



Bio-Formats Documentation

Release 5.0.5

The Open Microscopy Environment

September 23, 2014

I	About Bio-Formats	2
1	Why Java?	4
2	Bio-Formats metadata processing	5
3	Help	6
3.1	Reporting a bug	6
3.2	Troubleshooting	7
4	Bio-Formats versions	9
4.1	Version history	9
II	User Information	26
5	Using Bio-Formats with ImageJ and Fiji	27
5.1	ImageJ overview	27
5.2	Fiji overview	28
5.3	Bio-Formats features in ImageJ and Fiji	28
5.4	Installing Bio-Formats in ImageJ	29
5.5	Using Bio-Formats to load images into ImageJ	31
5.6	Managing memory in ImageJ/Fiji using Bio-Formats	34
6	Command line tools	38
6.1	Command line tools introduction	38
6.2	Displaying images and metadata	39
6.3	Converting a file to different format	40
6.4	Validating XML in an OME-TIFF	41
6.5	Editing XML in an OME-TIFF	42
7	OMERO	43
8	Image server applications	44
8.1	BISQUE	44
8.2	OME Server	44
9	Libraries and scripting applications	47
9.1	FARSIGHT	47
9.2	i3dcore	47
9.3	ImgLib	47
9.4	ITK	48
9.5	Qu for MATLAB	48
9.6	Subimager	48
10	Numerical data processing applications	49
10.1	IDL	49
10.2	KNIME	49
10.3	MATLAB	49
10.4	VisAD	50

11 Visualization and analysis applications	51
11.1 Bitplane Imaris	51
11.2 CellProfiler	51
11.3 Comstat2	52
11.4 Endrov	52
11.5 FocalPoint	52
11.6 Graphic Converter	52
11.7 Icy	53
11.8 imago	53
11.9 Iqm	53
11.10 Macnification	53
11.11 MIPAV	53
11.12 Vaa3D	54
11.13 VisBio	54
11.14 XuvTools	55
III Developer Documentation	56
12 Using Bio-Formats	57
12.1 An in-depth guide to using Bio-Formats	57
12.2 Obtaining and building Bio-Formats	59
12.3 Generating test images	61
13 Bio-Formats as a Java library	63
13.1 API documentation	63
13.2 Examples	64
14 Interfacing from non-Java code	74
14.1 Interfacing with Bio-Formats from non-Java code	74
14.2 Bio-Formats C++ bindings	74
14.3 Build instructions for C++ bindings	74
14.4 Building C++ bindings in Windows	76
14.5 Building C++ bindings in Mac OS X	77
14.6 Building C++ bindings in Linux	78
15 Writing new Bio-Formats file format readers	79
15.1 Bio-Formats file format reader guide	79
16 Contributing to Bio-Formats	83
16.1 Testing individual commits (internal developers)	83
16.2 Public test data	84
16.3 Bio-Formats service and dependency infrastructure	87
16.4 Code generation with xsd-fu	89
IV Formats	91
17 Dataset Structure Table	93
17.1 Flex Support	96
18 Supported Formats	97
18.1 3i SlideBook	102
18.2 Andor Bio-Imaging Division (ABD) TIFF	103
18.3 AIM	103
18.4 Alicona 3D	104
18.5 Amersham Biosciences Gel	105
18.6 Amira Mesh	106
18.7 Analyze 7.5	106
18.8 Animated PNG	107
18.9 Aperio AFI	108
18.10 Aperio SVS TIFF	108

18.11 Applied Precision CellWorX	109
18.12 AVI (Audio Video Interleave)	110
18.13 Axon Raw Format	111
18.14 BD Pathway	111
18.15 Becker & Hickl SPCImage	112
18.16 Bio-Rad Gel	113
18.17 Bio-Rad PIC	113
18.18 Bio-Rad SCN	114
18.19 Bitplane Imaris	115
18.20 Bruker MRI	116
18.21 Burleigh	116
18.22 Canon DNG	117
18.23 Cellomics	118
18.24 cellSens VSI	119
18.25 CellVoyager	119
18.26 DeltaVision	120
18.27 DICOM	121
18.28 ECAT7	122
18.29 EPS (Encapsulated PostScript)	122
18.30 Evotec/PerkinElmer Opera Flex	123
18.31 FEI	124
18.32 FEI TIFF	125
18.33 FITS (Flexible Image Transport System)	125
18.34 Gatan Digital Micrograph	126
18.35 Gatan Digital Micrograph 2	127
18.36 GIF (Graphics Interchange Format)	127
18.37 Hamamatsu Aquacosmos NAF	128
18.38 Hamamatsu HIS	129
18.39 Hamamatsu ndpi	129
18.40 Hamamatsu VMS	130
18.41 Hitachi S-4800	131
18.42 ICS (Image Cytometry Standard)	132
18.43 Imacon	132
18.44 ImagePro Sequence	133
18.45 ImagePro Workspace	134
18.46 IMAGIC	135
18.47 IMOD	135
18.48 Improvion Openlab LIFF	136
18.49 Improvion Openlab Raw	137
18.50 Improvion TIFF	138
18.51 Imspector OBF	138
18.52 InCell 1000	139
18.53 InCell 3000	140
18.54 INR	140
18.55 Inveon	141
18.56 IPLab	141
18.57 IPLab-Mac	142
18.58 JEOL	143
18.59 JPEG	144
18.60 JPEG 2000	144
18.61 JPK	145
18.62 JPX	146
18.63 Khoros VIFF (Visualization Image File Format) Bitmap	146
18.64 Kodak BIP	147
18.65 Lambert Instruments FLIM	148
18.66 LaVision Imspector	149
18.67 Leica LCS LEI	149
18.68 Leica LAS AF LIF (Leica Image File Format)	150
18.69 Leica SCN	151
18.70 LEO	152
18.71 Li-Cor L2D	152

18.72 LIM (Laboratory Imaging/Nikon)	153
18.73 MetaMorph 7.5 TIFF	154
18.74 MetaMorph Stack (STK)	154
18.75 MIAS (Maia Scientific)	155
18.76 Micro-Manager	156
18.77 MINC MRI	156
18.78 Minolta MRW	157
18.79 MNG (Multiple-image Network Graphics)	158
18.80 Molecular Imaging	159
18.81 MRC (Medical Research Council)	159
18.82 NEF (Nikon Electronic Format)	160
18.83 NIFTI	161
18.84 Nikon Elements TIFF	162
18.85 Nikon EZ-C1 TIFF	162
18.86 Nikon NIS-Elements ND2	163
18.87 NRRD (Nearly Raw Raster Data)	164
18.88 Olympus CellR/APL	164
18.89 Olympus FluoView FV1000	165
18.90 Olympus FluoView TIFF	166
18.91 Olympus ScanR	167
18.92 Olympus SIS TIFF	167
18.93 OME-TIFF	168
18.94 OME-XML	169
18.95 Oxford Instruments	170
18.96 PCORAW	170
18.97 PCX (PC Paintbrush)	171
18.98 Perkin Elmer Densitometer	172
18.99 PerkinElmer Operetta	172
18.100PerkinElmer UltraView	173
18.101PGM (Portable Gray Map)	174
18.102Adobe Photoshop PSD	174
18.103Photoshop TIFF	175
18.104PicoQuant Bin	176
18.105PICT (Macintosh Picture)	176
18.106PNG (Portable Network Graphics)	177
18.107Prairie Technologies TIFF	178
18.108Quesant	178
18.109QuickTime Movie	179
18.110RHK	180
18.111SBIG	181
18.112Seiko	182
18.113SimplePCI & HImage	182
18.114SimplePCI & HImage TIFF	183
18.115SM Camera	184
18.116SPIDER	184
18.117Targa	185
18.118Text	186
18.119TIFF (Tagged Image File Format)	186
18.120TillPhotonics TillVision	187
18.121Topometrix	188
18.122Trestle	188
18.123UBM	189
18.124Unisoku	190
18.125Varian FDF	190
18.126VG SAM	191
18.127VisiTech XYS	192
18.128Volocity	192
18.129Volocity Library Clipping	193
18.130WA-TOP	194
18.131Windows Bitmap	194
18.132Woolz	195

18.133	Zeiss AxioVision TIFF	196
18.134	Zeiss AxioVision ZVI (Zeiss Vision Image)	196
18.135	Zeiss CZI	197
18.136	Zeiss LSM (Laser Scanning Microscope) 510/710	198
19	Summary of supported metadata fields	200
19.1	Format readers	200
19.2	Metadata fields	203
Index		425
Index		426

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* focuses 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. See also LOCI's article on [open source software in science](#)⁵.

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/>

⁵<http://loci.wisc.edu/software/oss>

WHY JAVA?

From a practical perspective, Bio-Formats is written in Java because it is cross-platform and widely used, with a vast array of libraries for handling common programming tasks. Java is one of the easiest languages from which to deploy cross-platform software. In contrast to C++, which has a large number of complex platform issues to consider, and Python, which leans heavily on C and C++ for many of its components (e.g., NumPy and SciPy), Java code is compiled one time into platform-independent byte code, which can be deployed as is to all supported platforms. And despite this enormous flexibility, Java manages to provide time performance nearly equal to C++, often better in the case of I/O operations (see further discussion on the [comparative speed of Java on the LOCI site](#)¹).

There are also historical reasons associated with the fact that the project grew out of work on the [VisAD Java component library](#)². You can read more about the origins of Bio-Formats on the [LOCI Bio-Formats homepage](#)³.

¹<http://loci.wisc.edu/faq/isnt-java-too-slow>

²<http://visad.ssec.wisc.edu>

³<http://loci.wisc.edu/software/bio-formats>

BIO-FORMATS METADATA PROCESSING

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

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

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

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

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

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

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

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

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

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

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

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

3.1 Reporting a bug

3.1.1 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 version to check if the problem has already been addressed. The Fiji updater will automatically do this for you, while in ImageJ you can select *Plugins* → *Bio-Formats* → *Update Bio-Formats Plugins*.

You can also download the [latest version of Bio-Formats⁶](#). If you are not sure which version you need, select the latest build of the Bio-Formats package bundle from the components table.

3.1.2 Sending a bug report

If you can still reproduce the bug after updating to the latest version of Bio-Formats, please send a bug report to the [OME Users mailing list⁷](#). You can upload files to our [QA system⁸](#) or for large files (>2 GB), we can provide you with an FTP server address if you write to the mailing list.

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. 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.
- **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.

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/mailling-lists>

⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

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

⁸<http://qa.openmicroscopy.org.uk/qa/upload/>

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

3.2 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.

3.2.1 General tips

- Make sure to read the [FAQ](#)⁹, 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](#)¹⁰
 - [Fiji Bugzilla](#) (for ImageJ/Fiji issues)¹¹
 - [ome-devel mailing list](#)¹² (searchable using google with ‘site:lists.openmicroscopy.org.uk’)
 - [ome-users mailing list](#)¹³ (searchable using google with ‘site:lists.openmicroscopy.org.uk’)
 - [ImageJ mailing list](#) (for ImageJ/Fiji issues)¹⁴
- 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](#)¹⁵. The ‘file’ command should tell you:

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

3.2.2 Tips for ImageJ/Fiji

- The Bio-Formats version being used can be found by selecting “Help > About Plugins > Bio-Formats 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 > Bio-Formats > Bio-Formats 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 > Bio-Formats > 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 `formats-gpl.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.

⁹<http://www.openmicroscopy.org/site/support/faq>

¹⁰<http://trac.openmicroscopy.org.uk/ome>

¹¹<http://fiji.sc/cgi-bin/bugzilla/index.cgi>

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

¹³<http://lists.openmicroscopy.org.uk/pipermail/ome-users>

¹⁴<http://imagej.1557.n6.nabble.com/>

¹⁵http://en.wikipedia.org/wiki/Resource_fork#The_Macintosh_file_system

3.2.3 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).

3.2.4 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 > Bio-Formats > Bio-Formats Importer"; if that works, then just remove `ZVI_Reader.class` from the plugins folder.

BIO-FORMATS VERSIONS

Bio-Formats is updated whenever a 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.

4.1 Version history

4.1.1 5.0.5 (2014 September 23)

- Documentation improvements
- Support for non-spectral Prairie 5.2 datasets

4.1.2 5.0.4 (2014 September 3)

- Fix compile and runtime errors under Java 1.8
- Improvements to Nikon .nd2 metadata parsing
- Added support for PicoQuant .bin files (thanks to Ian Munro)

4.1.3 5.0.3 (2014 August 7)

- Many bug fixes for Nikon .nd2 files
- **Several other bug fixes, including:**
 - LZW image decoding
 - Stage position parsing for Zeiss CZI
 - Exposure time units for ScanR
 - Physical pixel size units for DICOM
 - NDPI and Zeiss LSM files larger than 4GB
 - Z and T dimensions for InCell 6000 plates
 - Export of RGB images in ImageJ
- Improved metadata saving in MATLAB functions

4.1.4 5.0.2 (2014 May 28)

- Many bug fixes for Zeiss .czi files
- **Several other bug fixes, including:**
 - Gatan .dm3 units and step count parsing

¹<http://www.openmicroscopy.org/site/support/omero5/>

- Inspector .msr 5D image support
- DICOM reading of nested tags
- Update native-lib-loader version (to 2.0.1)
- Updates and improvements to user documentation

4.1.5 5.0.1 (2014 Apr 7)

- Added image pyramid support for CellSens .vsi data
- **Several bug fixes, including:**
 - Woolz import into OMERO
 - Cellomics file name parsing (thanks to Lee Kamentsky)
 - Olympus FV1000 timestamp support (thanks to Lewis Kraft and Patrick Riley)
 - (A)PNG large image support
 - Zeiss .czi dimension detection for SPIM datasets
- Performance improvements for Becker & Hickl .sdt file reading (thanks to Ian Munro)
- Performance improvements to directory listing over NFS
- Update slf4j and logback versions (to 1.7.6 and 1.1.1 respectively)
- Update jgoodies-forms version (to 1.7.2)

4.1.6 5.0.0 (2014 Feb 25)

- New bundled 'bioformats_package.jar' for ImageJ
- Now uses logback as the slf4j binding by default
- Updated component names, .jar file names, and Maven artifact names
- Fixed support for Becker & Hickl .sdt files with multiple blocks
- Fixed tiling support for TIFF, Hamamatsu .ndpi, JPEG, and Zeiss .czi files
- Improved continuous integration testing
- Updated *command line documentation*

4.1.7 5.0.0-RC1 (2013 Dec 19)

- Updated Maven build system and launched new Artifactory repository (<http://artifacts.openmicroscopy.org>)
- **Added support for:**
 - *Bio-Rad SCN*
 - *Yokogawa CellVoyager* (thanks to Jean-Yves Tinevez)
 - *LaVision Inspector*
 - *PCORAW*
 - *Woolz* (thanks to Bill Hill)
- Added support for populating and parsing ModuloAlong{Z, C, T} annotations for FLIM/SPIM data
- Updated netCDF and slf4j version requirements - netCDF 4.3.19 and slf4j 1.7.2 are now required
- Updated and improved *MATLAB users* and *developers* documentation
- Many bug fixes including for Nikon ND2, Zeiss CZI, and CellWorX formats

4.1.8 5.0.0-beta1 (2013 June 20)

- Updated to 2013-06 OME-XML schema²
- Improved the performance in tiled formats
- Added caching of Reader metadata using <http://code.google.com/p/kryo/>
- **Added support for:**
 - *Aperio AFI*
 - *Inveon*
 - *MPI-BPC Inspector*
- **Many bug fixes, including:**
 - Add ZEN 2012/Lightsheet support to Zeiss CZI
 - Improved testing of autogenerated code
 - Moved OME-XML specification into Bio-Formats repository

4.1.9 4.4.10 (2014 Jan 15)

- Bug fixes including CellWorx, Metamorph and Zeiss CZI
- Updates to MATLAB documentation

4.1.10 4.4.9 (2013 Oct 16)

- Many bug fixes including improvements to support for ND2 format
- Java 1.6 is now the minimum supported version; Java 1.5 is no longer supported

4.1.11 4.4.8 (2013 May 2)

- No changes - release to keep version numbers in sync with OMERO

4.1.12 4.4.7 (2013 April 25)

- Many bug fixes to improve support for more than 20 formats
- Improved export to multi-file datasets
- Now uses slf4j for logging rather than using log4j directly, enabling other logging implementations to be used, for example when Bio-Formats is used as a component in other software using a different logging system.

4.1.13 4.4.6 (2013 February 11)

- Many bug fixes
- Further documentation improvements

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

4.1.14 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

4.1.15 4.4.4 (2012 September 24)

- Many bug fixes

4.1.16 4.4.2 (2012 August 22)

- Security fix for OMERO plugins for ImageJ

4.1.17 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

4.1.18 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

4.1.19 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

4.1.20 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

4.1.21 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

4.1.22 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

4.1.23 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

4.1.24 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

4.1.25 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

4.1.26 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

4.1.27 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

4.1.28 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

4.1.29 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

4.1.30 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

4.1.31 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

4.1.32 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

4.1.33 2008 Feb 12

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

4.1.34 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

4.1.35 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

4.1.36 2007 Dec 28

- Fixed bugs in Leica LEI, Leica TCS, SDT, Leica LIF, Visitech, DICOM, Imaris 5.5 (HDF), and Slidebook readers
- Better parsing of comments in TIFF files exported from ImageJ
- Fixed problem with exporting 48-bit RGB data
- Added logic to read multi-series datasets spread across multiple files
- Improved channel merging in ImageJ - requires ImageJ 1.39I
- Support for hyperstacks and virtual stacks in ImageJ - requires ImageJ 1.39I
- Added API for reading directly from a byte array or InputStream
- Metadata key/value pairs are now stored in ImageJ’s “Info” property
- Improved OMERO download plugin - it is now much faster
- Added “open all series” option to ImageJ importer
- ND2 reader based on Nikon’s SDK now uses our own native bindings
- Fixed metadata saving bug in ImageJ
- Added sub-channel labels to ImageJ windows
- Major updates to 4D Data Browser
- Minor updates to automated testing suite

4.1.37 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

4.1.38 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

4.1.39 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

4.1.40 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

4.1.41 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

4.1.42 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

4.1.43 2007 July 16

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

4.1.44 2007 July 2

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

4.1.45 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

4.1.46 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

4.1.47 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

4.1.48 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

4.1.49 2007 Mar 16

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

4.1.50 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

4.1.51 2007 Feb 28

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

4.1.52 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

4.1.53 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

4.1.54 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

4.1.55 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

4.1.56 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

4.1.57 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

4.1.58 2006 Oct 31

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

4.1.59 2006 Oct 30

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

4.1.60 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

4.1.61 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

4.1.62 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

4.1.63 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

4.1.64 2006 Mar 31

- First release

Part II

User Information

USING BIO-FORMATS WITH IMAGEJ AND FIJI

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

5.1 ImageJ overview

ImageJ¹ 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.

