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[3290] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[3291] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[3292] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3293] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[3294] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[3295] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3296] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3297] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX[3298]
- Pixels : PhysicalSizeY[3299]
- Pixels : SizeC[3300]
- Pixels : SizeT[3301]
- Pixels : SizeX[3302]
- Pixels : SizeY[3303]
- Pixels : SizeZ[3304]
- Pixels : TimeIncrement[3305]
- Pixels : Type[3306]
- Plane : DeltaT[3307]
- Plane : PositionX[3308]
- Plane : PositionY[3309]
- Plane : PositionZ[3310]
- Plane : TheC[3311]
- Plane : TheT[3312]
- Plane : TheZ[3313]

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%).

[3298] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3299] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3300] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3301] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3302] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3303] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3304] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3305] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[3306] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3307] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[3308] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3309] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3310] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3311] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3312] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3313] http://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 : ID[3315]
- Channel : SamplesPerPixel[3316]
- Image : AcquisitionDate[3317]
- Image : Description[3318]
- Image : ID[3319]
- Image : Name[3320]
- Pixels : BinDataBigEndian[3321]
- Pixels : DimensionOrder[3322]
- Pixels : ID[3323]
- Pixels : PhysicalSizeX[3324]
- Pixels : PhysicalSizeY[3325]
- Pixels : SizeC[3326]
- Pixels : SizeT[3327]
- Pixels : SizeX[3328]
- Pixels : SizeY[3329]
- Pixels : SizeZ[3330]
- Pixels : Type[3331]
- Plane : TheC[3332]
- Plane : TheT[3333]
- Plane : TheZ[3334]

Total supported: 20

Total unknown or missing: 453

[3315] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3316] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3317] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3318] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3319] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3320] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3321] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3322] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3323] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3324] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3325] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3326] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3327] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3328] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3329] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3330] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3331] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3332] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3333] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3334] http://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 model[3335]. 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 : ID[3336]
- Channel : SamplesPerPixel[3337]
- Image : AcquisitionDate[3338]
- Image : ID[3339]
- Image : Name[3340]
- Pixels : BinDataBigEndian[3341]
- Pixels : DimensionOrder[3342]
- Pixels : ID[3343]
- Pixels : SizeC[3344]
- Pixels : SizeT[3345]
- Pixels : SizeX[3346]
- Pixels : SizeY[3347]
- Pixels : SizeZ[3348]
- Pixels : Type[3349]
- Plane : TheC[3350]
- Plane : TheT[3351]

[3335] http://www.openmicroscopy.org/site/support/ome-model/
[3336] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3337] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3338] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3339] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3340] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3341] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3342] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3343] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3344] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3345] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3346] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3347] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3348] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3349] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3350] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3351] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[3352]

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 : ID[3354]
- Channel : SamplesPerPixel[3355]
- Image : AcquisitionDate[3356]
- Image : Description[3357]
- Image : ID[3358]
- Image : Name[3359]
- Pixels : BinDataBigEndian[3360]
- Pixels : DimensionOrder[3361]
- Pixels : ID[3362]
- Pixels : PhysicalSizeX[3363]
- Pixels : PhysicalSizeY[3364]
- Pixels : SizeC[3365]
- Pixels : SizeT[3366]

[3352] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3353] http://www.openmicroscopy.org/site/support/ome-model/
[3354] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3355] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3356] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3357] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3358] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3359] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3360] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3361] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3362] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3363] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3364] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3365] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3366] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[3367]
- Pixels : SizeY[3368]
- Pixels : SizeZ[3369]
- Pixels : Type[3370]
- Plane : TheC[3371]
- Plane : TheT[3372]
- Plane : TheZ[3373]

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 : ID[3375]
- Channel : SamplesPerPixel[3376]
- Image : AcquisitionDate[3377]
- Image : Description[3378]
- Image : ID[3379]
- Image : Name[3380]
- Pixels : BinDataBigEndian[3381]

[3367] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3368] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3369] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3370] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3371] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3372] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3373] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3374] http://www.openmicroscopy.org/site/support/ome-model/
[3375] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3376] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3377] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3378] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3379] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3380] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3381] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[3382]
- Pixels : ID[3383]
- Pixels : PhysicalSizeX[3384]
- Pixels : PhysicalSizeY[3385]
- Pixels : SizeC[3386]
- Pixels : SizeT[3387]
- Pixels : SizeX[3388]
- Pixels : SizeY[3389]
- Pixels : SizeZ[3390]
- Pixels : Type[3391]
- Plane : TheC[3392]
- Plane : TheT[3393]
- Plane : TheZ[3394]

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 : ID[3396]

[3382] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3383] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3384] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3385] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3386] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3387] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3388] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3389] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3390] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3391] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3392] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3393] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3394] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3395] http://www.openmicroscopy.org/site/support/ome-model/
[3396] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel[3397]
- Image : AcquisitionDate[3398]
- Image : Description[3399]
- Image : ID[3400]
- Image : Name[3401]
- Pixels : BinDataBigEndian[3402]
- Pixels : DimensionOrder[3403]
- Pixels : ID[3404]
- Pixels : PhysicalSizeX[3405]
- Pixels : PhysicalSizeY[3406]
- Pixels : SizeC[3407]
- Pixels : SizeT[3408]
- Pixels : SizeX[3409]
- Pixels : SizeY[3410]
- Pixels : SizeZ[3411]
- Pixels : Type[3412]
- Plane : TheC[3413]
- Plane : TheT[3414]
- Plane : TheZ[3415]

Total supported: 20

Total unknown or missing: 453

18.2.103 PCIReader

This page lists supported metadata fields for the Bio-Formats Compix Simple-PCI format reader.

[3397] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3398] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3399] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3400] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3401] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3402] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3403] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3404] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3405] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3406] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3407] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3408] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3409] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3410] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3411] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3412] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3413] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3414] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3415] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model[3416]. 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 : ID[3417]
- Channel : SamplesPerPixel[3418]
- Detector : ID[3419]
- Detector : Type[3420]
- DetectorSettings : Binning[3421]
- DetectorSettings : ID[3422]
- Image : AcquisitionDate[3423]
- Image : ID[3424]
- Image : InstrumentRef[3425]
- Image : Name[3426]
- Instrument : ID[3427]
- Pixels : BinDataBigEndian[3428]
- Pixels : DimensionOrder[3429]
- Pixels : ID[3430]
- Pixels : PhysicalSizeX[3431]
- Pixels : PhysicalSizeY[3432]
- Pixels : SizeC[3433]

[3416] http://www.openmicroscopy.org/site/support/ome-model/
[3417] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3418] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3419] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[3420] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[3421] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[3422] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[3423] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3424] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3425] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[3426] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3427] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3428] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3429] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3430] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3431] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3432] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3433] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT[3434]
- Pixels : SizeX[3435]
- Pixels : SizeY[3436]
- Pixels : SizeZ[3437]
- Pixels : TimeIncrement[3438]
- Pixels : Type[3439]
- Plane : DeltaT[3440]
- Plane : TheC[3441]
- Plane : TheT[3442]
- Plane : TheZ[3443]

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 : ID[3445]
- Channel : SamplesPerPixel[3446]
- Detector : ID[3447]
- Detector : Model[3448]

[3434] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3435] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3436] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3437] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3438] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[3439] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3440] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[3441] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3442] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3443] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3444] http://www.openmicroscopy.org/site/support/ome-model/
[3445] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3446] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3447] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[3448] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model

- Detector : Type[3449]
- DetectorSettings : Binning[3450]
- DetectorSettings : ID[3451]
- Image : AcquisitionDate[3452]
- Image : Description[3453]
- Image : ID[3454]
- Image : InstrumentRef[3455]
- Image : Name[3456]
- Instrument : ID[3457]
- Objective : ID[3458]
- Objective : Immersion[3459]
- Objective : NominalMagnification[3460]
- Pixels : BinDataBigEndian[3461]
- Pixels : DimensionOrder[3462]
- Pixels : ID[3463]
- Pixels : PhysicalSizeX[3464]
- Pixels : PhysicalSizeY[3465]
- Pixels : SizeC[3466]
- Pixels : SizeT[3467]
- Pixels : SizeX[3468]
- Pixels : SizeY[3469]
- Pixels : SizeZ[3470]
- Pixels : Type[3471]

[3449] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[3450] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[3451] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[3452] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3453] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3454] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3455] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[3456] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3457] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3458] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[3459] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[3460] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[3461] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3462] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3463] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3464] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3465] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3466] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3467] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3468] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3469] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3470] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3471] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : ExposureTime[3472]
- Plane : TheC[3473]
- Plane : TheT[3474]
- Plane : TheZ[3475]

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 : ID[3477]
- Channel : SamplesPerPixel[3478]
- Image : AcquisitionDate[3479]
- Image : ID[3480]
- Image : Name[3481]
- Pixels : BinDataBigEndian[3482]
- Pixels : DimensionOrder[3483]
- Pixels : ID[3484]
- Pixels : SizeC[3485]
- Pixels : SizeT[3486]

[3472] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[3473] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3474] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3475] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3476] http://www.openmicroscopy.org/site/support/ome-model/
[3477] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3478] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3479] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3480] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3481] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3482] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3483] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3484] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3485] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3486] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[3487]
- Pixels : SizeY[3488]
- Pixels : SizeZ[3489]
- Pixels : Type[3490]
- Plane : TheC[3491]
- Plane : TheT[3492]
- Plane : TheZ[3493]

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 : ID[3495]
- Channel : SamplesPerPixel[3496]
- Image : AcquisitionDate[3497]
- Image : ID[3498]
- Image : Name[3499]
- Pixels : BinDataBigEndian[3500]
- Pixels : DimensionOrder[3501]

[3487] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3488] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3489] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3490] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3491] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3492] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3493] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3494] http://www.openmicroscopy.org/site/support/ome-model/
[3495] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3496] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3497] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3498] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3499] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3500] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3501] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[3502]
- Pixels : PhysicalSizeX[3503]
- Pixels : PhysicalSizeY[3504]
- Pixels : SizeC[3505]
- Pixels : SizeT[3506]
- Pixels : SizeX[3507]
- Pixels : SizeY[3508]
- Pixels : SizeZ[3509]
- Pixels : Type[3510]
- Plane : TheC[3511]
- Plane : TheT[3512]
- Plane : TheZ[3513]

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 : ID[3515]
- Channel : SamplesPerPixel[3516]

[3502] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3503] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3504] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3505] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3506] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3507] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3508] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3509] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3510] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3511] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3512] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3513] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3514] http://www.openmicroscopy.org/site/support/ome-model/
[3515] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3516] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate[3517]
- Image : Description[3518]
- Image : ID[3519]
- Image : Name[3520]
- Pixels : BinDataBigEndian[3521]
- Pixels : DimensionOrder[3522]
- Pixels : ID[3523]
- Pixels : SizeC[3524]
- Pixels : SizeT[3525]
- Pixels : SizeX[3526]
- Pixels : SizeY[3527]
- Pixels : SizeZ[3528]
- Pixels : Type[3529]
- Plane : TheC[3530]
- Plane : TheT[3531]
- Plane : TheZ[3532]

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%).