5.1.1 Installation

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

5.1.2 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, i.e. when using *File* → *Open* instead of explicitly choosing *Plugins* → *Bio-Formats* → *Bio-Formats Importer* from the menu.

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

5.1.3 Upgrading

To upgrade, just overwrite the old **bioformats_package.jar** with the **latest one**⁷.

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* → *Bio-Formats* → *Update Bio-Formats 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.

¹<http://rsb.info.nih.gov/ij/>

²http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/bioformats_package.jar

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

⁴<http://developer.imagej.net/plugins/image5d>

⁵<http://www.nanoimaging.de/View5D>

⁶<http://fiji.sc/Bio-Formats>

⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

5.1.4 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.

5.2 Fiji overview

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

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

For further details on Bio-Formats in Fiji, see the *Bio-Formats Fiji wiki page*¹⁹.

5.2.1 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.

5.3 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*²⁰ if they are available in the file.

⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/basicMetadata.txt>

⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/planeTimings.txt>

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/recursiveTiffConvert.txt>

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/bfOpenAsHyperstack.txt>

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/zvi2HyperStack.txt>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/dvSplitTimePoints.txt>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/macros/batchTiffConvert.txt>

¹⁵https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/Read_Image.java

¹⁶https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utils/Mass_Importer.java

¹⁷<http://fiji.sc/>

¹⁸http://fiji.sc/Plugins_Menu

¹⁹<http://fiji.sc/Bio-Formats>

²⁰<http://fiji.sc/SpatialCalibration>

- The **Bio-Formats Exporter** is a plugin for exporting data to disk. It can save to the open [OME-TIFF²¹](#) 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 **Bio-Formats 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 **Bio-Formats Plugins Shortcut Window** opens a small window with a quick-launch button for each plugin. Dragging and dropping files onto the shortcut window opens them quickly using the **Bio-Formats Importer** plugin.
- The **Update Bio-Formats Plugins** command will check for Bio-Formats Plugins updates. We recommend you update to the latest build as soon as you think you may have [discovered a bug](#).

5.4 Installing Bio-Formats in ImageJ

Note: Since FIJI is essentially ImageJ with plugins like Bio-Formats already built in, people who install Fiji can skip this section. If you are also using the OMERO plugin for ImageJ, you may find the set-up guide on the new [user help site²²](#) useful for getting you started with both plugins at the same time.

Once you [download²³](#) and install ImageJ, you can install the Bio-Formats plugin by going to the Bio-Formats [download page²⁴](#).

For most end-users, we recommend downloading the **bioformats_package.jar** complete bundle.

However, you must decide which version of it you want to install. There are three primary versions of Bio-Formats: the latest builds, the daily builds, and the release versions. Which version you should download depends on your needs:

- The **latest build** is automatically updated every time any change is made to the source code on the main “dev_5_0” branch in Git, Bio-Formats’ 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 latest build; but if you download it multiple times in a day, you can be sure you will get the same version each time.
- The **release** is thoroughly tested and has documentation to match. The list of supported formats on the Bio-Formats site corresponds to the most recent release. We do not add new formats to the list until a release containing support for that format has been completed. The release is less likely to contain bugs.

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

Note: There are currently **two** release version of Bio-Formats as we are maintaining support for the 4.4.x series while only actively developing the new 5.x series. Unless you are using Bio-Formats with the OMERO ImageJ plugin and an OMERO 4.4.x server, we recommend you use Bio-Formats 5. A new 4.4.x version will only be released if a major bug fix is required.

²¹<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

²²<http://help.openmicroscopy.org/imagej.html>

²³<http://rsbweb.nih.gov/ij/download.html>

²⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

We often **recommend that most people simply use the latest build** for two reasons. First, it 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 build before submitting a bug report. Rather than using the release until you find a bug that requires you to upgrade and reproduce it, why not just use the latest build to begin with?

Once you decide which version you need, go to the Bio-Formats [download page](#)²⁵ and save the appropriate **bioformats_package.jar** to the Plugins directory within ImageJ.

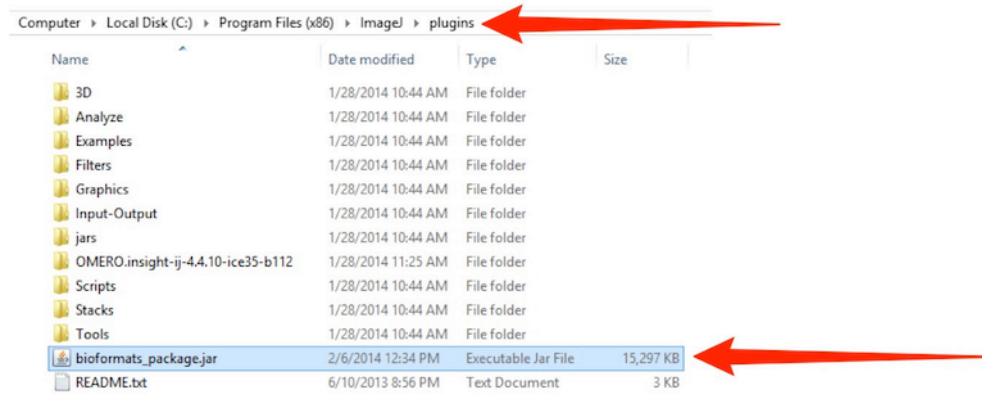
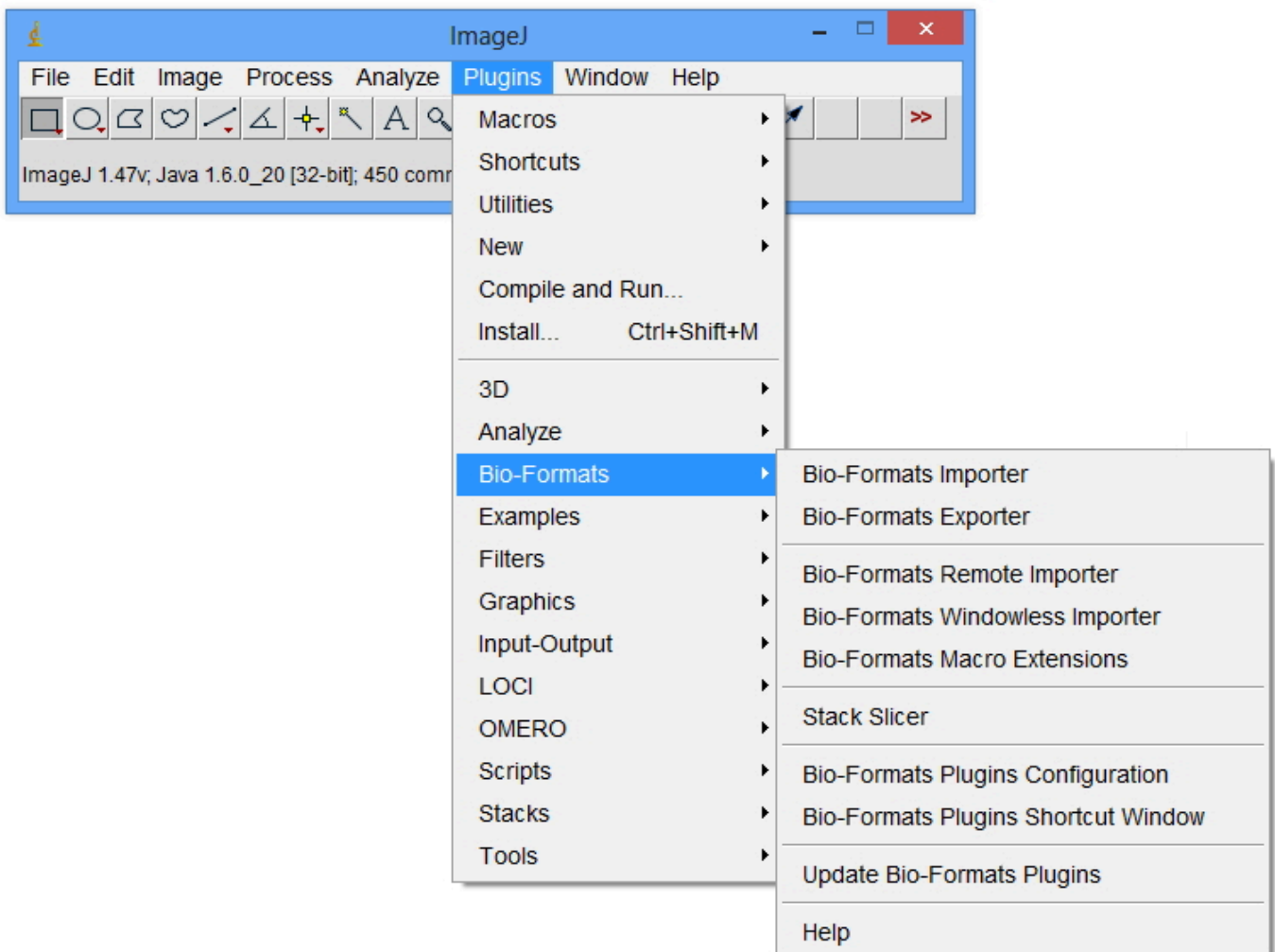


Figure 5.1: Plugin Directory for ImageJ: Where in ImageJ's file structure you should place the file once you downloaded it.

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



²⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

You are now ready to start using Bio-Formats.

5.5 Using Bio-Formats to load images into ImageJ

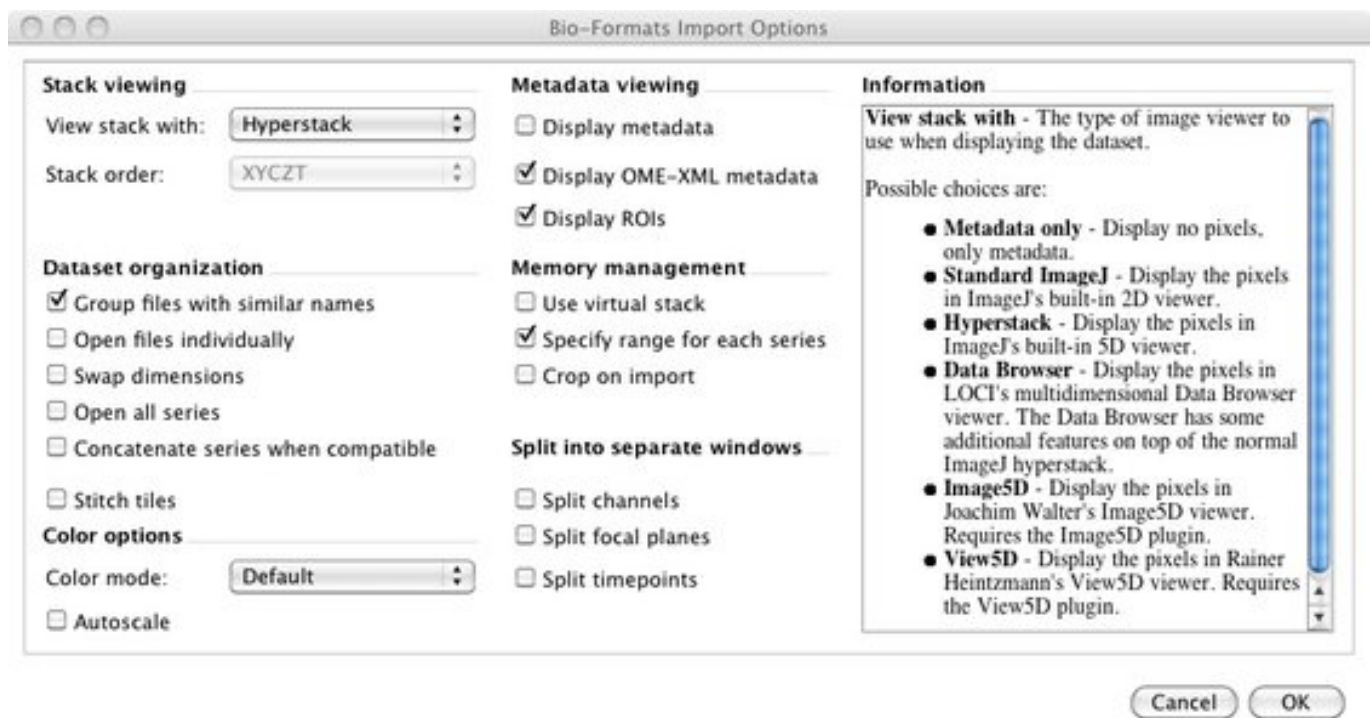
This section will explain how to use Bio-Formats to import files into ImageJ and how to use the settings on the Bio-Formats Import Options screen.

5.5.1 Opening files

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

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

Unless you used the Bio-Formats 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.

5.5.2 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 Bio-Formats 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 **Bio-Formats Plugins Configuration** option, which is also located in the Bio-Formats 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 **Bio-Formats 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.

5.5.3 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 [dub²⁶](#) data set available under LOCI's [Sample Data²⁷](#) 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.

²⁶<http://loci.wisc.edu/sample-data/dub>

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

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

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

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

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

- 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”.

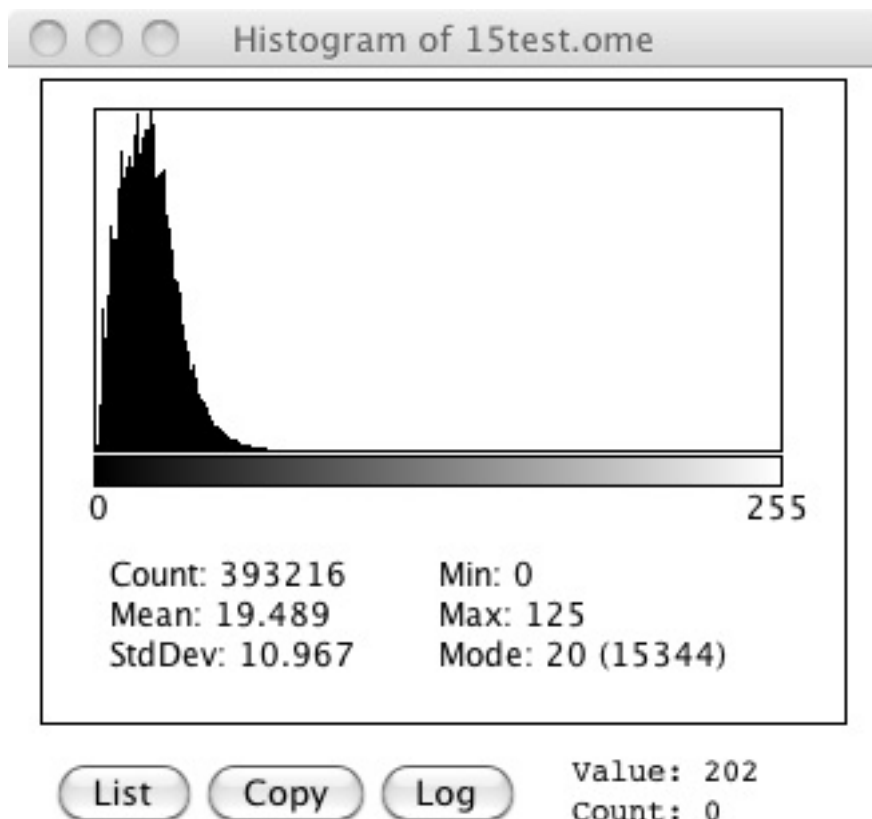
It can also accept a [Java regular expression](#)²⁸.