[3517] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3518] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3519] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3520] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3521] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3522] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3523] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3524] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3525] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3526] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3527] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3528] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3529] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3530] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3531] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3532] http://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 : ID[3534]
- Channel : SamplesPerPixel[3535]
- Image : AcquisitionDate[3536]
- Image : ID[3537]
- Image : Name[3538]
- Pixels : BinDataBigEndian[3539]
- Pixels : DimensionOrder[3540]
- Pixels : ID[3541]
- Pixels : SizeC[3542]
- Pixels : SizeT[3543]
- Pixels : SizeX[3544]
- Pixels : SizeY[3545]
- Pixels : SizeZ[3546]
- Pixels : Type[3547]
- Plane : TheC[3548]
- Plane : TheT[3549]
- Plane : TheZ[3550]

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.

[3534] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3535] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3536] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3537] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3538] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3539] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3540] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3541] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3542] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3543] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3544] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3545] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3546] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3547] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3548] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3549] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3550] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model[3551]. 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 : ID[3552]
- Channel : SamplesPerPixel[3553]
- Image : AcquisitionDate[3554]
- Image : Description[3555]
- Image : ID[3556]
- Image : Name[3557]
- Pixels : BinDataBigEndian[3558]
- Pixels : DimensionOrder[3559]
- Pixels : ID[3560]
- Pixels : PhysicalSizeZ[3561]
- Pixels : SizeC[3562]
- Pixels : SizeT[3563]
- Pixels : SizeX[3564]
- Pixels : SizeY[3565]
- Pixels : SizeZ[3566]
- Pixels : TimeIncrement[3567]
- Pixels : Type[3568]

[3551] http://www.openmicroscopy.org/site/support/ome-model/
[3552] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3553] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3554] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3555] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3556] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3557] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3558] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3559] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3560] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3561] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[3562] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3563] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3564] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3565] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3566] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3567] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[3568] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type

- Plane : TheC[3569]
- Plane : TheT[3570]
- Plane : TheZ[3571]

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 : ID[3573]
- Channel : SamplesPerPixel[3574]
- Experiment : ID[3575]
- Experiment : Type[3576]
- Image : AcquisitionDate[3577]
- Image : ID[3578]
- Image : Name[3579]
- Pixels : BinDataBigEndian[3580]
- Pixels : DimensionOrder[3581]
- Pixels : ID[3582]
- Pixels : SizeC[3583]

[3569] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3570] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3571] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3572] http://www.openmicroscopy.org/site/support/ome-model/
[3573] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3574] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3575] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_ID
[3576] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experiment_Type
[3577] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3578] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3579] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3580] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3581] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3582] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3583] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT[3584]
- Pixels : SizeX[3585]
- Pixels : SizeY[3586]
- Pixels : SizeZ[3587]
- Pixels : Type[3588]
- Plane : ExposureTime[3589]
- Plane : TheC[3590]
- Plane : TheT[3591]
- Plane : TheZ[3592]

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 : ID[3594]
- Channel : SamplesPerPixel[3595]
- Image : AcquisitionDate[3596]
- Image : Description[3597]
- Image : ID[3598]

[3584] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3585] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3586] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3587] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3588] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3589] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[3590] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3591] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3592] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3593] http://www.openmicroscopy.org/site/support/ome-model/
[3594] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3595] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3596] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3597] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3598] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID

- Image : Name[3599]
- Pixels : BinDataBigEndian[3600]
- Pixels : DimensionOrder[3601]
- Pixels : ID[3602]
- Pixels : PhysicalSizeX[3603]
- Pixels : PhysicalSizeY[3604]
- Pixels : SizeC[3605]
- Pixels : SizeT[3606]
- Pixels : SizeX[3607]
- Pixels : SizeY[3608]
- Pixels : SizeZ[3609]
- Pixels : Type[3610]
- Plane : TheC[3611]
- Plane : TheT[3612]
- Plane : TheZ[3613]

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%).