5.5.4 Autoscale

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

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

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

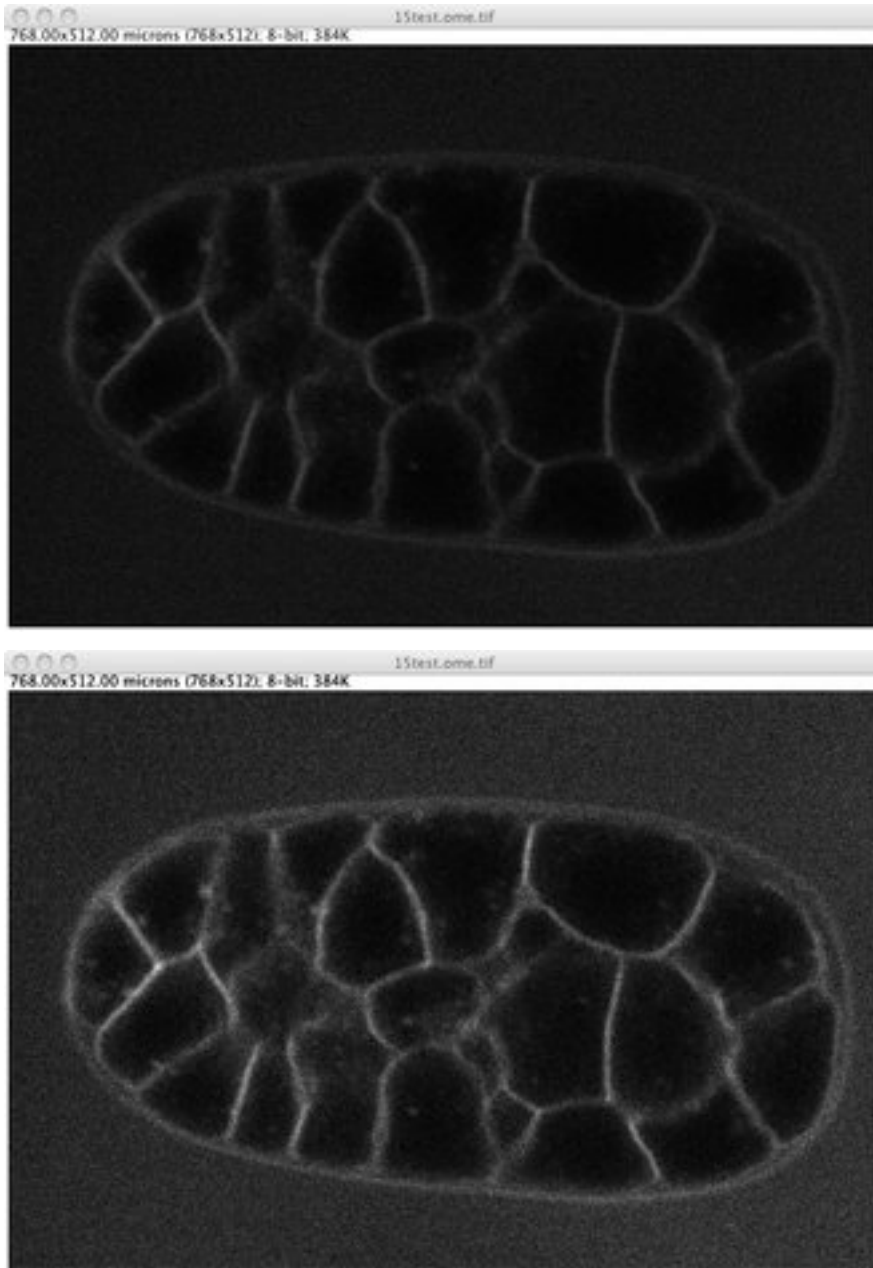


Notice that the histogram heavily skews right. Even though there are 256 possible values, only 0 through 125 are being used.

²⁸<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:

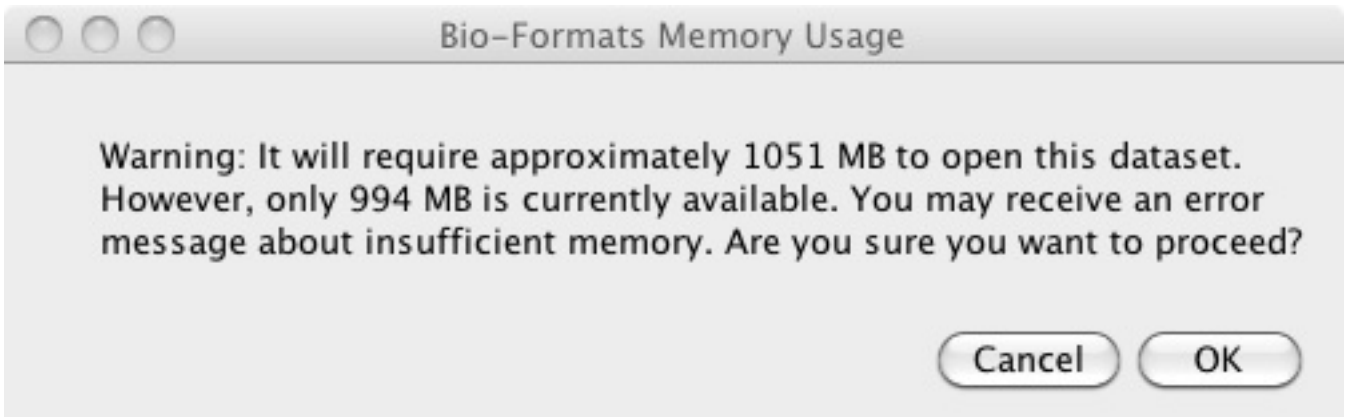


Autoscale readjusts the image based on the highest value in the entire data set. This means if the highest value in your dataset is close to maximum display value, Autoscale's adjusting may be undetectable to the eye.

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.

5.6 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:

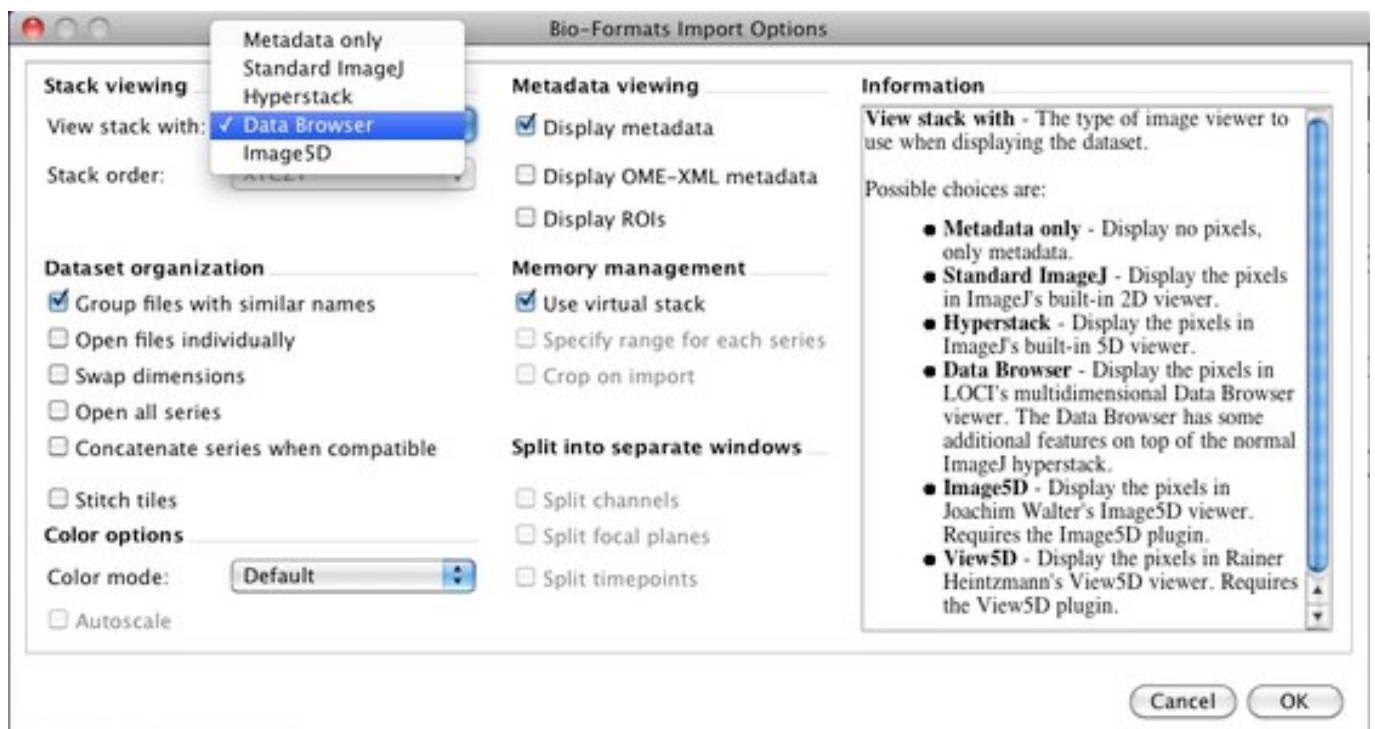
- View your stack with Data Browser
- Crop the view area
- Open only a subset of images
- Use Virtual Stack
- Increase ImageJ/Fiji's memory.

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.

5.6.1 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](#)²⁹.

5.6.2 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.

5.6.3 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.

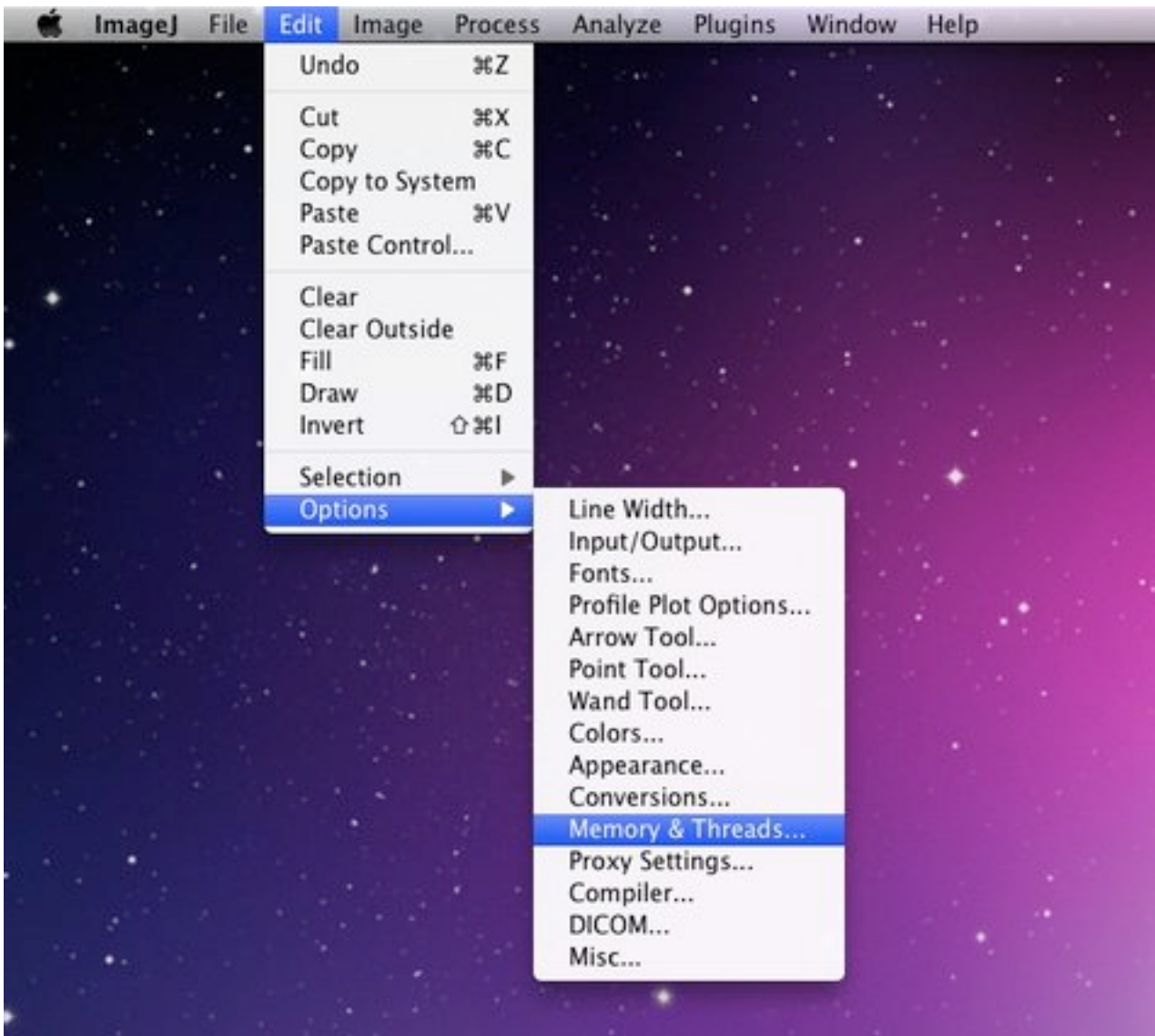
5.6.4 Use Virtual Stack

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.

5.6.5 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.

²⁹<http://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](http://rsbweb.nih.gov/ij/docs/menus/edit.html#options)³⁰.

³⁰<http://rsbweb.nih.gov/ij/docs/menus/edit.html#options>

COMMAND LINE TOOLS

The Bio-Formats Command line tools (`bftools.zip`) provide a complete package for carrying out a variety of tasks:

6.1 Command line tools introduction

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

6.1.1 Installation

Download `bftools.zip`¹, unzip it into a new folder.

Note: As of Bio-Formats 5.0.0, this zip now contains the bundled jar and you no longer need to download `loci_tools.jar` or the new `bioformats_package.jar` separately.

The zip file contains both Unix scripts and Windows batch files.

6.1.2 Tools available

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 (see *Displaying images and metadata* for more information).

ijview Displays the given image file in ImageJ using the Bio-Formats Importer plugin.

bfconvert Converts an image file from one format to another. Bio-Formats must support writing to the output file (see *Converting a file to different format* for more information).

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.

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 (also see *Editing XML in an OME-TIFF*).

Some of these tools also work in combination, for example *Validating XML in an OME-TIFF* uses both `tiffcomment` and `xmlvalid`.

Running any of these commands without any arguments will print usage information to help you.

¹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/bftools.zip>

6.1.3 Using the tools directly from source

Firstly, obtain a copy of the sources and build them (see *Obtaining and building Bio-Formats*). You can configure the scripts to use your source tree instead of `bioformats_package.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\bio-formats`, set your CLASSPATH environment variable to the value `C:\code\bio-formats\jar*;C:\code\bio-formats`. 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 `BF_DEVEL` environment variable to any value (the variable just needs to be defined).

6.1.4 Version checker

If you run `bftools` outside of the OMERO environment, you may encounter an issue with the automatic version checker causing a tool to crash when trying to connect to `upgrade.openmicroscopy.org.uk`. The error message will look something like this:

```
Failed to compare version numbers
java.io.IOException: Server returned HTTP response code: 400 for URL:
http://upgrade.openmicroscopy.org.uk?version=4.4.8;os.name=Linux;os.
version=2.6.32-358.6.2.el6.x86_64;os.arch=amd64;java.runtime.version=
1.6.0_24-b24;java.vm.vendor=Sun+Microsystems+Inc.;bioformats.caller=
Bio-Formats+utilities
```

To avoid this issue, call the tool with the `-no-upgrade` parameter.

6.2 Displaying images and metadata

The `showinf` *command line tool* can be used to show the images and metadata contained in a file.

If no options are specified, `showinf` displays a summary of available options.

To simply display images:

```
showinf /path/to/file
```

All of the images in the first ‘series’ (or 5 dimensional stack) will be opened and displayed in a simple image viewer. The number of series, image dimensions, and other basic metadata will be printed to the console.

To display a different series, for example the second one:

```
showinf -series 1 /path/to/file
```

Note that series numbers begin with 0.

To display the OME-XML metadata for a file on the console:

```
showinf -omexml /path/to/file
```

Image reading can be suppressed if only the metadata is needed:

```
showinf -nopix /path/to/file
```

A subset of images can also be opened instead of the entire stack, by specifying the start and end plane indices (inclusive):

```
showinf -range 0 0 /path/to/file
```

That opens only the first image in first series in the file.

For very large images, it may also be useful to open a small tile from the image instead of reading everything into memory. To open the upper-left-most 512x512 tile from the images:

```
showinf -crop 0,0,512,512 /path/to/file
```

The parameter to `-crop` is of the format `x, y, width, height`. The `(x, y)` coordinate `(0, 0)` is the upper-left corner of the image; `x + width` must be less than or equal to the image width and `y + height` must be less than or equal to the image height.

By default, `showinf` will check for a new version of Bio-Formats. This can take several seconds (especially on a slow internet connection); to save time, the update check can be disabled:

```
showinf -no-update /path/to/file
```

Similarly, if OME-XML is displayed then it will automatically be validated. On slow or missing internet connections, this can take some time, and so can be disabled:

```
showinf -novalid /path/to/file
```

6.3 Converting a file to different format

The `bfconvert` *command line tool* can be used to convert files between *supported formats*.

`bfconvert` with no options displays a summary of available options.

To convert a file to single output file (e.g. TIFF):

```
bfconvert /path/to/input output.tiff
```

The output file format is determined by the extension of the output file, e.g. `.tiff` for TIFF files, `.ome.tiff` for OME-TIFF, `.png` for PNG.

All images in the input file are converted by default. To convert only one series:

```
bfconvert -series 0 /path/to/input output-first-series.tiff
```

To convert only one timepoint:

```
bfconvert -timepoint 0 /path/to/input output-first-timepoint.tiff
```

To convert only one channel:

```
bfconvert -channel 0 /path/to/input output-first-channel.tiff
```

To convert only one Z section:

```
bfconvert -z 0 /path/to/input output-first-z.tiff
```

To convert images between certain indices (inclusive):

```
bfconvert -range 0 2 /path/to/input output-first-3-images.tiff
```

Images can also be written to multiple files by specifying a pattern string in the output file. For example, to write one series, timepoint, channel, and Z section per file:

```
bfconvert /path/to/input output_series_%s_Z%z_C%c_T%t.tiff
```

`%s` is the series index, `%z` is the Z section index, `%c` is the channel index, and `%t` is the timepoint index (all indices begin at 0).

By default, all images will be written uncompressed. Supported compression modes vary based upon the output format, but when multiple modes are available the compression can be changed using the `-compression` option. For example, to use LZW compression in a TIFF file:

```
bfconvert -compression LZW /path/to/input output-lzw.tiff
```

6.4 Validating XML in an OME-TIFF

The XML stored in an OME-TIFF file can be validated using the *command line tools*.

Both the `tiffcomment` and `xmlvalid` commands are used; `tiffcomment` extracts the XML from the file and `xmlvalid` validates the XML and prints any errors to the console.

For example:

```
tiffcomment /path/to/file.ome.tiff | xmlvalid -
```

will perform the extraction and validation all at once.