[3599] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3600] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3601] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3602] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3603] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3604] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3605] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3606] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3607] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3608] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3609] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3610] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3611] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3612] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3613] http://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 : ID[3615]
- Channel : SamplesPerPixel[3616]
- Image : AcquisitionDate[3617]
- Image : ID[3618]
- Image : Name[3619]
- Image : ROIRef[3620]
- Mask : Height[3621]
- Mask : ID[3622]
- Mask : Width[3623]
- Mask : X[3624]
- Mask : Y[3625]
- Pixels : BinDataBigEndian[3626]
- Pixels : DimensionOrder[3627]
- Pixels : ID[3628]
- Pixels : SizeC[3629]
- Pixels : SizeT[3630]
- Pixels : SizeX[3631]
- Pixels : SizeY[3632]
- Pixels : SizeZ[3633]
- Pixels : Type[3634]
- Plane : TheC[3635]

[3615] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3616] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3617] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3618] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3619] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3620] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[3621] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Height
[3622] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[3623] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Width
[3624] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_X
[3625] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Mask_Y
[3626] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3627] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3628] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3629] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3630] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3631] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3632] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3633] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3634] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3635] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC

- Plane : TheT[3636]
- Plane : TheZ[3637]
- ROI : ID[3638]

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 : ID[3640]
- Channel : SamplesPerPixel[3641]
- Image : AcquisitionDate[3642]
- Image : ID[3643]
- Image : Name[3644]
- Pixels : BinDataBigEndian[3645]
- Pixels : DimensionOrder[3646]
- Pixels : ID[3647]
- Pixels : SizeC[3648]
- Pixels : SizeT[3649]
- Pixels : SizeX[3650]

[3636] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3637] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3638] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[3639] http://www.openmicroscopy.org/site/support/ome-model/
[3640] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3641] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3642] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3643] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3644] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3645] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3646] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3647] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3648] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3649] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3650] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY[3651]
- Pixels : SizeZ[3652]
- Pixels : Type[3653]
- Plane : TheC[3654]
- Plane : TheT[3655]
- Plane : TheZ[3656]

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 : ID[3658]
- Channel : SamplesPerPixel[3659]
- Image : AcquisitionDate[3660]
- Image : Description[3661]
- Image : ID[3662]
- Image : Name[3663]
- Pixels : BinDataBigEndian[3664]
- Pixels : DimensionOrder[3665]

[3651] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3652] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3653] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3654] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3655] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3656] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3657] http://www.openmicroscopy.org/site/support/ome-model/
[3658] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3659] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3660] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3661] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3662] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3663] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3664] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3665] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID[3666]
- Pixels : PhysicalSizeX[3667]
- Pixels : PhysicalSizeY[3668]
- Pixels : SizeC[3669]
- Pixels : SizeT[3670]
- Pixels : SizeX[3671]
- Pixels : SizeY[3672]
- Pixels : SizeZ[3673]
- Pixels : Type[3674]
- Plane : TheC[3675]
- Plane : TheT[3676]
- Plane : TheZ[3677]

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 : ID[3679]
- Channel : SamplesPerPixel[3680]

[3666] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3667] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3668] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3669] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3670] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3671] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3672] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3673] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3674] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3675] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3676] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3677] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3678] http://www.openmicroscopy.org/site/support/ome-model/
[3679] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3680] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate[3681]
- Image : ID[3682]
- Image : Name[3683]
- Pixels : BinDataBigEndian[3684]
- Pixels : DimensionOrder[3685]
- Pixels : ID[3686]
- Pixels : PhysicalSizeX[3687]
- Pixels : PhysicalSizeY[3688]
- Pixels : PhysicalSizeZ[3689]
- Pixels : SizeC[3690]
- Pixels : SizeT[3691]
- Pixels : SizeX[3692]
- Pixels : SizeY[3693]
- Pixels : SizeZ[3694]
- Pixels : Type[3695]
- Plane : PositionX[3696]
- Plane : PositionY[3697]
- Plane : PositionZ[3698]
- Plane : TheC[3699]
- Plane : TheT[3700]
- Plane : TheZ[3701]

Total supported: 23

Total unknown or missing: 450

[3681] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3682] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3683] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3684] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3685] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3686] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3687] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3688] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3689] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[3690] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3691] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3692] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3693] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3694] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3695] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3696] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3697] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3698] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3699] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3700] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3701] http://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 model[3702]. 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 : ID[3703]
- Channel : SamplesPerPixel[3704]
- Image : AcquisitionDate[3705]
- Image : ID[3706]
- Image : Name[3707]
- Pixels : BinDataBigEndian[3708]
- Pixels : DimensionOrder[3709]
- Pixels : ID[3710]
- Pixels : SizeC[3711]
- Pixels : SizeT[3712]
- Pixels : SizeX[3713]
- Pixels : SizeY[3714]
- Pixels : SizeZ[3715]
- Pixels : Type[3716]
- Plane : TheC[3717]
- Plane : TheT[3718]

[3702] http://www.openmicroscopy.org/site/support/ome-model/
[3703] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3704] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3705] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3706] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3707] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3708] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3709] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3710] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3711] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3712] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3713] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3714] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3715] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3716] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3717] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3718] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT

- Plane : TheZ[3719]

Total supported: 17

Total unknown or missing: 456

18.2.117 VisitechReader

This page lists supported metadata fields for the Bio-Formats Visitech XYS 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 XYS format reader:

- Channel : ID[3721]
- Channel : SamplesPerPixel[3722]
- Image : AcquisitionDate[3723]
- Image : ID[3724]
- Image : Name[3725]
- Pixels : BinDataBigEndian[3726]
- Pixels : DimensionOrder[3727]
- Pixels : ID[3728]
- Pixels : SizeC[3729]
- Pixels : SizeT[3730]
- Pixels : SizeX[3731]
- Pixels : SizeY[3732]
- Pixels : SizeZ[3733]

[3719] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3720] http://www.openmicroscopy.org/site/support/ome-model/
[3721] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3722] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3723] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3724] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3725] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3726] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3727] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3728] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3729] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3730] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3731] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3732] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3733] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type[3734]
- Plane : TheC[3735]
- Plane : TheT[3736]
- Plane : TheZ[3737]

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 : ID[3739]
- Channel : SamplesPerPixel[3740]
- Image : AcquisitionDate[3741]
- Image : ID[3742]
- Image : Name[3743]
- Pixels : BinDataBigEndian[3744]
- Pixels : DimensionOrder[3745]
- Pixels : ID[3746]
- Pixels : SizeC[3747]
- Pixels : SizeT[3748]

[3734] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3735] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3736] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3737] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3738] http://www.openmicroscopy.org/site/support/ome-model/
[3739] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3740] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3741] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3742] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3743] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3744] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3745] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3746] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3747] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3748] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX[3749]
- Pixels : SizeY[3750]
- Pixels : SizeZ[3751]
- Pixels : Type[3752]
- Plane : TheC[3753]
- Plane : TheT[3754]
- Plane : TheZ[3755]

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 : ID[3757]
- Channel : Name[3758]
- Channel : SamplesPerPixel[3759]
- Detector : ID[3760]
- Detector : Model[3761]
- DetectorSettings : ID[3762]
- Image : AcquisitionDate[3763]

[3749] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3750] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3751] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3752] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3753] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3754] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3755] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3756] http://www.openmicroscopy.org/site/support/ome-model/
[3757] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3758] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[3759] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3760] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[3761] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3762] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[3763] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description[3764]
- Image : ID[3765]
- Image : InstrumentRef[3766]
- Image : Name[3767]
- Instrument : ID[3768]
- Objective : Correction[3769]
- Objective : ID[3770]
- Objective : Immersion[3771]
- Objective : NominalMagnification[3772]
- ObjectiveSettings : ID[3773]
- Pixels : BinDataBigEndian[3774]
- Pixels : DimensionOrder[3775]
- Pixels : ID[3776]
- Pixels : PhysicalSizeX[3777]
- Pixels : PhysicalSizeY[3778]
- Pixels : PhysicalSizeZ[3779]
- Pixels : SizeC[3780]
- Pixels : SizeT[3781]
- Pixels : SizeX[3782]
- Pixels : SizeY[3783]
- Pixels : SizeZ[3784]
- Pixels : Type[3785]
- Plane : PositionX[3786]

[3764] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3765] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3766] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[3767] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3768] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3769] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[3770] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[3771] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[3772] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[3773] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[3774] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3775] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3776] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3777] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3778] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3779] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[3780] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3781] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3782] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3783] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3784] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3785] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3786] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX

- Plane : PositionY[3787]
- Plane : PositionZ[3788]
- Plane : TheC[3789]
- Plane : TheT[3790]
- Plane : TheZ[3791]

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 : ID[3793]
- Channel : SamplesPerPixel[3794]
- Image : AcquisitionDate[3795]
- Image : Description[3796]
- Image : ID[3797]
- Image : Name[3798]
- Pixels : BinDataBigEndian[3799]
- Pixels : DimensionOrder[3800]
- Pixels : ID[3801]

[3787] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3788] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3789] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3790] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3791] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3792] http://www.openmicroscopy.org/site/support/ome-model/
[3793] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3794] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3795] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3796] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[3797] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3798] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3799] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3800] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3801] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID

- Pixels : PhysicalSizeX[3802]
- Pixels : PhysicalSizeY[3803]
- Pixels : SizeC[3804]
- Pixels : SizeT[3805]
- Pixels : SizeX[3806]
- Pixels : SizeY[3807]
- Pixels : SizeZ[3808]
- Pixels : Type[3809]
- Plane : TheC[3810]
- Plane : TheT[3811]
- Plane : TheZ[3812]

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 : ID[3814]
- Channel : SamplesPerPixel[3815]
- Image : AcquisitionDate[3816]

[3802] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3803] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3804] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3805] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3806] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3807] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3808] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3809] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3810] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3811] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3812] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[3813] http://www.openmicroscopy.org/site/support/ome-model/
[3814] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3815] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3816] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID[3817]
- Image : Name[3818]
- Pixels : BinDataBigEndian[3819]
- Pixels : DimensionOrder[3820]
- Pixels : ID[3821]
- Pixels : PhysicalSizeX[3822]
- Pixels : PhysicalSizeY[3823]
- Pixels : SizeC[3824]
- Pixels : SizeT[3825]
- Pixels : SizeX[3826]
- Pixels : SizeY[3827]
- Pixels : SizeZ[3828]
- Pixels : Type[3829]
- Plane : TheC[3830]
- Plane : TheT[3831]
- Plane : TheZ[3832]

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%).

[3817] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3818] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3819] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3820] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3821] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3822] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3823] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3824] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3825] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3826] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3827] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3828] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3829] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3830] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3831] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3832] http://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 : ID[3834]
- Channel : SamplesPerPixel[3835]
- Image : AcquisitionDate[3836]
- Image : ID[3837]
- Image : Name[3838]
- Pixels : BinDataBigEndian[3839]
- Pixels : DimensionOrder[3840]
- Pixels : ID[3841]
- Pixels : SizeC[3842]
- Pixels : SizeT[3843]
- Pixels : SizeX[3844]
- Pixels : SizeY[3845]
- Pixels : SizeZ[3846]
- Pixels : Type[3847]
- Plane : TheC[3848]
- Plane : TheT[3849]
- Plane : TheZ[3850]

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.