Typical successful output is:

```
[~/Work/bftools]$ ./xmlvalid sample.ome
Parsing schema path
http://www.openmicroscopy.org/Schemas/OME/2010-06/ome.xsd
Validating sample.ome
No validation errors found.
[~/Work/bftools]$
```

If any errors are found they are reported. When correcting errors it is usually best to work from the top of the file as errors higher up can cause extra errors further down. In this example the output shows 3 errors but there are only 2 mistakes in the file:

```
[~/Work/bftools]$ ./xmlvalid broken.ome
Parsing schema path
http://www.openmicroscopy.org/Schemas/OME/2010-06/ome.xsd
Validating broken.ome
cvc-complex-type.4: Attribute 'SizeY' must appear on element 'Pixels'.
cvc-enumeration-valid: Value 'Non Zero' is not facet-valid with respect
  to enumeration '[EvenOdd, NonZero]'. It must be a value from the enumeration.
cvc-attribute.3: The value 'Non Zero' of attribute 'FillRule' on element
  'ROI:Shape' is not valid with respect to its type, 'null'.
```



```
Error validating document: 3 errors found
[~/Work/bftools]$
```

If the XML is found to have validation errors, the `tiffcomment` command can be used to overwrite the XML in the OME-TIFF file with corrected XML. The XML can be displayed in an editor window:

```
tiffcomment -edit /path/to/file.ome.tiff
```

or the new XML can be read from a file:

```
tiffcomment -set new-comment.xml /path/to/file.ome.tiff
```

6.5 Editing XML in an OME-TIFF

To edit the XML in an OME-TIFF file you can use `tiffcomment`, one of the Bio-Formats tools.

To use the built in editor run:

```
tiffcomment -edit sample.ome.tif
```

To extract or view the XML run:

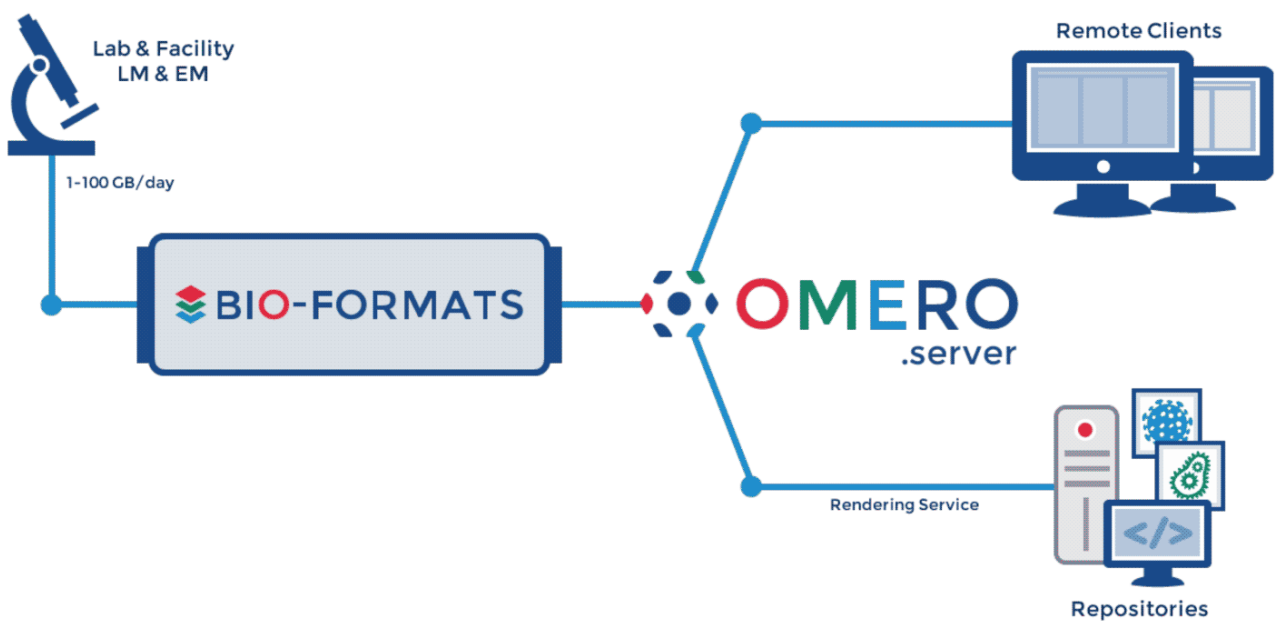
```
tiffcomment sample.ome.tif
```

To inject replacement XML into a file run:

```
tiffcomment -set 'newmetadata.xml' sample.ome.tif
```

OMERO

OMERO 5 uses Bio-Formats to read original files from over 130 file formats. Please refer to the [OMERO documentation¹](http://www.openmicroscopy.org/site/support/omero5/) for further information.



¹<http://www.openmicroscopy.org/site/support/omero5/>

IMAGE SERVER APPLICATIONS

8.1 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*.

8.2 OME Server

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

Please note - the OME server is no longer maintained and has now been superseded by the **OMERO server**³. Support for the OME server has been entirely removed in the 5.0.0 version of Bio-Formats; the following instructions can still be used with the 4.4.x versions.

8.2.1 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
- Deltavision DV
- Metamorph STK
- Bio-Rad PIC
- Zeiss LSM
- TIFF

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

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

³<http://www.openmicroscopy.org/site/support/omero5/>

⁴<http://downloads.openmicroscopy.org/ome/2.6.1/>

- 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.

8.2.2 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.

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

⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

8.2.3 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)

⁷<http://github.com/openmicroscopy/bioformats/tree/v4.4.10/components/scifio/src/loci/formats/ome/OmeisImporter.java>

⁸<http://downloads.openmicroscopy.org/ome/code/BioFormats.pm>

⁹<http://downloads.openmicroscopy.org/ome/code/omeis.c>

LIBRARIES AND SCRIPTING APPLICATIONS

9.1 FARSIGHT

FARSIGHT¹ is a collection of modules for image analysis created by LOCI's collaborators at the University of Houston². These open source modules are built on the *ITK* library and thus can take advantage of ITK's support for Bio-Formats to process otherwise unsupported image formats.

The principal FARSIGHT module that benefits from Bio-Formats is the *Nucleus Editor*³, though in principle any FARSIGHT-based code that reads image formats via the standard ITK mechanism will be able to leverage Bio-Formats.

See also:

[FARSIGHT Downloads page](#)⁴

[FARSIGHT HowToBuild tutorial](#)⁵

9.2 i3dcore

i3dcore⁶, also known as the CBIA 3D image representation library, is a 3D image processing library developed at the Centre for Biomedical Image Analysis⁷. Together with i3dalgo⁸ and i4dcore⁹, 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++*¹⁰ (java4cpp).

See also:

[Download i3dcore](#)¹¹

[CBIA Software Development](#)¹²

9.3 ImgLib

ImgLib2¹³ is a multidimensional image processing library. It provides a general mechanism for writing image analysis algorithms, without writing case logic for *bit depth*¹⁴, or worrying about the source of the pixel data (arrays in memory, files on disk, etc.).

¹<http://www.farsight-toolkit.org/>

²<http://www.uh.edu/>

³<http://www.farsight-toolkit.org/wiki/NucleusEditor>

⁴<http://www.farsight-toolkit.org/wiki/Special:FarsightDownloads>

⁵http://www.farsight-toolkit.org/wiki/FARSIGHT_HowToBuild

⁶http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dcore/index.html

⁷<http://cbia.fi.muni.cz/software-development.html>

⁸http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dalgo/index.html

⁹http://cbia.fi.muni.cz/user_dirs/of_doc/libi4d.html

¹⁰<http://java4cpp.kapott.org/>

¹¹http://cbia.fi.muni.cz/user_dirs/i3dlib_doc/i3dcore/index.html#download

¹²<http://cbia.fi.muni.cz/software-development.html>

¹³<http://imglib2.net/>

¹⁴http://en.wikipedia.org/wiki/Color_depth

The [SCIFIO](#)¹⁵ project provides an [ImgOpener](#)¹⁶ utility class for reading data into `ImgLib2` data structures using Bio-Formats.

9.4 ITK

The [Insight Toolkit](#)¹⁷ (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 [SCIFIO ImageIO](#)¹⁸ plugin provides an ITK `imageIO` base that uses Bio-Formats to read and write supported life sciences file formats. This plugin allows any program built on ITK to read any of the image types supported by Bio-Formats.

9.5 Qu for MATLAB

[Qu for MATLAB](#)¹⁹ 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](#)²⁰

9.6 Subimager

[Subimager](#)²¹, 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](#)²² to facilitate integration with their [CellProfiler](#)²³ image analysis application.

¹⁵<http://scif.io/>

¹⁶<https://github.com/scifio/scifio/blob/master/src/main/java/io/scif/ImgOpener.java>

¹⁷<http://itk.org/>

¹⁸<https://github.com/scifio/scifio-imageio>

¹⁹http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55

²⁰http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55&limitstart=3

²¹<https://github.com/CellProfiler/subimager>

²²<http://www.broadinstitute.org/>

²³<http://www.cellprofiler.org/>

NUMERICAL DATA PROCESSING APPLICATIONS

10.1 IDL

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

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

10.1.1 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.

10.1.2 Upgrading

To use a newer version of Bio-Formats, overwrite the requisite JAR files with the [newer version](#)⁴ and restart IDL.

10.2 KNIME

KNIME⁵ (Konstanz Information Miner) is a user-friendly and comprehensive open-source data integration, processing, analysis, and exploration platform. KNIME supports image import using Bio-Formats using the [KNIME Image Processing](#)⁶ (a.k.a. KNIP) plugin.

10.3 MATLAB

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

Calling Bio-Formats from MATLAB is fairly straightforward, since MATLAB has built-in interoperability with Java. We have created a [set of scripts](#)⁸ for reading image files. Note the minimum supported MATLAB version is R2007b (7.5).

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

²http://karo03.bplaced.net/karo/IDL/_pro/ij_read_bio_formats.pro

³http://karo03.bplaced.net/karo/ro_embed.php?file=IDL/index.html

⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

⁵<http://www.knime.org/>

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

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

⁸<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/components/formats-gpl/matlab>

10.3.1 Installation

Download the MATLAB toolbox from the Bio-Formats [downloads page](#)⁹. Unzip `bfmatlab.zip` and add the unzipped `bfmatlab` folder to your MATLAB path.

Note: As of Bio-Formats 5.0.0, this zip now contains the bundled jar and you no longer need to download `loci_tools.jar` or the new `bioformats_package.jar` separately.

10.3.2 Usage

Please see *Using Bio-Formats in MATLAB* for usage instructions. If you intend to extend the existing `.m` files, please also see the *developer page* for more information on how to use Bio-Formats in general.

10.3.3 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.

10.3.4 Upgrading

To use a newer version of Bio-Formats, overwrite the content of the `bfmatlab` folder with the [newer version](#)¹⁰ of the toolbox and restart MATLAB.

10.3.5 Alternative scripts

Several other groups have developed their own MATLAB scripts that use Bio-Formats, including the following:

- <https://github.com/prakatmac/bf-tools/>
- `imread` for multiple life science image file formats¹¹

10.4 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.

10.4.1 Installation

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

10.4.2 Upgrading

It should be possible to use a newer version of Bio-Formats by putting the latest `bioformats_package.jar`¹³ or `formats-gpl.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.

⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

¹⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

¹¹<http://www.mathworks.com/matlabcentral/fileexchange/32920-imread-for-multiple-life-science-image-file-formats>

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

¹³http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/bioformats_package.jar

¹⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/formats-gpl.jar>

VISUALIZATION AND ANALYSIS APPLICATIONS

11.1 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 overview*, which includes Bio-Formats. See [this page](#)³ for a detailed list of Imaris' features.

11.2 CellProfiler

*CellProfiler*⁴—developed by the Broad Institute⁵'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.

11.2.1 Installation

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

11.2.2 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

See also:

[CellProfiler web site](#)⁷

¹<http://www.bitplane.com/>

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

³<http://www.bitplane.com/Imaris/Imaris>

⁴<http://www.cellprofiler.org/>

⁵<http://www.broadinstitute.org/>

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

⁷<http://www.cellprofiler.org/>

11.3 Comstat2

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

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

11.4 Endrov

Endrov⁹ (or <http://www.endrov.net>) (EV) is a multi-purpose image analysis program developed by the Thomas Burglin group¹⁰ at Karolinska Institute¹¹, Department of Biosciences and Nutrition.

11.4.1 Installation

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

11.4.2 Upgrading

It should be possible to use a newer version of Bio-Formats by downloading the latest `formats-gpl.jar`¹² 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.

11.5 FocalPoint

FocalPoint¹³ is an image browser, similar to Windows Explorer¹⁴ or other file manager¹⁵ application, specifically designed to work with more complex image types. FocalPoint uses Bio-Formats to generate thumbnails for some formats.

11.5.1 Installation

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

11.5.2 Upgrading

It should be possible to use a newer version of Bio-Formats¹⁶ 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.

11.6 Graphic Converter

Graphic Converter¹⁷ 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.

⁸<http://www.comstat.dk/>

⁹<https://github.com/mahogny/Endrov>

¹⁰<http://www.biosci.ki.se/groups/tbu>

¹¹<http://www.ki.se/>

¹²<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/formats-gpl.jar>

¹³<http://www.bioinformatics.bbsrc.ac.uk/projects/focalpoint/>

¹⁴http://en.wikipedia.org/wiki/Windows_Explorer

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

¹⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

¹⁷<http://www.lemkesoft.com>

11.7 Icy

Icy¹⁸ 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.

11.8 imago

Mayachitra imago¹⁹ 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](#)²⁰.

11.9 Iqm

Iqm²¹ 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.

11.10 Macnification

Macnification²² 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](#)²³.

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](#)²⁴

11.11 MIPAV

The MIPAV²⁵ (Medical Image Processing, Analysis, and Visualization) application—developed at the [Center for Information Technology](#)²⁶ at the [National Institutes of Health](#)²⁷—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.

¹⁸<http://icy.bioimageanalysis.org/>

¹⁹<http://mayachitra.com/imago/index.html>

²⁰<http://mayachitra.com/imago/download-trial.php>

²¹<http://code.google.com/p/iqm/>

²²<http://www.orbicule.com/macnification/>

²³<http://www.orbicule.com>

²⁴<http://www.orbicule.com/macnification/download>

²⁵<http://mipav.cit.nih.gov/>

²⁶<http://cit.nih.gov/>

²⁷<http://nih.gov/>

11.11.1 Installation

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

1. Download `bioformats_package.jar`²⁸ and drop it into your MIPAV folder.
2. Download the `plugin source code`²⁹ into your user `mipav/plugins` folder.
3. From the command line, compile the plugin with:

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

4. where `$MIPAV` is the location of your MIPAV installation.
5. Add `bioformats_package.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`³⁰ for more information.

To upgrade, just overwrite the old `bioformats_package.jar` with the `latest one`³¹. You may want to download the latest version of MIPAV first, to take advantage of new features and bug-fixes.

11.12 Vaa3D

Vaa3D³², developed by the Peng Lab³³ at the HHMI Janelia Farm Research Campus³⁴, 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`³⁵ to read images.

11.13 VisBio

VisBio³⁶ 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.

11.13.1 Installation

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

11.13.2 Upgrading

It should be possible to use a `newer version of Bio-Formats`³⁷ 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.

²⁸http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/bioformats_package.jar

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/utis/mipav/PlugInBioFormatsImporter.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/utis/mipav/readme.txt>

³¹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

³²<http://vaa3d.org>

³³<http://penglab.janelia.org/>

³⁴<http://www.hhmi.org/janelia/>

³⁵http://www.farsight-toolkit.org/wiki/FARSIGHT_Tutorials/Building_Software/Bio-Formats/Building_C%2B%2B_Bindings

³⁶<http://loci.wisc.edu/software/visbio>

³⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

11.14 XuvTools

XuvTools³⁸ is automated 3D stitching software for biomedical image data. As of release 1.8.0, XuvTools uses Bio-Formats to read image data.

³⁸<http://www.xuvtools.org>

Part III

Developer Documentation

USING BIO-FORMATS

12.1 An in-depth guide to using Bio-Formats

12.1.1 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 in the *Source code* section. Having a copy of the *Javadocs*¹ nearby is recommended—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.

12.1.2 Using Gradle, Maven or Ivy

All released `.jar` artifacts may be obtained through the OME *Artifactory server*³. The “Client Settings” section of the Artifactory main page provides example code snippets for inclusion into your Gradle, Maven or Ivy project, which will enable the use of this repository.

Example snippets for using the Bio-Formats 5.0.2 release `formats-gpl` artifact are available for Gradle and for Maven. These may be copied into your project to enable the use of the Bio-Formats library components, and may be adjusted to use different components or different release or development versions of Bio-Formats.

12.1.3 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`⁴—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`⁵. 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)`⁶ 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)`⁷ 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()`)⁸

¹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

²<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/components/formats-gpl/utis>

³<http://artifacts.openmicroscopy.org/artifactory>

⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/IFormatReader.java>

⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/ImageReader.java>

⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatHandler.html#setId\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatHandler.html#setId(java.lang.String))

⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#setSeries\(int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#setSeries(int))

⁸[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeX\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeX())

- image height (`getSizeY()`⁹)
- number of series per file (`getSeriesCount()`¹⁰)
- total number of images per series (`getImageCount()`¹¹)
- number of slices in the current series (`getSizeZ()`¹²)
- number of timepoints in the current series (`getSizeT()`¹³)
- number of actual channels in the current series (`getSizeC()`¹⁴)
- number of channels per image (`getRGBChannelCount()`¹⁵)
- the ordering of the images within the current series (`getDimensionOrder()`¹⁶)
- whether each image is RGB (`isRGB()`¹⁷)
- whether the pixel bytes are in little-endian order (`isLittleEndian()`¹⁸)
- whether the channels in an image are interleaved (`isInterleaved()`¹⁹)
- the type of pixel data in this file (`getPixelType()`²⁰)

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)`²¹, which gets the value of the specified key. 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.

12.1.4 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.
 - `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.

⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeY\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeY())

¹⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSeriesCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSeriesCount())

¹¹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getImageCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getImageCount())

¹²[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeZ\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeZ())

¹³[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeT\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeT())

¹⁴[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeC\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSizeC())

¹⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getRGBChannelCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getRGBChannelCount())

¹⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getDimensionOrder\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getDimensionOrder())

¹⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isRGB\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isRGB())

¹⁸[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isLittleEndian\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isLittleEndian())

¹⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isInterleaved\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isInterleaved())

²⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getPixelType\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getPixelType())

²¹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getMetadataValue\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getMetadataValue(java.lang.String))

²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/gui/BufferedImageReader.java>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/FileStitcher.java>

²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/ChannelSeparator.java>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/ChannelMerger.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/ChannelFiller.java>

- [MinMaxCalculator](#)²⁷ extends `IFormatReader`, and provides an API for retrieving the minimum and maximum pixel values for each channel.
- [DimensionSwapper](#)²⁸ extends `IFormatReader`, and provides an API for changing the dimension order of a file.
- [ImageTools](#)²⁹ and `loci.formats.gui.AWTImageTools`³⁰ provide a number of methods for manipulating `BufferedImage`s and primitive type arrays. In particular, there are methods to split and merge channels in a `BufferedImage/array`, as well as converting to a specific data type (e.g. convert short data to byte data).

12.1.5 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.

12.1.6 Arcane notes and implementation details

Known oddities:

- 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).

12.2 Obtaining and building Bio-Formats

12.2.1 Source code

The source code for this Bio-Formats release is available from the [download page](#)³³. This release and the latest Bio-Formats source code are also available from the Git repository. This may be accessed using the repository path:

²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/MinMaxCalculator.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/DimensionSwapper.java>

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/ImageTools.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/gui/AWTImageTools.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/IFormatWriter.java>

³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

³³<http://downloads.openmicroscopy.org/latest/bio-formats5.0/>

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

More information about Git and client downloads are available from the [Git project website](#)³⁴. You can also browse the [Bio-Formats source on GitHub](#)³⁵

Note: Windows users must set git to use `core.autocrlf=input` to ensure that Bio-Formats uses LF rather than CRLF line endings, otherwise the build will fail (Genshi can't process code templates with CRLF line endings, leading to broken sources being generated). This can be set globally in the registry when installing **msysgit** or by editing `etc/gitconfig` in the git installation directory. Annoyingly, these settings appear to override per-user and per-repository configuration values, requiring these to be set globally.

Lastly, you can browse the [Bio-Formats Javadocs online](#)³⁶, or generate them yourself using the “docs” Ant target.

12.2.2 Source code structure

The Bio-Formats code is divided into several projects. Core components are located in subfolders of the [components](#)³⁷ folder, with some components further classified into [components/forks](#)³⁸ or [components/stubs](#)³⁹, 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.

12.2.3 Building from source

Instructions for several popular options follow. In all cases, make sure that the prerequisites are installed before you begin.

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.

Prerequisites

In addition to the Bio-Formats source code, the following programs and packages are also required:

- [Python 2](#)⁴⁰, version 2.6 or later (note: not version 3)
- [Genshi](#)⁴¹ 0.5 or later (0.7 recommended)

Note: Genshi may be installed (in order of decreasing preference) with some Linux distributions' package managers, **pip** (`pip install genshi`), by downloading a compatible `.egg` for your system from the [Genshi download page](#)⁴², or from source. If using a `.egg`, make sure it is added to your `PYTHONPATH` environment variable.

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

³⁴<http://git-scm.com/>

³⁵<https://github.com/openmicroscopy/bioformats>

³⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

³⁷<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/components/>

³⁸<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/components/forks/>

³⁹<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/components/stubs/>

⁴⁰<http://python.org>

⁴¹<http://genshi.edgewall.org>

⁴²<http://genshi.edgewall.org/wiki/Download>

Alternately, you can clone the source directly from NetBeans into a project by selecting *Team* → *Git* → *Clone Other...* from the menu.

Eclipse

Eclipse uses the “Maven Integration for Eclipse” (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 on which projects are currently open.

We recommend using Eclipse 4.3 (Kepler), specifically - “Eclipse IDE for Java developers”. It comes with m2e installed (<http://eclipse.org/downloads/compare.php?release=kepler>).

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.

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
```

In general, `ant jars` or `ant tools` is the correct command.

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.

12.3 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 bioformats_package.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`⁴³ for *bfconvert*.

⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

BIO-FORMATS AS A JAVA LIBRARY

13.1 API documentation

13.1.1 Using Bio-Formats as a Java library

If you wish to make use of Bio-Formats within your own software, you can [download `formats-gpl.jar`](#)¹ to use it as a library. Just add **formats-gpl.jar** to your CLASSPATH or build path. You will also need **common.jar** for common I/O functions, **ome-xml.jar** for metadata standardization, and SLF4J² for logging.

There are also 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 ¹² MDB Tools ¹⁴	<code>ome-poi.jar</code> ¹³ <code>mdbtools-java.jar</code> ¹⁵	Apache LGPL	OME fork; for OLE-based formats (zvi, oib, ipw, cxd) Java port, OME fork; for Olympus CellR and Zeiss LSM metadata (mdb)
JAI Image I/O Tools ¹⁶	<code>jai_imageio.jar</code> ¹⁷	BSD	Pure Java implementation, OME fork; for JPEG2000-based formats (nd2, jp2)
NetCDF ¹⁸	<code>netcdf-4.3.19.jar</code> ¹⁹	LGPL	Java library; for HDF5-based formats (Imaris 5.5, MINC MRI)
QuickTime for Java ²⁰	QTJava.zip	Commercial	For additional QuickTime codecs

See the list in the [Bio-Formats toplevel build file](#)²¹ for a complete and up-to-date list of all optional libraries, which can all be found in our [Git repository](#)²².

Examples of usage

[ImageConverter](#)²³ - A simple command line tool for converting between formats.

¹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/formats-gpl.jar>

²<http://slf4j.org/>

³<http://jakarta.apache.org/poi/>

⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/ome-poi.jar>

⁵<http://sourceforge.net/projects/mdbtools>

⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/mdbtools-java.jar>

⁷<http://java.net/projects/jai-imageio>

⁸http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/jai_imageio.jar

⁹<http://www.unidata.ucar.edu/software/netcdf-java/>

¹⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/netcdf-4.3.19.jar>

¹¹<http://www.apple.com/quicktime/download/standalone.html>

¹²<http://jakarta.apache.org/poi/>

¹³<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/ome-poi.jar>

¹⁴<http://sourceforge.net/projects/mdbtools>

¹⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/mdbtools-java.jar>

¹⁶<http://java.net/projects/jai-imageio>

¹⁷http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/jai_imageio.jar

¹⁸<http://www.unidata.ucar.edu/software/netcdf-java/>

¹⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/artifacts/netcdf-4.3.19.jar>

²⁰<http://www.apple.com/quicktime/download/standalone.html>

²¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/build.xml>

²²<https://github.com/openmicroscopy/bioformats/tree/v5.0.5/jar>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

[ImageInfo](#)²⁴ - 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](#)²⁵ - A command line utility demonstrating the minimum amount of metadata needed to write a file.

[PrintTimestamps](#)²⁶ - A command line example demonstrating how to extract timestamps from a file.

[Simple_Read](#)²⁷ - A simple ImageJ plugin demonstrating how to use Bio-Formats to read files into ImageJ (see *ImageJ overview*).

[Read_Image](#)²⁸ - An ImageJ plugin that uses Bio-Formats to build up an image stack, reading image planes one by one (see *ImageJ overview*).

[Mass_Importer](#)²⁹ - 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 overview*).

A Note on Java Web Start (`bioformats_package.jar` vs. `formats-gpl.jar`)

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

The **bioformats_package.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 **formats-gpl.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 **bioformats_package.jar** directly is not the best approach, since every time Bio-Formats is updated, the server would need to feed another 15+ 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 **formats-gpl.jar** and the optional dependencies separate, only a <1 MB JAR needs to be updated when **formats-gpl.jar** changes.

As a developer, you have the option of packaging **formats-gpl.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 **formats-gpl.jar** that excludes certain classes, if you like.

For an explicit enumeration of all the optional libraries included in **bioformats_package.jar**, see the `package.libraries` variable of the `ant/toplevel.properties`³⁰ file of the distribution. You can also read our notes about each in the source distribution's Ant `build.xml`³¹ script.

Also see [Bio-Formats Javadocs](#)³²

13.2 Examples

13.2.1 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:

²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-tools/src/loci/formats/tools/ImageInfo.java>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/utis/MinimumWriter.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/utis/PrintTimestamps.java>

²⁷https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utis/Simple_Read.java

²⁸https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utis/Read_Image.java

²⁹https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-plugins/utis/Mass_Importer.java

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/ant/toplevel.properties>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/build.xml#L240>

³²<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

```
// 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
MetadataStore metadata;

try {
    ServiceFactory factory = new ServiceFactory();
    OMEXMLService service = factory.getInstance(OMEXMLService.class);
    metadata = service.createOMEXMLMetadata();
}
catch (DependencyException exc) {
    throw new FormatException("Could not create OME-XML store.", exc);
}
catch (ServiceException exc) {
    throw new FormatException("Could not create OME-XML store.", exc);
}

reader.setMetadataStore(metadata);
// 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 tickets³³

13.2.2 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
- the number of channels
- the number of timepoints
- the number of Z sections

³³<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 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.XYZCT, 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.

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

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

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

```

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

```

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

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

```

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

```

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

```

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

```

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

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

```

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

```

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

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

```

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

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

```

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

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

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

But note that this will be a little slower.

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

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

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

13.2.4 Using Bio-Formats in MATLAB

This section assumes that you have installed the MATLAB toolbox as instructed in the *MATLAB user information page*. Note the minimum supported MATLAB version is R2007b (7.5).

Increasing JVM memory settings

The default JVM settings in MATLAB can result in `java.lang.OutOfMemoryError: Java heap space` exceptions when opening large image files using Bio-Formats. Information about the Java heap space usage in MATLAB can be retrieved using:

```
java.lang.Runtime.getRuntime.maxMemory
```

Default JVM settings can be increased by creating a `java.opts` file in the startup directory and overriding the default memory settings. We recommend using `-Xmx512m` in your `java.opts` file.

See also:

<http://www.mathworks.com/matlabcentral/answers/92813> How do I increase the heap space for the Java VM in MATLAB 6.0 (R12) and later versions?

Opening an image file

The first thing to do is initialize a file with the `bfopen`³⁴ function:

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

This function returns an `n`-by-4 cell array, where `n` is the number of series in the dataset. If `s` is the series index between 1 and `n`:

- The `data{s, 1}` element is an `m`-by-2 cell array, where `m` is the number of planes in the `s`-th series. If `t` is the plane index between 1 and `m`:
 - The `data{s, 1}{t, 1}` element contains the pixel data for the `t`-th plane in the `s`-th series.
 - The `data{s, 1}{t, 2}` element contains the label for the `t`-th plane in the `s`-th series.
- The `data{s, 2}` element contains original metadata key/value pairs that apply to the `s`-th series.
- The `data{s, 3}` element contains color lookup tables for each plane in the `s`-th series.

³⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/bfopen.m>

- The `data{s, 4}` element 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 *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`.

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

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

You can also create an animated movie (assumes 8-bit unsigned data):

```
v = linspace(0, 1, 256)';
cmap = [v v v];
for p = 1 : size(series1, 1)
    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 `data{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 `data{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](#)³⁵ documentation for full details.

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
```

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
```

For more information about the methods to retrieve the metadata, see the [MetadataRetrieve](#)³⁶ Javadoc page.

To convert the OME metadata into a string, use the `dumpXML()` method:

```
omeXML = char(omeMeta.dumpXML());
```

Reading from an image file

The main inconvenience of the `bfopen.m`³⁷ function is that it loads all the content of an image regardless of its size.

³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/meta/MetadataRetrieve.html>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/bfopen.m>

To access the file reader without loading all the data, use the low-level `bfGetReader.m`³⁸ function:

```
reader = bfGetReader('path/to/data/file');
```

You can then access the OME metadata using the `getMetadataStore()` method:

```
omeMeta = reader.getMetadataStore();
```

Individual planes can be queried using the `bfGetPlane.m`³⁹ function:

```
series1_plane1 = bfGetPlane(reader, 1);
```

Saving files

The basic code for saving a 5D array into an OME-TIFF file is located in the `bfsave.m`⁴⁰ function.

For instance, the following code will save a single image of 64 pixels by 64 pixels with 8 unsigned bits per pixels:

```
plane = zeros(64, 64, 'uint8');
bfsave(plane, 'my-file.ome.tiff');
```

And the following code snippet will produce an image of 64 pixels by 64 pixels with 2 channels and 2 timepoints:

```
plane = zeros(64, 64, 1, 2, 2, 'uint8');
bfsave(plane, 'my-file.ome.tiff');
```

By default, `bfsave` will create a minimal OME-XML metadata object containing basic information such as the pixel dimensions, the dimension order and the pixel type. To customize the OME metadata, it is possible to create a metadata object from the input array using `createMinimalOMEXMLMetadata.m`⁴¹, add custom metadata and pass this object directly to `bfsave`:

```
plane = zeros(64, 64, 1, 2, 2, 'uint8');
metadata = createMinimalOMEXMLMetadata(plane);
pixelSize = ome.xml.model.primitives.PositiveFloat(java.lang.Double(.05));
metadata.setPixelsPhysicalSizeX(pixelSize, 0);
metadata.setPixelsPhysicalSizeY(pixelSize, 0);
pixelSizeZ = ome.xml.model.primitives.PositiveFloat(java.lang.Double(.2));
metadata.setPixelsPhysicalSizeZ(pixelSizeZ, 0);
...
bfsave(plane, 'my-file.ome.tiff', 'metadata', metadata);
```

For more information about the methods to store the metadata, see the `MetadataStore`⁴² Javadoc page.

³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/bfGetReader.m>

³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/bfGetPlane.m>

⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/bfsave.m>

⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/matlab/createMinimalOMEXMLMetadata.m>

⁴²<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/meta/MetadataStore.html>

INTERFACING FROM NON-JAVA CODE

14.1 Interfacing with Bio-Formats 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.

For details, see LOCI's article [Interfacing from non-Java code](#)¹.

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

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

14.2 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`² 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`³
- `minimum_writer`⁴

Other projects using BF-CPP include:

- *WiscScan*⁵ which uses BF-CPP to write *OME-TIFF*⁶ files.
- *XuvTools* which uses an adapted version of BF-CPP called *BlitzBioFormats*⁷.

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.

14.3 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.

¹<http://loci.wisc.edu/software/interfacing-non-java-code>

²<http://loci.wisc.edu/software/jar2lib>

³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/cppwrap/showinf.cpp>

⁴https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/cppwrap/minimum_writer.cpp

⁵<http://loci.wisc.edu/software/wiscscan>

⁶<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff>

⁷<http://www.xuvtools.org/devel:libblitzbioformats>

14.3.1 Compile-time dependencies

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

- **Apache Maven**⁸ 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**⁹ 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**¹⁰ 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**¹¹ 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](#).

14.3.2 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](#).

14.3.3 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/formats-bsd subdirectory will contain the following files:

1. **libjace.so / libjace.jnilib / jace.dll** : Jace shared library
2. **libformats-bsd.so / libformats-bsd.dylib / formats-bsd.dll** : C++ shared library for BSD-licensed readers and writers
3. **jace-runtime.jar** : Jace Java classes needed at runtime
4. **bioformats_package.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 bioformats_package.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](#)¹² or [mailing lists](#)¹³.

14.4 Building C++ bindings in Windows

14.4.1 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.

14.4.2 Compile-time dependencies – Windows – Maven

Download [Maven](#)¹⁴.

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.

14.4.3 Compile-time dependencies – Windows – CMake

Download and run the [CMake installer](#)¹⁵.

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.

14.4.4 Compile-time dependencies – Windows – Boost

The easiest way to install the Boost Thread library on Windows is to use the free installer from [BoostPro](#)¹⁶.

When running the installer:

- Under “Compilers,” check the version of Visual C++ matching your system.
- Under “Variants,” check all eight boxes.
- When choosing components, check “Boost DateTime” and “Boost Thread.”

14.4.5 Compile-time dependencies – Windows – Java Development Kit

Download and install the [JDK](#)¹⁷.

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
```

¹²<http://www.openmicroscopy.org/community/>

¹³<http://lists.openmicroscopy.org.uk/mailman/listinfo/>

¹⁴<http://maven.apache.org/>

¹⁵<http://cmake.org/>

¹⁶<http://www.boostpro.com/download/>

¹⁷<http://www.oracle.com/technetwork/java/javase/downloads/>

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.

14.4.6 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](#)¹⁸.

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

14.4.7 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\formats-bsd
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.

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).