[3834] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3835] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3836] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3837] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3838] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3839] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3840] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3841] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3842] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3843] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3844] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3845] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3846] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3847] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3848] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3849] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3850] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

These fields are from the OME data model[3851]. 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 : ID[3852]
- Channel : SamplesPerPixel[3853]
- Image : AcquisitionDate[3854]
- Image : ID[3855]
- Image : Name[3856]
- Pixels : BinDataBigEndian[3857]
- Pixels : DimensionOrder[3858]
- Pixels : ID[3859]
- Pixels : SizeC[3860]
- Pixels : SizeT[3861]
- Pixels : SizeX[3862]
- Pixels : SizeY[3863]
- Pixels : SizeZ[3864]
- Pixels : Type[3865]
- Plane : TheC[3866]
- Plane : TheT[3867]
- Plane : TheZ[3868]

[3851] http://www.openmicroscopy.org/site/support/ome-model/
[3852] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3853] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3854] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3855] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3856] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3857] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3858] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3859] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3860] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3861] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3862] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3863] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3864] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3865] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3866] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3867] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3868] http://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 : LotNumber[3870]
- Arc : Manufacturer[3871]
- Arc : Model[3872]
- Arc : Power[3873]
- Arc : SerialNumber[3874]
- Channel : Color[3875]
- Channel : EmissionWavelength[3876]
- Channel : ExcitationWavelength[3877]
- Channel : ID[3878]
- Channel : Name[3879]
- Channel : PinholeSize[3880]
- Channel : SamplesPerPixel[3881]
- Detector : AmplificationGain[3882]
- Detector : Gain[3883]

[3869] http://www.openmicroscopy.org/site/support/ome-model/
[3870] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3871] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3872] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3873] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[3874] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3875] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[3876] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_EmissionWavelength
[3877] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ExcitationWavelength
[3878] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[3879] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[3880] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[3881] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[3882] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain
[3883] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain

- Detector : ID[3884]
- Detector : LotNumber[3885]
- Detector : Manufacturer[3886]
- Detector : Model[3887]
- Detector : Offset[3888]
- Detector : SerialNumber[3889]
- Detector : Type[3890]
- Detector : Zoom[3891]
- DetectorSettings : Binning[3892]
- DetectorSettings : ID[3893]
- Dichroic : ID[3894]
- Dichroic : LotNumber[3895]
- Dichroic : Manufacturer[3896]
- Dichroic : Model[3897]
- Dichroic : SerialNumber[3898]
- Ellipse : ID[3899]
- Ellipse : RadiusX[3900]
- Ellipse : RadiusY[3901]
- Ellipse : Text[3902]
- Ellipse : X[3903]
- Ellipse : Y[3904]
- Experimenter : Email[3905]
- Experimenter : FirstName[3906]

[3884] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[3885] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3886] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3887] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3888] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Offset
[3889] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3890] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[3891] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom
[3892] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[3893] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[3894] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[3895] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3896] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3897] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3898] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3899] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[3900] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX
[3901] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY
[3902] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[3903] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X
[3904] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y
[3905] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Email
[3906] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_FirstName

- Experimenter : ID[3907]
- Experimenter : Institution[3908]
- Experimenter : LastName[3909]
- Experimenter : MiddleName[3910]
- Experimenter : UserName[3911]
- Filament : LotNumber[3912]
- Filament : Manufacturer[3913]
- Filament : Model[3914]
- Filament : Power[3915]
- Filament : SerialNumber[3916]
- Filter : FilterWheel[3917]
- Filter : ID[3918]
- Filter : LotNumber[3919]
- Filter : Manufacturer[3920]
- Filter : Model[3921]
- Filter : SerialNumber[3922]
- Filter : Type[3923]
- FilterSet : DichroicRef[3924]
- FilterSet : EmissionFilterRef[3925]
- FilterSet : ExcitationFilterRef[3926]
- FilterSet : ID[3927]
- FilterSet : LotNumber[3928]
- FilterSet : Manufacturer[3929]

[3907] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[3908] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_Institution
[3909] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_LastName
[3910] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_MiddleName
[3911] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName
[3912] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3913] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3914] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3915] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[3916] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3917] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_FilterWheel
[3918] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[3919] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3920] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3921] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3922] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3923] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type
[3924] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[3925] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[3926] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[3927] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterSet_ID
[3928] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3929] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer

- FilterSet : Model[3930]
- FilterSet : SerialNumber[3931]
- Image : AcquisitionDate[3932]
- Image : ExperimenterRef[3933]
- Image : ID[3934]
- Image : Name[3935]
- Image : ROIRef[3936]
- ImagingEnvironment : AirPressure[3937]
- ImagingEnvironment : CO2Percent[3938]
- ImagingEnvironment : Humidity[3939]
- ImagingEnvironment : Temperature[3940]
- Instrument : ID[3941]
- Laser : LotNumber[3942]
- Laser : Manufacturer[3943]
- Laser : Model[3944]
- Laser : Power[3945]
- Laser : SerialNumber[3946]
- LightEmittingDiode : LotNumber[3947]
- LightEmittingDiode : Manufacturer[3948]
- LightEmittingDiode : Model[3949]
- LightEmittingDiode : Power[3950]
- LightEmittingDiode : SerialNumber[3951]
- Line : ID[3952]