14.5 Building C++ bindings in Mac OS X

14.5.1 Compile-time dependencies – Mac OS X

To install dependencies on Mac OS X, we advise using [Homebrew](#)¹⁹:

```
brew install maven cmake boost
```

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

¹⁸<http://www.microsoft.com/express/>

¹⁹<https://github.com/mxcl/homebrew/>

14.5.2 How to build – Mac OS X

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

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

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

14.6 Building C++ bindings in Linux

14.6.1 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
```

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.

14.6.2 How to build – Linux

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

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

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

WRITING NEW BIO-FORMATS FILE FORMAT READERS

15.1 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.

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

¹ <https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/FormatReader.java>

² <https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/>

³ [http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isSingleFile\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isSingleFile(java.lang.String))

⁴ [http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isThisType\(loci.common.RandomAccessInputStream\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#isThisType(loci.common.RandomAccessInputStream))

⁵ [http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#fileGroupOption\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#fileGroupOption(java.lang.String))

⁶ [http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSeriesUsedFiles\(boolean\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#getSeriesUsedFiles(boolean))

⁷ <https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

⁸ [http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#openBytes\(int, byte\[\], int, int, int, int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#openBytes(int, byte[], int, int, int, int))

- `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)`.

15.1.2 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:

- `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.

⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/FormatReader.html#initFile\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/FormatReader.html#initFile(java.lang.String))

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/CoreMetadata.java>

¹¹[http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#close\(boolean\)](http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/loci/formats/IFormatReader.html#close(boolean))

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/FormatReader.java>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/CoreMetadata.java>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/RandomAccessInputStream.java>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/Location.java>

¹⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/FormatReader.java>

¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/FormatTools.java>

15.1.3 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.common.Location`²⁰ provides an API similar to `java.io.File`, and supports File-like operations on URLs. It is highly recommended that you use this instead of `File`. See the `Javadocs`²¹ for additional information.
- `loci.common.DataTools`²² provides a number of methods for converting bytes to shorts, ints, longs, etc. It also supports reading most primitive types directly from a `RandomAccessInputStream` (or other `DataInput` implementation).
- `loci.formats.ImageTools`²³ provides several methods for manipulating primitive type arrays that represent images. Consult the source or `Javadocs` for more information.
- If your reader relies on third-party code which may not be available to all users, it is strongly suggested that you make a corresponding service class that interfaces with the third-party code. Please see *Bio-Formats service and dependency infrastructure* for a description of the service infrastructure, as well as the `loci.formats.services` package²⁴.
- Several common image compression types are supported through subclasses of `loci.formats.codec.BaseCodec`²⁵. These include JPEG, LZW, LZO, Base64, ZIP and RLE (PackBits).
- If you wish to convert a file's metadata to OME-XML (strongly encouraged), please see *Bio-Formats metadata processing* for further information.
- Utility methods for reading and writing individual bits from a byte array can be found in `loci.formats.codec.BitBuffer`²⁶ and `loci.formats.codec.BitWriter`²⁷.
- Once you have written your file format reader, add a line to the `readers.txt`²⁸ file with the fully qualified name of the reader, followed by a '#' and the file extensions associated with the file format. Note that `ImageReader`²⁹, the master file format reader, tries to identify which format reader to use according to the order given in `readers.txt`³⁰, so be sure to place your reader in an appropriate position within the list.
- 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.

¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/RandomAccessInputStream.java>

²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/Location.java>

²¹<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/DataTools.java>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/ImageTools.java>

²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/services/>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/codec/BaseCodec.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/codec/BitBuffer.java>

²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/codec/BitWriter.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/readers.txt>

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/ImageReader.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/readers.txt>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-api/src/loci/formats/ImageReader.java>

³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/bio-formats-tools/src/loci/formats/tools/ImageInfo.java>

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](https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/test-suite/src/loci/tests/testng/FormatReaderTest.java)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 Javadocs³⁴. 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](https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImarisReader.java)³⁵ (this is the most straightforward one). [loci.formats.in.LIFReader](https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LIFReader.java)³⁶ and [InCellReader](https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InCellReader.java)³⁷ are also good references that show off some of the nicer features of Bio-Formats.

If you have questions about Bio-Formats, please contact the OME team³⁸.

³³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/test-suite/src/loci/tests/testng/FormatReaderTest.java>

³⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.0/api/>

³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LIFReader.java>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InCellReader.java>

³⁸<http://www.openmicroscopy.org/site/community>

CONTRIBUTING TO BIO-FORMATS

16.1 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 usage¹](#) 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] ===== bio-formats-testing-framework =====

init-timestamp:

release-version:

init-manifest-cp:

init:

copy-source:
```

¹<http://www.openmicroscopy.org/site/support/contributing/using-git.html>

compile:

test-automated:

```
[testng] [Parser] Running:
[testng]   Bio-Formats 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] Bio-Formats 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 `bio-formats-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 `bio-formats-software-test-*.log` file.

16.2 Public test data

Most of the data-driven tests would benefit from having a comprehensive set of public sample data (see also #4086²).

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 (*)
- Image-Pro SEQ
- QuickTime (*)
- Bio-Rad PIC
- Image-Pro Workspace
- Fluoview/ABD TIFF (*)
- Perkin Elmer Ultraview
- Gatan DM3
- Zeiss LSM
- Openlab LIFF (*)
- Leica LIF (*)

²<http://trac.openmicroscopy.org.uk/ome/ticket/4086>

- TIFF (*)
- Khoros (<http://netghost.narod.ru/gff/sample/images/viff/index.htm>)
- MNG ([Download³](#)) (*)

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
- 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

³http://sourceforge.net/projects/libmng/files/libmng-testsuites/Release-20030305/MNGsuite-20030305.zip/download?use_mirror=freefr&download=

- 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

16.3 Bio-Formats service and dependency infrastructure

16.3.1 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](#)⁴, [dependency inversion](#)⁵ or [component based design](#)⁶.

It was decided, at this point, to forgo the usage of potentially more powerful but also more complicated solutions such as:

- Spring (<http://spring.io>)
- Guice (<http://code.google.com/p/google-guice/>)
- ...

The Wikipedia page for [dependency injection](#)⁷ 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](#)⁸ and [#464](#)⁹.

16.3.2 Writing a service

- **Interface** – The basic form of a service is an interface which inherits from `loci.common.services.Service`¹⁰. Here is a very basic example using the (now removed) `OMENotesService`

```
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);
}
```

⁴http://en.wikipedia.org/wiki/Dependency_injection

⁵http://en.wikipedia.org/wiki/Dependency_inversion_principle

⁶http://en.wikipedia.org/wiki/Component-based_software_engineering

⁷http://en.wikipedia.org/wiki/Dependency_injection

⁸<http://trac.openmicroscopy.org.uk/ome/ticket/463>

⁹<http://trac.openmicroscopy.org.uk/ome/ticket/464>

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/services/Service.java>

```
}

```

- **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`:

```
public class OMENotesServiceImpl extends AbstractService
    implements OMENotesService {

    /**
     * Default constructor.
     */
    public OMENotesServiceImpl() {
        checkClassDependency(Notes.class);
    }

    /* (non-Javadoc)
     * @see loci.formats.dependency.OMENotesService#newNotes()
     */
    public void newNotes(String filename) {
        new Notes(null, filename);
    }

}

```

- **Style**

- Extension of `AbstractService` to enable uniform runtime dependency checking is recommended. Java does not check class dependencies until classes are first instantiated so if you do not do this, you may end up with `ClassNotFoundException` or the like exceptions being emitted from your service methods. This is to be **strongly** discouraged. If a service has unresolvable classes on its `CLASSPATH` instantiation should fail, not service method invocation.
- Service methods should not burden the implementer with numerous checked exceptions. Also external dependency exception instances should not be allowed to directly leak from a service interface. Please wrap these using a `ServiceException`.
- By convention both the interface and implementation are expected to be in a package named `loci.*.services`. This is not a hard requirement but should be followed where possible.

- **Registration** – A service's interface and implementation must finally be *registered* with the `loci.common.services.ServiceFactory`¹¹ via the `services.properties`¹² 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
...

```

16.3.3 Using a service

```
OMENotesService service = null;
try {
    ServiceFactory factory = new ServiceFactory();
    service = factory.getInstance(OMENotesService.class);
}
catch (DependencyException de) {
    LOGGER.info("", de);
}

```

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/services/ServiceFactory.java>

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-common/src/loci/common/services/Service.java>

```
}
...
```

16.4 Code generation with xsd-fu

xsd-fu is a Python application designed to digest OME XML schema and produce an object oriented Java infrastructure to ease work with an XML DOM tree. It is usually run automatically when building from source (see *Building from source*) and so running it by hand should not be needed. **xsd-fu** is primarily used to generate the OME-XML model objects, enums and enum handlers, plus the MetadataStore and MetadataRetrieve interfaces and implementations.

16.4.1 Running the code generator

```
$ cd components/xsd-fu
$ ./xsd-fu
Output directory must be specified!
Usage: ./xsd-fu [-n xsd_namespace] [-p package] -o <output_dir> -l <lang> <path/to/ome.xsd...>
Generates Java classes from an OME XML Schema definition.
```

```
Default package: "ome.xml.model"
Default namespace: "xsd:"
```

Examples:

```
./xsd-fu -n 'xs:' -p ome.xml -o ome/xml schemas/ome.xsd
```

Report bugs to OME Devel <ome-devel@lists.openmicroscopy.org.uk>

```
$ cd components/xsd-fu
$ ./xsd-fu -o ../../
Missing subcommand!
Usage: ./xsd-fu <subcommand> ...
Executes an OME-XML Schema definition parsing and code generation subcommand.
```

Available subcommands:

```
java_classes
omexml_metadata
omero_metadata
omero_model
metadata_store
metadata_retrieve
metadata_aggregate
dummy_metadata
filter_metadata
enum_types
enum_handlers
doc_gen
tab_gen
debug
```

Report bugs to OME Devel <ome-devel@lists.openmicroscopy.org.uk>

16.4.2 Generating the OME-XML Java classes

The following sections outline how to generate parts of the OME-XML Java toolchain which are composed of:

- OME model objects

- Enumerations for OME model properties
- Enumeration handlers for regular expression matching of enumeration strings
- Metadata store and Metadata retrieve interfaces for all OME model properties
- Various implementations of Metadata store and/or Metadata retrieve interfaces

All of the above can be generated by this Ant command:

```
$ cd components/ome-xml
$ ant generate-source
```

Run:

```
$ ant generate-source -v
```

to see the command-line options used.

16.4.3 Working with Enumerations and Enumeration Handlers

XsdFu code generates enumeration regular expressions using a flexible [configuration file](#)¹³.

Each enumeration has a key-value listing of regular expression to exact enumeration value matches. For example:

```
[Correction]
".*Pl.*Apo.*" = "PlanApo"
".*Pl.*Flu.*" = "PlanFluor"
"^\\s*Vio.*Corr.*" = "VioletCorrected"
".*S.*Flu.*" = "SuperFluor"
".*Neo.*flu.*" = "Neofluar"
".*Flu.*tar.*" = "Fluotar"
".*Fluo.*" = "Fluor"
".*Flua.*" = "Fluar"
"^\\s*Apo.*" = "Apo"
```

16.4.4 Generate OMERO model specification files

Run **xsd-fu** with the `omero_model` subcommand.

16.4.5 Special Thanks

A special thanks goes out to [Dave Kuhlman](#)¹⁴ for his fabulous work on [generateDS](#)¹⁵ which **xsd-fu** makes heavy use of internally. See [open Trac tickets for Bio-Formats](#)¹⁶ for information on work currently planned or in progress.

For more general guidance about how to contribute to OME projects, see the [Contributing developers documentation](#)¹⁷.

¹³https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/xsd-fu/cfg/enum_handler.cfg

¹⁴<http://www.davekuhlman.org/>

¹⁵<http://www.davekuhlman.org/generateDS.html>

¹⁶<https://trac.openmicroscopy.org.uk/ome/report/44>

¹⁷<http://www.openmicroscopy.org/site/support/contributing/index.html>

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](#)¹⁸. If you have any questions, or would prefer not to use QA, please email the [ome-users mailing list](#)¹⁹. 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.

¹⁸<http://qa.openmicroscopy.org.uk/qa/upload/>

¹⁹<http://www.openmicroscopy.org/site/community/mailing-lists>

DATASET STRUCTURE TABLE

This table shows the extension of the file that you should choose if you want to open/import a dataset in a particular format.

Format name	File to choose	Structure of files
AIM	.aim	Single file
ARF	.arf	Single file
Adobe Photoshop	.psd	Single file
Adobe Photoshop TIFF	.tif, .tiff	Single file
Alicona AL3D	.al3d	Single file
Amersham Biosciences GEL	.gel	Single file
Amira	.am, .amiramesh, .grey, .hx, .labels	Single file
Analyze 7.5	.img, .hdr	One .img file and one similarly-named .hdr file
Andor SIF	.sif	Single file
Animated PNG	.png	Single file
Aperio SVS	.svs	Single file
Audio Video Interleave	.avi	Single file
BD Pathway	.exp, .tif	Multiple files (.exp, .dye, .ltp, ...) plus one or more directories containing .tif and .bmp files
Bio-Rad GEL	.lsc	Single file
Bio-Rad PIC	.pic, .xml, .raw	One or more .pic files and an optional lse.xml file
Bitplane Imaris	.ims	Single file
Bitplane Imaris 3 (TIFF)	.ims	Single file
Bitplane Imaris 5.5 (HDF)	.ims	Single file
Bruker	(no extension)	One 'fid' and one 'acqp' plus several other metadata files and a 'pdata' directory
Burleigh	.img	Single file
Canon RAW	.cr2, .crw, .jpg, .thm, .wav	Single file
CellSens VSI	.vsi, .ets	One .vsi file and an optional directory with a similar name that contains at least one subdirectory with .ets files
CellWorx	.pnl, .htd, .log	One .htd file plus one or more .pnl or .tif files and optionally one or more .log files
Cellomics C01	.c01, .dib	One or more .c01 files
Compix Simple-PCI	.cxd	Single file
DICOM	.dic, .dcm, .dicom, .jp2, .j2ki, .j2kr, .raw, .ima	One or more .dcm or .dicom files
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

Continued on next page

Table 17.1 – continued from previous page

Format name	File to choose	Structure of files
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
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

Continued on next page

Table 17.1 – continued from previous page

Format name	File to choose	Structure of files
Micro-Manager	.tif, .tiff, .txt, .xml	A 'metadata.txt' file plus or or more .tif files
Minolta MRW	.mrw	Single file
Molecular Imaging	.stp	Single file
Multiple Network Graphics	.mng	Single file
NIFTI	.nii, .img, .hdr	A single .nii file or one .img file and a similarly-named .hdr file
NOAA-HRD Gridded Data Format	(no extension)	Single file
NRRD	.nrrd, .nhdr	A single .nrrd file or one .nhdr file and one other file containing the pixels
Nikon Elements TIFF	.tif, .tiff	Single file
Nikon ND2	.nd2	Single file
Nikon NEF	.nef, .tif, .tiff	Single file
Nikon TIFF	.tif, .tiff	Single file
OME-TIFF	.ome.tif, .ome.tiff	One or more .ome.tif files
OME-XML	.ome	Single file
Olympus APL	.apl, .tnb, .mtb, .tif	One .apl file, one .mtb file, one .tnb file, and a directory containing one or more .tif files
Olympus FV1000	.oib, .oif, .pty, .lut	Single .oib file or one .oif file and a similarly-named directory containing .tif/.tiff files
Olympus Fluoview/ABD TIFF	.tif, .tiff	One or more .tif/.tiff files, and an optional .txt file
Olympus SIS TIFF	.tif, .tiff	Single file
Olympus ScanR	.dat, .xml, .tif	One .xml file, one 'data' directory containing .tif/.tiff files, and optionally two .dat files
Olympus Slidebook	.sld, .spl	Single file
Openlab LIFF	.liff	Single file
Openlab RAW	.raw	Single file
Oxford Instruments	.top	Single file
PCX	.pcx	Single file
PICT	.pict, .pct	Single file
POV-Ray	.df3	Single file
Perkin Elmer Densitometer	.hdr, .img	One .hdr file and a similarly-named .img file
PerkinElmer	.ano, .cfg, .csv, .htm, .rec, .tim, .zpo, .tif	One .htm file, several other metadata files (.tim, .ano, .csv, ...) and either .tif files or .2, .3, .4, etc. files
PerkinElmer Operetta	.tif, .tiff, .xml	Directory with XML file and one .tif/.tiff file per plane
Portable Gray Map	.pgm	Single file
Prairie TIFF	.tif, .tiff, .cfg, .xml	One .xml file, one .cfg file, and one or more .tif/.tiff files
Pyramid TIFF	.tif, .tiff	Single file
Quesant AFM	.afm	Single file
QuickTime	.mov	Single file
RHK Technologies	.sm2, .sm3	Single file
SBIG	(no extension)	Single file
SM Camera	(no extension)	Single file
SPCImage Data	.sdt	Single file
SPIDER	.spi	Single file
Seiko	.xqd, .xqf	Single file
SimplePCI TIFF	.tif, .tiff	Single file
Simulated data	.fake	Single file
Tagged Image File Format	.tif, .tiff, .tf2, .tf8, .btf	Single file
Text	.txt, .csv	Single file
TillVision	.vws, .pst, .inf	One .vws file and possibly one similarly-named directory
TopoMetrix	.tfr, .ffr, .zfr, .zfp, .2fl	Single file
Trestle	.tif	One .tif file plus several other similarly-named files (e.g. <i>FocalPlane</i> -, .sld, .slx, .ROI)
Truevision Targa	.tga	Single file
UBM	.pr3	Single file
Unisoku STM	.hdr, .dat	One .HDR file plus one similarly-named .DAT file

Continued on next page

Table 17.1 – continued from previous page

Format name	File to choose	Structure of files
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

17.1 Flex Support

OMERO.importer supports importing analyzed Flex files from an Opera system.

Basic configuration is done via the `importer.ini`. Once the user has run the Importer once, this file will be in the following location:

- `C:\Documents and Settings\\omero\importer.ini`

The user will need to modify or add the `[FlexReaderServerMaps]` section of the INI file as follows:

```
...
[FlexReaderServerMaps]
CIA-1 = \\hostname1\mount;\\archivehost1\mount
CIA-2 = \\hostname2\mount;\\archivehost2\mount
```

where the *key* of the INI file line is the value of the “Host” tag in the `.mea` measurement XML file (here: `<Host name="CIA-1">`) and the value is a semicolon-separated list of *escaped* UNC path names to the Opera workstations where the Flex files reside.

Once this resolution has been encoded in the configuration file **and** you have restarted the importer, you will be able to select the `.mea` measurement XML file from the Importer user interface as the import target.