[3930] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3931] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3932] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[3933] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ExperimenterRef_ID
[3934] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[3935] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[3936] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[3937] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_AirPressure
[3938] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_CO2Percent
[3939] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Humidity
[3940] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ImagingEnvironment_Temperature
[3941] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[3942] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3943] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3944] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3945] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[3946] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3947] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3948] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3949] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3950] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_Power
[3951] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3952] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Line : Text[3953]
- Line : X1[3954]
- Line : X2[3955]
- Line : Y1[3956]
- Line : Y2[3957]
- Microscope : LotNumber[3958]
- Microscope : Manufacturer[3959]
- Microscope : Model[3960]
- Microscope : SerialNumber[3961]
- Microscope : Type[3962]
- Objective : CalibratedMagnification[3963]
- Objective : Correction[3964]
- Objective : ID[3965]
- Objective : Immersion[3966]
- Objective : Iris[3967]
- Objective : LensNA[3968]
- Objective : LotNumber[3969]
- Objective : Manufacturer[3970]
- Objective : Model[3971]
- Objective : NominalMagnification[3972]
- Objective : SerialNumber[3973]
- Objective : WorkingDistance[3974]
- ObjectiveSettings : CorrectionCollar[3975]

[3953] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[3954] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1
[3955] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2
[3956] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1
[3957] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2
[3958] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3959] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3960] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3961] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3962] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Microscope_Type
[3963] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_CalibratedMagnification
[3964] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[3965] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[3966] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[3967] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris
[3968] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[3969] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_LotNumber
[3970] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Manufacturer
[3971] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[3972] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[3973] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_SerialNumber
[3974] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_WorkingDistance
[3975] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar

- ObjectiveSettings : ID[3976]
- ObjectiveSettings : Medium[3977]
- ObjectiveSettings : RefractiveIndex[3978]
- Pixels : BinDataBigEndian[3979]
- Pixels : DimensionOrder[3980]
- Pixels : ID[3981]
- Pixels : PhysicalSizeX[3982]
- Pixels : PhysicalSizeY[3983]
- Pixels : PhysicalSizeZ[3984]
- Pixels : SizeC[3985]
- Pixels : SizeT[3986]
- Pixels : SizeX[3987]
- Pixels : SizeY[3988]
- Pixels : SizeZ[3989]
- Pixels : Type[3990]
- Plane : DeltaT[3991]
- Plane : ExposureTime[3992]
- Plane : PositionX[3993]
- Plane : PositionY[3994]
- Plane : PositionZ[3995]
- Plane : TheC[3996]
- Plane : TheT[3997]
- Plane : TheZ[3998]

[3976] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[3977] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_Medium
[3978] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex
[3979] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian
[3980] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[3981] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[3982] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[3983] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[3984] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[3985] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[3986] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[3987] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[3988] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[3989] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[3990] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[3991] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[3992] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_ExposureTime
[3993] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[3994] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[3995] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[3996] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[3997] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[3998] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ

- Polygon : ID[3999]
- Polygon : Points[4000]
- Polygon : Text[4001]
- Polyline : ID[4002]
- Polyline : Points[4003]
- Polyline : Text[4004]
- ROI : Description[4005]
- ROI : ID[4006]
- ROI : Name[4007]
- Rectangle : Height[4008]
- Rectangle : ID[4009]
- Rectangle : Text[4010]
- Rectangle : Width[4011]
- Rectangle : X[4012]
- Rectangle : Y[4013]
- TransmittanceRange : CutIn[4014]
- TransmittanceRange : CutInTolerance[4015]
- TransmittanceRange : CutOut[4016]
- TransmittanceRange : CutOutTolerance[4017]
- TransmittanceRange : Transmittance[4018]

Total supported: 149

Total unknown or missing: 324

[3999] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4000] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[4001] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[4002] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4003] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points
[4004] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[4005] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Description
[4006] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[4007] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_Name
[4008] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[4009] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4010] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[4011] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[4012] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[4013] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[4014] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[4015] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutInTolerance
[4016] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut
[4017] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOutTolerance
[4018] http://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 : Color[4020]
- Channel : ID[4021]
- Channel : Name[4022]
- Channel : PinholeSize[4023]
- Channel : SamplesPerPixel[4024]
- Detector : AmplificationGain[4025]
- Detector : Gain[4026]
- Detector : ID[4027]
- Detector : Type[4028]
- Detector : Zoom[4029]
- DetectorSettings : Binning[4030]
- DetectorSettings : ID[4031]
- Dichroic : ID[4032]
- Dichroic : Model[4033]
- Ellipse : FontSize[4034]
- Ellipse : ID[4035]

[4019] http://www.openmicroscopy.org/site/support/ome-model/
[4020] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Color
[4021] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_ID
[4022] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_Name
[4023] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_PinholeSize
[4024] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Channel_SamplesPerPixel
[4025] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_AmplificationGain
[4026] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Gain
[4027] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_ID
[4028] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Type
[4029] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Detector_Zoom
[4030] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_Binning
[4031] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DetectorSettings_ID
[4032] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Dichroic_ID
[4033] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[4034] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4035] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID

- Ellipse : RadiusX[4036]
- Ellipse : RadiusY[4037]
- Ellipse : StrokeWidth[4038]
- Ellipse : Transform[4039]
- Ellipse : X[4040]
- Ellipse : Y[4041]
- Experimenter : ID[4042]
- Experimenter : UserName[4043]
- Filter : ID[4044]
- Filter : Model[4045]
- Filter : Type[4046]
- Image : AcquisitionDate[4047]
- Image : Description[4048]
- Image : ID[4049]
- Image : InstrumentRef[4050]
- Image : Name[4051]
- Image : ROIRef[4052]
- Instrument : ID[4053]
- Label : FontSize[4054]
- Label : ID[4055]
- Label : StrokeWidth[4056]
- Label : Text[4057]
- Label : X[4058]

[4036] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusX
[4037] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_RadiusY
[4038] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[4039] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Transform
[4040] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_X
[4041] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Ellipse_Y
[4042] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_ID
[4043] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Experimenter_UserName
[4044] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_ID
[4045] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[4046] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Filter_Type
[4047] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_AcquisitionDate
[4048] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Description
[4049] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_ID
[4050] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#InstrumentRef_ID
[4051] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Image_Name
[4052] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROIRef_ID
[4053] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Instrument_ID
[4054] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4055] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4056] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[4057] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_Text
[4058] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_X

- Label : Y[4059]
- Laser : ID[4060]
- Laser : LaserMedium[4061]
- Laser : Model[4062]
- Laser : Type[4063]
- Laser : Wavelength[4064]
- LightPath : DichroicRef[4065]
- LightPath : EmissionFilterRef[4066]
- Line : FontSize[4067]
- Line : ID[4068]
- Line : StrokeWidth[4069]
- Line : X1[4070]
- Line : X2[4071]
- Line : Y1[4072]
- Line : Y2[4073]
- Objective : Correction[4074]
- Objective : ID[4075]
- Objective : Immersion[4076]
- Objective : Iris[4077]
- Objective : LensNA[4078]
- Objective : NominalMagnification[4079]
- ObjectiveSettings : ID[4080]
- Pixels : BinDataBigEndian[4081]

[4059] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Label_Y
[4060] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#LightSource_ID
[4061] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_LaserMedium
[4062] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ManufacturerSpec_Model
[4063] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Type
[4064] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Laser_Wavelength
[4065] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#DichroicRef_ID
[4066] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#FilterRef_ID
[4067] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4068] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4069] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[4070] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X1
[4071] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_X2
[4072] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y1
[4073] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Line_Y2
[4074] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Correction
[4075] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_ID
[4076] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Immersion
[4077] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_Iris
[4078] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_LensNA
[4079] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Objective_NominalMagnification
[4080] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#ObjectiveSettings_ID
[4081] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/BinaryFile_xsd.html#BinData_BigEndian

- Pixels : DimensionOrder[4082]
- Pixels : ID[4083]
- Pixels : PhysicalSizeX[4084]
- Pixels : PhysicalSizeY[4085]
- Pixels : PhysicalSizeZ[4086]
- Pixels : SizeC[4087]
- Pixels : SizeT[4088]
- Pixels : SizeX[4089]
- Pixels : SizeY[4090]
- Pixels : SizeZ[4091]
- Pixels : TimeIncrement[4092]
- Pixels : Type[4093]
- Plane : DeltaT[4094]
- Plane : PositionX[4095]
- Plane : PositionY[4096]
- Plane : PositionZ[4097]
- Plane : TheC[4098]
- Plane : TheT[4099]
- Plane : TheZ[4100]
- Polygon : FontSize[4101]
- Polygon : ID[4102]
- Polygon : Points[4103]
- Polygon : StrokeWidth[4104]

[4082] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_DimensionOrder
[4083] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_ID
[4084] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeX
[4085] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeY
[4086] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_PhysicalSizeZ
[4087] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeC
[4088] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeT
[4089] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeX
[4090] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeY
[4091] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_SizeZ
[4092] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_TimeIncrement
[4093] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Pixels_Type
[4094] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_DeltaT
[4095] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionX
[4096] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionY
[4097] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_PositionZ
[4098] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheC
[4099] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheT
[4100] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#Plane_TheZ
[4101] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4102] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4103] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polygon_Points
[4104] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth

- Polyline : FontSize[4105]
- Polyline : ID[4106]
- Polyline : Points[4107]
- Polyline : StrokeWidth[4108]
- ROI : ID[4109]
- Rectangle : FontSize[4110]
- Rectangle : Height[4111]
- Rectangle : ID[4112]
- Rectangle : StrokeWidth[4113]
- Rectangle : Width[4114]
- Rectangle : X[4115]
- Rectangle : Y[4116]
- TransmittanceRange : CutIn[4117]
- TransmittanceRange : CutOut[4118]

Total supported: 99

Total unknown or missing: 374

[4105] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4106] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4107] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Polyline_Points
[4108] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[4109] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#ROI_ID
[4110] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_FontSize
[4111] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Height
[4112] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_ID
[4113] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Shape_StrokeWidth
[4114] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Width
[4115] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_X
[4116] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ROI_xsd.html#Rectangle_Y
[4117] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutIn
[4118] http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2012-06/ome_xsd.html#TransmittanceRange_CutOut

Symbols