SUPPORTED FORMATS

Ratings legend and definitions

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>3i SlideBook</i>	.sld	▲	▼	▼	▲	▼	✘	✘
<i>Andor Bio-Imaging Division (ABD) TIFF</i>	.tif	▲	▲	■	▼	■	✘	✘
<i>AIM</i>	.aim	■	▲	▼	▼	▼	✘	✘
<i>Alicona 3D</i>	.al3d	▲	▲	▲	▼	■	✘	✘
<i>Amersham Bio-sciences Gel</i>	.gel	▲	▲	■	▼	▼	✘	✘
<i>Amira Mesh</i>	.am, .ami- ramesh, .grey, .hx, .labels	▲	■	▼	▼	▼	✘	✘
<i>Analyze 7.5</i>	.img, .hdr	▲	■	▲	■	▼	✘	✘
<i>Animated PNG</i>	.png	▲	▲	▲	■	▼	✓	✓
<i>Aperio AFI</i>	.afi, .svs	▲	▲	▲	■	■	✘	✘
<i>Aperio SVS TIFF</i>	.svs	▲	▲	▲	■	■	✘	✘
<i>Applied Precision CellWorX</i>	.htd, .pnl	▲	■	■	▼	▼	✘	✘
<i>AVI (Audio Video Interleave)</i>	.avi	■	▲	▼	▲	▼	✓	✓
<i>Axon Raw Format</i>	.arf	▲	▼	▲	▼	▼	✘	✘
<i>BD Pathway</i>	.exp, .tif	▲	▲	■	▼	■	✘	✘
<i>Becker & Hickl SPCImage</i>	.sdt	▲	▲	■	▼	▼	✘	✘
<i>Bio-Rad Gel</i>	.lsc	■	▼	▼	▼	▼	✘	✘
<i>Bio-Rad PIC</i>	.pic, .raw, .xml	▲	▲	▲	▲	▲	✘	✘
<i>Bio-Rad SCN</i>	.scn	▲	▼	▼	▼	▼	✘	✘
<i>Bitplane Imaris</i>	.ims	▲	▲	■	▼	▼	✘	✘
<i>Bruker MRI</i>		■	▲	▼	■	▼	✘	✘
<i>Burleigh</i>	.img	■	▼	▼	▼	▼	✘	✘
<i>Canon DNG</i>	.cr2, .crw	■	■	▼	▼	▼	✘	✘
<i>Cellomics</i>	.c01	▲	▼	▼	▼	▼	✘	✘

Continued on next page

Table 18.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>cellSens VSI</i>	.vsi	▲	■	▲	▲	▲	✘	✘
<i>CellVoyager</i>	.xml, .tif	▲	■	■	▲	■	✘	✘
<i>DeltaVision</i>	.dv, .r3d	▲	■	■	■	■	✘	✘
<i>DICOM</i>	.dcm, .dicom	▲	▲	▲	■	▲	✘	✓
<i>ECAT7</i>	.v	■	■	▲	▲	▲	✘	✘
<i>EPS (Encapsulated PostScript)</i>	.eps, .epsi, .ps	■	■	■	▲	▲	✓	✓
<i>Evotec/PerkinElmer Opera Flex</i>	.flex, .mea, .res	▲	▲	▲	▲	▲	✘	✘
<i>FEI</i>	.img	▲	▲	▲	▲	▲	✘	✘
<i>FEI TIFF</i>	.tiff	▲	■	■	▲	▲	✘	✘
<i>FITS (Flexible Image Transport System)</i>	.fits	▲	▲	▲	■	▲	✘	✓
<i>Gatan Digital Micrograph</i>	.dm3	▲	■	▲	▲	▲	✘	✘
<i>Gatan Digital Micrograph 2</i>	.dm2	■	▲	▲	▲	■	✘	✘
<i>GIF (Graphics Interchange Format)</i>	.gif	▲	▲	▲	▲	▲	✘	✓
<i>Hamamatsu Aquacosmos NAF</i>	.naf	■	▲	▲	▲	▲	✘	✘
<i>Hamamatsu HIS</i>	.his	■	▲	▲	▲	▲	✘	✘
<i>Hamamatsu ndpi</i>	.ndpi	▲	■	■	▲	▲	✘	✘
<i>Hamamatsu VMS</i>	.vms	■	■	▲	▲	▲	✘	✘
<i>Hitachi S-4800</i>	.txt, .tif, .bmp, .jpg	▲	▲	▲	▲	▲	✘	✘
<i>ICS (Image Cytometry Standard)</i>	.ics, .ids	▲	▲	▲	▲	▲	✓	✓
<i>Imacon</i>	.fff	▲	■	▲	▲	■	✘	✘
<i>ImagePro Sequence</i>	.seq	▲	▲	▲	▲	▲	✘	✘
<i>ImagePro Workspace</i>	.ipw	▲	▲	▲	▲	▲	✘	✘
<i>IMAGIC</i>	.hed, .img	▲	▲	▲	■	■	✘	✘
<i>IMOD</i>	.mod	■	■	▲	▲	▲	✘	✘
<i>Improvision Openlab LIFF</i>	.liff	▲	■	▲	■	▲	✘	✘
<i>Improvision Openlab Raw</i>	.raw	▲	▲	▲	▲	▲	✘	✘
<i>Improvision TIFF</i>	.tif	▲	▲	▲	▲	■	✘	✘
<i>Imspector OBF</i>	.obf, .msr	▲	■	▲	▲	▲	✘	✓
<i>InCell 1000</i>	.xdce, .tif	▲	▲	■	▲	■	✘	✘
<i>InCell 3000</i>	.frm	■	▲	▲	▲	▲	✘	✘
<i>INR</i>	.inr	▲	■	▲	▲	▲	✘	✘

Continued on next page

Table 18.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>Inveon</i>	.hdr	▲	▲	■	▼	▼	✘	✘
<i>IPLab</i>	.ipl	▲	▲	▲	▼	▼	✘	✘
<i>IPLab-Mac</i>	.ipm	▲	■	▲	▼	▼	✘	✘
<i>JEOL</i>	.dat, .img, .par	■	▼	▼	▼	▼	✘	✘
<i>JPEG</i>	.jpg	▲	▼	▲	▲	▼	✓	✓
<i>JPEG 2000</i>	.jp2	▲	▼	▲	■	▼	✓	✓
<i>JPk</i>	.jpk	■	▼	▼	▼	▼	✘	✘
<i>JPx</i>	.jpx	▲	▲	▲	■	▼	✘	✘
<i>Khoros VIFF (Visualization Image File Format) Bitmap</i>	.xv	■	▼	▼	▼	▼	✘	✘
<i>Kodak BIP</i>	.bip	▲	■	▼	▼	▼	✘	✘
<i>Lambert Instruments FLIM</i>	.fli	▲	▲	▲	▼	■	✘	✘
<i>LaVision Inspector</i>	.msr	▼	▼	▼	▼	▼	✘	✘
<i>Leica LCS LEI</i>	.lei, .tif	▲	▲	▲	▲	▲	✘	✘
<i>Leica LAS AF LIF (Leica Image File Format)</i>	.lif	▲	▲	▲	■	▲	✘	✘
<i>Leica SCN</i>	.scn	■	■	■	▼	■	✘	✘
<i>LEO</i>	.sxm	■	▼	■	▼	▼	✘	✘
<i>Li-Cor L2D</i>	.l2d, .tif, .scn	▲	▼	■	■	■	✘	✘
<i>LIM (Laboratory Imaging/Nikon)</i>	.lim	■	▼	▼	▼	▼	✘	✘
<i>MetaMorph 7.5 TIFF</i>	.tiff	▲	▲	▲	▼	■	✘	✘
<i>MetaMorph Stack (STK)</i>	.stk, .nd	▲	▲	▲	▲	■	✘	✘
<i>MIAS (Maia Scientific)</i>	.tif	▲	▼	▼	▼	▼	✘	✘
<i>Micro-Manager</i>	.tif, .txt, .xml	▲	▲	▲	▼	■	✘	✓
<i>MINC MRI</i>	.mnc	▲	■	■	■	▼	✘	✘
<i>Minolta MRW</i>	.mrw	▲	■	▼	▼	▼	✘	✘
<i>MNG (Multiple-image Network Graphics)</i>	.mng	■	■	▲	▼	▼	✘	✓
<i>Molecular Imaging</i>	.stp	■	▼	▼	▼	▼	✘	✘
<i>MRC (Medical Research Council)</i>	.mrc	▲	▲	▲	■	■	✘	✘
<i>NEF (Nikon Electronic Format)</i>	.nef, .tif	▲	▲	▼	▼	▼	✘	✘
<i>NiFTI</i>	.img, .hdr	▲	■	▲	■	▼	✘	✘
<i>Nikon Elements TIFF</i>	.tiff	■	■	▼	▼	▼	✘	✘
<i>Nikon EZ-C1 TIFF</i>	.tiff	▲	▲	■	▼	▼	✘	✘

Continued on next page

Table 18.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>Nikon NIS-Elements ND2</i>	.nd2	▲	▲	▼	▲	▲	✘	✘
<i>NRRD (Nearly Raw Raster Data)</i>	.nrrd, .nhdr, .raw, .txt	▲	▲	▲	▼	▲	✘	✓
<i>Olympus CellR/APL</i>	.apl, .mtb, .tnb, .tif, .obsep	▲	▼	▼	▼	▼	✘	✘
<i>Olympus FluoView FV1000</i>	.oib, .oif	▲	▲	■	■	▲	✘	✘
<i>Olympus FluoView TIFF</i>	.tif	▲	▲	▲	■	■	✘	✘
<i>Olympus ScanR</i>	.xml, .dat, .tif	▲	■	■	▼	▼	✘	✘
<i>Olympus SIS TIFF</i>	.tif	■	■	■	▼	■	✘	✘
<i>OME-TIFF</i>	.ome.tiff ¹	▲	▲	▲	▼	▲	✓	✓
<i>OME-XML</i>	.ome ²	▲	▲	▲	▼	▲	✓	✓
<i>Oxford Instruments</i>	.top	■	▼	▼	▼	▼	✘	✘
<i>PCORAW</i>	.pcoraw, .rec	▲	■	▲	▼	■	✘	✘
<i>PCX (PC Paintbrush)</i>	.pcx	▲	▼	▼	▼	▼	✘	✓
<i>Perkin Elmer Densitometer</i>	.pds	■	■	■	▼	▼	✘	✘
<i>PerkinElmer Operetta</i>	.tif, .xml	▲	■	■	▼	■	✘	✘
<i>PerkinElmer Ultra-View</i>	.tif, .2, .3, .4, etc.	▲	■	▼	▼	▼	✘	✘
<i>PGM (Portable Gray Map)</i>	.pgm	▲	■	▲	■	▼	✘	✓
<i>Adobe Photoshop PSD</i>	.psd	■	■	■	■	▼	✘	✘
<i>Photoshop TIFF</i>	.tif, .tiff	■	■	■	■	■	✘	✘
<i>PicoQuant Bin</i>	.bin	■	▼	▼	▼	▼	✘	✘
<i>PICT (Macintosh Picture)</i>	.pict	▲	▼	▼	▲	▼	✘	✓
<i>PNG (Portable Network Graphics)</i>	.png	▲	■	▲	▲	▼	✓	✓
<i>Prairie Technologies TIFF</i>	.tif, .xml, .cfg	▲	■	■	▼	■	✘	✘
<i>Quesant</i>	.afm	■	▼	▼	▼	▼	✘	✘
<i>QuickTime Movie</i>	.mov	■	▲	▼	▲	▼	✓	✓
<i>RHK</i>	.sm2, .sm3	■	▼	▼	▼	▼	✘	✘
<i>SBIG</i>		▲	■	▲	▼	▼	✘	✘
<i>Seiko</i>	.xqd, .xqf	■	▼	▼	▼	▼	✘	✘

Continued on next page

¹<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

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

Table 18.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>SimplePCI & HCIImage</i>	.xcd							
<i>SimplePCI & HCIImage TIFF</i>	.tiff							
<i>SM Camera</i>								
<i>SPIDER</i>	.spi, .stk							
<i>Targa</i>	.tga							
<i>Text</i>	.txt							
<i>TIFF (Tagged Image File Format)</i>	.tif							
<i>TillPhotonics TillVision</i>	.vws							
<i>Topometrix</i>	.tfr, .ffr, .zfr, .zfp, .2fl							
<i>Trestle</i>	.tif, .sld, .jpg							
<i>UBM</i>	.pr3							
<i>Unisoku</i>	.dat, .hdr							
<i>Varian FDF</i>	.fdf							
<i>VG SAM</i>	.dti							
<i>VisiTech XYS</i>	.xys, .html							
<i>Volocity</i>	.mvd2							
<i>Volocity Library Clipping</i>	.acff							
<i>WA-TOP</i>	.wat							
<i>Windows Bitmap</i>	.bmp							
<i>Woolz</i>	.wlz							
<i>Zeiss AxioVision TIFF</i>	.xml, .tiff							
<i>Zeiss AxioVision ZVI (Zeiss Vision Image)</i>	.zvi							
<i>Zeiss CZI</i>	.dzi ³							
<i>Zeiss LSM (Laser Scanning Microscope) 510/710</i>	.lsm, .mdb							

Bio-Formats currently supports 136 formats

Ratings legend and definitions	
	Outstanding
	Very good
	Good
	Fair
	Poor

³<http://www.zeiss.com/czi>

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).

BSD This indicates whether format is BSD-licensed. By default, format readers and writers are GPL-licensed.

18.1 3i SlideBook

Extensions: .sld

Developer: [Intelligent Imaging Innovations](#)⁴

Owner: [Intelligent Imaging Innovations](#)⁵

Support

BSD-licensed: ❌

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](#)⁶

Notes:

⁴<http://www.intelligent-imaging.com/>

⁵<http://www.intelligent-imaging.com/>

⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SlidebookReader.java>

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](#)⁷


18.2 Andor Bio-Imaging Division (ABD) TIFF

Extensions: .tif

Developer: Andor Bioimaging Department

Owner: [Andor Technology](#)⁸

Support

BSD-licensed: 

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](#)⁹

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.

18.3 AIM

Extensions: .aim

Developer: [SCANCO Medical AG](#)¹⁰

Support

BSD-licensed: 

⁷<https://www.slidebook.com>

⁸<http://www.andor.com/>

⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>

¹⁰<http://www.scanco.ch>

Export: ❌

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](#)¹¹

Notes:

18.4 Alicona 3D

Extensions: .al3d

Owner: [Alicona Imaging](#)¹²

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 1.0

Supported Metadata Fields: *Alicona 3D*


We currently have:

- an [AL3D specification document](#)¹³ (v1.0, from 2003, in PDF)
- a few AL3D datasets

We would like to have:


- more AL3D datasets (Z series, T series, 16-bit)

Ratings

Pixels: 

Metadata: 


Openness: 

Presence: 

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/AIMReader.java>

¹²<http://www.alicon.com/>

¹³<http://www.alicon.com/home/fileadmin/alicon.com/downloads/AL3DFormat.pdf>

Utility: 

Additional Information

Source Code: [AliconaReader.java](#)¹⁴

Notes:

Known deficiencies:

- Support for 16-bit AL3D images is present, but has never been tested.
- Texture data is currently ignored.


18.5 Amersham Biosciences Gel

Extensions: .gel

Developer: Molecular Dynamics

Owner: [GE Healthcare Life Sciences](#)¹⁵

Support

BSD-licensed: 

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: 

Additional Information

Source Code: [GelReader.java](#)¹⁶

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](#)¹⁷

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/AliconaReader.java>

¹⁵<http://www.gelifesciences.com/>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/GelReader.java>

¹⁷<http://www.awaresystems.be/imaging/tiff/tifftags/docs/gel.html>

18.6 Amira Mesh

Extensions: .am, .amiramesh, .grey, .hx, .labels

Developer: [Visage Imaging](#)¹⁸

Support

BSD-licensed: ❌

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](#)¹⁹

Notes:

18.7 Analyze 7.5

Extensions: .img, .hdr

Developer: [Mayo Foundation Biomedical Imaging Resource](#)²⁰

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Analyze 7.5*

We currently have:

- an *Analyze 7.5* specification document²¹
- several *Analyze 7.5* datasets

¹⁸<http://www.amiravis.com/>

¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/AmiraReader.java>

²⁰<http://www.mayo.edu/bir>

²¹http://analyzedirect.com/support/10.0Documents/Analyze_Resource_01.pdf

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [AnalyzeReader.java](#)²²

Notes:

18.8 Animated PNG

Extensions: .png

Developer: [The Animated PNG Project](#)²³

Support

BSD-licensed:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Animated PNG*

Freely Available Software:

- [Firefox 3+](#)²⁴
- [Opera 9.5+](#)²⁵
- [KSquirrel](#)²⁶

We currently have:

- [a specification document](#)²⁷
- several APNG files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/AnalyzeReader.java>

²³<http://www.animatedpng.com/>

²⁴<http://www.mozilla.com/firefox>

²⁵<http://www.opera.com/download>

²⁶<http://ksquirrel.sourceforge.net/download.php>

²⁷http://wiki.mozilla.org/APNG_Specification

Source Code: [APNGReader.java](#)²⁸


Notes:

18.9 Aperio AFI

Extensions: .afi, .svs

Owner: [Aperio](#)²⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *Aperio AFI*

We currently have:


- several AFI datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [AFIReader.java](#)³⁰

Notes:

See also:


[Aperio ImageScope](#)³¹

18.10 Aperio SVS TIFF

Extensions: .svs

Owner: [Aperio](#)³²

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 8.0, 8.2, 9.0

Supported Metadata Fields: *Aperio SVS TIFF*

We currently have:

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/APNGReader.java>

²⁹<http://www.aperio.com/>

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/AFIReader.java>


³¹<http://www.leicabiosystems.com/index.php?id=8991>


³²<http://www.aperio.com/>


- many SVS datasets
- an SVS specification document
- the ability to generate additional SVS datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SVSReader.java](#)³³

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](#)³⁴

18.11 Applied Precision CellWorX

Extensions: .htd, .pnl

Developer: [Applied Precision](#)³⁵

Support

BSD-licensed: 

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: 

Presence: 

Utility: 

³³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SVSReader.java>

³⁴<http://www.leicabiosystems.com/index.php?id=8991>

³⁵<http://www.api.com>

Additional Information

Source Code: [CellWorxReader.java](#)³⁶


Notes:

18.12 AVI (Audio Video Interleave)

Extensions: .avi

Developer: [Microsoft](#)³⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *AVI (Audio Video Interleave)*

Freely Available Software:

- [AVI Reader plugin for ImageJ](#)³⁸
- [AVI Writer plugin for ImageJ](#)³⁹


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

Source Code: [AVIReader.java](#)⁴⁰

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)

³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/CellWorxReader.java>

³⁷<http://www.microsoft.com/>

³⁸<http://rsb.info.nih.gov/ij/plugins/avi-reader.html>

³⁹<http://rsb.info.nih.gov/ij/plugins/avi.html>

⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/AVIReader.java>

– JPEG

See also:

[AVI RIFF File Reference](#)⁴¹ [AVI on Wikipedia](#)⁴²

18.13 Axon Raw Format

Extensions: .arf

Owner: INDEC BioSystems⁴³

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Axon Raw Format*

We currently have:

- one ARF dataset
- a [specification document](#)⁴⁴

We would like to have:

- more ARF datasets

Ratings

Pixels: ▲

Metadata: ▼

Openness: ▲

Presence: ▼

Utility: ▼

Additional Information

Source Code: [ARFReader.java](#)⁴⁵

Notes:

18.14 BD Pathway

Extensions: .exp, .tif

Owner: BD Biosciences⁴⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

⁴¹<http://msdn2.microsoft.com/en-us/library/ms779636.aspx>

⁴²http://en.wikipedia.org/wiki/Audio_Video_Interleave

⁴³<http://www.indecbiosystems.com/>

⁴⁴http://www.indecbiosystems.com/imagingworkbench/ApplicationNotes/IWAppNote11-ARF_File_Format.pdf

⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ARFReader.java>

⁴⁶<http://www.bdbiosciences.com>

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](#)⁴⁷

Notes:

18.15 Becker & Hickl SPCImage

Extensions: .sdt

Owner: [Becker-Hickl](#)⁴⁸

Support

BSD-licensed:

Export:

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*⁴⁹ software
- a large number of SDT datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

⁴⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BDReader.java>

⁴⁸<http://www.becker-hickl.de/>

⁴⁹<http://www.becker-hickl.de/software/tcspc/softwaretcspcspecial.htm>

Additional Information

Source Code: [SDTReader.java](#)⁵⁰

Notes:


Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

18.16 Bio-Rad Gel

Extensions: .lsc

Owner: [Bio-Rad](#)⁵¹

Support

BSD-licensed: 

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:


- a Bio-Rad Gel specification
- more Bio-Rad Gel files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [BioRadGelReader.java](#)⁵²

Notes:

18.17 Bio-Rad PIC

Extensions: .pic, .raw, .xml

Developer: Bio-Rad

Owner: [Carl Zeiss, Inc.](#)⁵³

Support

BSD-licensed: 

⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SDTReader.java>

⁵¹<http://www.bio-rad.com>

⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BioRadGelReader.java>

⁵³<http://www.zeiss.com/>

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Bio-Rad PIC*

Freely Available Software:

- [Bio-Rad PIC reader plugin for ImageJ](#)⁵⁴

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: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [BioRadReader.java](#)⁵⁵

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](#)⁵⁶
 - [SVI Huygens](#)⁵⁷


18.18 Bio-Rad SCN

Extensions: .scn

Developer: Bio-Rad

Owner: [Bio-Rad](#)⁵⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Bio-Rad SCN*

We currently have:

- a few Bio-Rad .scn files

⁵⁴<http://rsb.info.nih.gov/ij/plugins/biorad.html>

⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BioRadReader.java>

⁵⁶<http://www.bitplane.com/>

⁵⁷<http://svi.nl/>

⁵⁸<http://www.bio-rad.com>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [BioRadSCNReader.java](#)⁵⁹

Notes:

18.19 Bitplane Imaris

Extensions: .ims

Owner: [Bitplane](#)⁶⁰

Support

BSD-licensed:

Export:

Officially Supported Versions: 2.7, 3.0, 5.5

Supported Metadata Fields: *Bitplane Imaris*

We currently have:

- an [Imaris \(RAW\) specification document](#)⁶¹ (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

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BioRadSCNReader.java>

⁶⁰<http://www.bitplane.com/>

⁶¹<http://flash.bitplane.com/wda/interfaces/public/faqs/faqsview.cfm?inCat=0&inQuestionID=104>

Source Code: [ImarisHDFReader.java](#)⁶², [ImarisTiffReader.java](#)⁶³, [ImarisReader.java](#)⁶⁴


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)

18.20 Bruker MRI

Developer: [Bruker](#)⁶⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Bruker MRI*

Freely Available Software:

- [Bruker plugin for ImageJ](#)⁶⁶


We currently have:

- a few Bruker MRI datasets

We would like to have:

- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [BrukerReader.java](#)⁶⁷

Notes:

18.21 Burleigh

Extensions: .img

Owner: Burleigh Instruments

Support

⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImarisHDFReader.java>


⁶³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImarisTiffReader.java>

⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

⁶⁵<http://www.bruker.com/>

⁶⁶<http://rsbweb.nih.gov/ij/plugins/bruker.html>

⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BrukerReader.java>

BSD-licensed: 

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](#)⁶⁸

Notes:

18.22 Canon DNG

Extensions: .cr2, .crw

Developer: [Canon](#)⁶⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Canon DNG*

Freely Available Software:

- [IrfanView](#)⁷⁰

We currently have:

- a few example datasets





We would like to have:

- an official specification document

⁶⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/BurleighReader.java>

⁶⁹<http://canon.com>


⁷⁰<http://www.irfanview.com/>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [DNGReader.java](#)⁷¹

Notes:

18.23 Cellomics

Extensions: .c01

Developer: [Thermo Fisher Scientific](#)⁷²**Support**BSD-licensed: Export: 

Officially Supported Versions:



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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [CellomicsReader.java](#)⁷³

Notes:

⁷¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/DNGReader.java>⁷²<http://www.thermofisher.com/>⁷³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/CellomicsReader.java>

18.24 cellSens VSI

Extensions: .vsi

Developer: Olympus⁷⁴

Support

BSD-licensed: ✖

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: ▼

Utility: ▼

Additional Information

Source Code: *CellSensReader.java*⁷⁵

Notes:

18.25 CellVoyager

Extensions: .xml, .tif

Owner: Yokogawa⁷⁶

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *CellVoyager*

We currently have:

- a few example datasets

We would like to have:

Ratings




Pixels: ▲

Metadata: □

⁷⁴<http://www.olympus.com/>

⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/CellSensReader.java>


⁷⁶<http://www.yokogawa.com/>

Openness: Presence: Utility: **Additional Information**Source Code: [CellVoyagerReader.java](#)⁷⁷

Notes:

18.26 DeltaVision

Extensions: .dv, .r3d

Owner: [Applied Precision](#)⁷⁸**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *DeltaVision*

Freely Available Software:

- [DeltaVision Opener plugin for ImageJ](#)⁷⁹




Sample Datasets:

- [Applied Precision Datasets](#)⁸⁰

We currently have:

- a DV specification document (v2.10 or newer, in HTML)
- numerous DV datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [DeltavisionReader.java](#)⁸¹

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

- The Deltavision format is based on the Medical Research Council (MRC) file format.
- Commercial applications that support DeltaVision include:

⁷⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/CellVoyagerReader.java>⁷⁸<http://www.api.com/>⁷⁹<http://rsb.info.nih.gov/ij/plugins/track/delta.html>⁸⁰<http://www.api.com/downloads/software/softworxexplorer2.0/SampleImages.zip>⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/DeltavisionReader.java>

- Bitplane Imaris⁸²
- SVI Huygens⁸³
- Image-Pro Plus⁸⁴

See also:


DeltaVision system description⁸⁵

18.27 DICOM

Extensions: .dcm, .dicom

Developer: National Electrical Manufacturers Association⁸⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *DICOM*

Freely Available Software:

- OsiriX Medical Imaging Software⁸⁷
- ezDICOM⁸⁸
- Wikipedia's list of freeware health software⁸⁹

Sample Datasets:


- MRI Chest from FreeVol-3D web site⁹⁰
- Medical Image Samples from Sebastien Barre's Medical Imaging page⁹¹
- DICOM sample image sets from OsiriX web site⁹²

We currently have:


- DICOM specification documents⁹³ (PS 3 - 2007, from 2006 December 28, in DOC and PDF)
- numerous DICOM datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

⁸²<http://www.bitplane.com/>

⁸³<http://svi.nl/>

⁸⁴<http://www.mediacy.com/>

⁸⁵<http://api.com/deltavision.asp>

⁸⁶<http://www.nema.org/>

⁸⁷<http://www.osirix-viewer.com/>

⁸⁸<http://www.sph.sc.edu/comd/rorden/ezdicom.html>

⁸⁹http://en.wikipedia.org/wiki/List_of_freeware_health_software#Imaging.2FVisualization

⁹⁰http://members.tripod.com/%7Eclunis_immensus/free3d/hk-40.zip

⁹¹<http://www.barre.nom.fr/medical/samples/>

⁹²<http://osirix-viewer.com/datasets/>

⁹³<http://medical.nema.org/dicom/2007/>

Additional Information

Source Code: [DicomReader.java](#)⁹⁴

Notes:

- DICOM stands for “Digital Imaging and Communication in Medicine”.
- Bio-Formats supports both compressed and uncompressed DICOM files.

See also:


[DICOM homepage](#)⁹⁵

18.28 ECAT7

Extensions: .v

Developer: [Siemens](#)⁹⁶

Support

BSD-licensed: 

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: 

Presence: 

Utility: 

Additional Information

Source Code: [Ecat7Reader.java](#)⁹⁷

Notes:

18.29 EPS (Encapsulated PostScript)

Extensions: .eps, .epsi, .ps

Developer: [Adobe](#)⁹⁸

Support


⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/DicomReader.java>

⁹⁵<http://medical.nema.org/>

⁹⁶<http://www.siemens.com>

⁹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/Ecat7Reader.java>

⁹⁸<http://www.adobe.com/>

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *EPS (Encapsulated PostScript)*

Freely Available Software:


- [EPS Writer plugin for ImageJ](#)⁹⁹

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](#)¹⁰⁰ Source Code: [EPSWriter.java](#)¹⁰¹

Notes:


- Bio-Formats can save individual planes as EPS.
- Certain types of compressed EPS files are not supported.

18.30 Evotec/PerkinElmer Opera Flex

Extensions: .flex, .mea, .res

Developer: [Evotec Technologies](#), now [PerkinElmer](#)¹⁰²

Support

BSD-licensed: 

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

⁹⁹<http://rsb.info.nih.gov/ij/plugins/eps-writer.html>

¹⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/EPSReader.java>

¹⁰¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/EPSWriter.java>

¹⁰²<http://www.perkinelmer.com/>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [FlexReader.java](#)¹⁰³

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)¹⁰⁴

18.31 FEI

Extensions: .img

Developer: [FEI](#)¹⁰⁵**Support**BSD-licensed: 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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [FEIReader.java](#)¹⁰⁶

Notes:

¹⁰³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FlexReader.java>

¹⁰⁴<http://www.luratech.com/>

¹⁰⁵<http://www.fei.com/>

¹⁰⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FEIReader.java>

18.32 FEI TIFF

Extensions: .tiff

Developer: FEI¹⁰⁷

Support

BSD-licensed: ✖

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: ■

Presence: ▼

Utility: ▼

Additional Information

Source Code: FEITiffReader.java¹⁰⁸

Notes:

18.33 FITS (Flexible Image Transport System)

Extensions: .fits

Developer: National Radio Astronomy Observatory¹⁰⁹

Support

BSD-licensed: ✔

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *FITS (Flexible Image Transport System)*

We currently have:

- a *FITS* specification document¹¹⁰ (NOST 100-2.0, from 1999 March 29, in HTML)
- several FITS datasets

We would like to have:

Ratings





Pixels: ▲

¹⁰⁷<http://www.fei.com>

¹⁰⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FEITiffReader.java>

¹⁰⁹<http://www.nrao.edu/>

¹¹⁰http://archive.stsci.edu/fits/fits_standard/


Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [FitsReader.java](#)¹¹¹

Notes:

See also:[MAST:FITS homepage](#)¹¹² [FITS Support Office](#)¹¹³

18.34 Gatan Digital Micrograph

Extensions: .dm3

Owner: [Gatan](#)¹¹⁴**Support**BSD-licensed: Export: 

Officially Supported Versions: 3

Supported Metadata Fields: *Gatan Digital Micrograph*

Freely Available Software:





- [DM3 Reader plugin for ImageJ](#)¹¹⁵
- [EMAN](#)¹¹⁶

We currently have:

- Gatan's ImageReader2003 code (from 2003, in C++)
- numerous DM3 datasets

We would like to have:

- a DM3 specification document

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [GatanReader.java](#)¹¹⁷¹¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/FitsReader.java>¹¹²<http://archive.stsci.edu/fits/>¹¹³<http://fits.gsfc.nasa.gov/>¹¹⁴<http://www.gatan.com/>¹¹⁵http://rsb.info.nih.gov/ij/plugins/DM3_Reader.html¹¹⁶<http://blake.bcm.edu/EMAN/>¹¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/GatanReader.java>

Notes:


Commercial applications that support .dm3 files include [Datasqueeze](#)¹¹⁸.

18.35 Gatan Digital Micrograph 2

Extensions: .dm2

Developer: [Gatan](#)¹¹⁹

Support

BSD-licensed: 

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](#)¹²⁰

Notes:

18.36 GIF (Graphics Interchange Format)

Extensions: .gif

Developer: [CompuServe](#)¹²¹

Owner: [Unisys](#)¹²²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

¹¹⁸<http://www.datasqueezesoftware.com/>

¹¹⁹<http://www.gatan.com>

¹²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/GatanDM2Reader.java>

¹²¹<http://www.compuserve.com/>

¹²²<http://www.unisys.com/>

Supported Metadata Fields: *GIF (Graphics Interchange Format)*

Freely Available Software:


- Animated GIF Reader plugin for ImageJ¹²³
- GIF Stack Writer plugin for ImageJ¹²⁴

We currently have:


- a GIF specification document¹²⁵ (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](#)¹²⁶

Notes:

18.37 Hamamatsu Aquacosmos NAF

Extensions: .naf

Developer: [Hamamatsu](#)¹²⁷

Support

BSD-licensed: 

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: 

Openness: 



¹²³<http://rsb.info.nih.gov/ij/plugins/agr.html>

¹²⁴<http://rsb.info.nih.gov/ij/plugins/gif-stack-writer.html>

¹²⁵<http://tronche.com/computer-graphics/gif/>

¹²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/GIFReader.java>


¹²⁷<http://www.hamamatsu.com/>

Presence: Utility: **Additional Information**Source Code: [NAFReader.java](#)¹²⁸

Notes:

18.38 Hamamatsu HIS

Extensions: .his

Owner: [Hamamatsu](#)¹²⁹**Support**BSD-licensed: 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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [HISReader.java](#)¹³⁰

Notes:

18.39 Hamamatsu ndpi

Extensions: .ndpi

Developer: [Hamamatsu](#)¹³¹**Support**BSD-licensed: ¹²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NAFReader.java>¹²⁹<http://www.hamamatsu.com>¹³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/HISReader.java>¹³¹<http://www.hamamatsu.com>

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu ndpi*

Freely Available Software:

- [NDP.view](#)¹³²

Sample Datasets:

- [OpenSlide](#)¹³³

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](#)¹³⁴

Notes:

18.40 Hamamatsu VMS

Extensions: `.vms`

Developer: [Hamamatsu](#)¹³⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu VMS*

Sample Datasets:

- [OpenSlide](#)¹³⁶

We currently have:

- a few example datasets
- [developer documentation from the OpenSlide project](#)¹³⁷

We would like to have:

¹³²http://www.olympusamerica.com/seg_section/seg_vm_downloads.asp

¹³³<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu/>

¹³⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NDPIReader.java>

¹³⁵<http://www.hamamatsu.com>


¹³⁶<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu-vms/>


¹³⁷<http://openslide.org/Hamamatsu%20format/>


- an official specification document
- more example datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [HamamatsuVMSReader.java](#)¹³⁸


Notes:

18.41 Hitachi S-4800

Extensions: .txt, .tif, .bmp, .jpg

Developer: [Hitachi](#)¹³⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *Hitachi S-4800*

We currently have:

- several Hitachi S-4800 datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [HitachiReader.java](#)¹⁴⁰

Notes:

¹³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/HamamatsuVMSReader.java>

¹³⁹http://www.hitachi-hta.com/sites/default/files/technotes/Hitachi_4800_STEM.pdf


¹⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/HitachiReader.java>

18.42 ICS (Image Cytometry Standard)

Extensions: .ics, .ids

Developer: P. Dean et al.

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *ICS (Image Cytometry Standard)*

Freely Available Software:


- [Libics \(ICS reference library\)](#)¹⁴¹
- [ICS Opener plugin for ImageJ](#)¹⁴²
- [IrfanView](#)¹⁴³

We currently have:

- numerous ICS datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [ICSReader.java](#)¹⁴⁴ Source Code: [ICSWriter.java](#)¹⁴⁵

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](#)¹⁴⁶
- [SVI Huygens](#)¹⁴⁷

18.43 Imacon

Extensions: .fff

Owner: [Hasselblad](#)¹⁴⁸

¹⁴¹<http://libics.sourceforge.net/>

¹⁴²http://valelab.ucsf.edu/%7Enstuurman/IJplugins/Ics_Opener.html

¹⁴³<http://www.irfanview.com/>

¹⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/ICSReader.java>

¹⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/ICSWriter.java>

¹⁴⁶<http://www.bitplane.com/>

¹⁴⁷<http://svi.nl/>

¹⁴⁸<http://www.hasselbladusa.com/>

Support

BSD-licensed: ❌

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 InformationSource Code: [ImaconReader.java](#)¹⁴⁹

Notes:

18.44 ImagePro Sequence

Extensions: .seq

Owner: [Media Cybernetics](#)¹⁵⁰**Support**

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *ImagePro Sequence*

We currently have:

- the *Image-Pro Plus*¹⁵¹ software
- a few SEQ datasets
- the ability to produce more datasets

We would like to have:




- an official SEQ specification document

Ratings

Pixels: 📈

Metadata: 📈


¹⁴⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImaconReader.java>¹⁵⁰<http://www.mediacy.com/>¹⁵¹<http://www.mediacy.com/index.aspx?page=IPP>

Openness: Presence: Utility: **Additional Information**Source Code: [SEQReader.java](#)¹⁵²

Notes:

18.45 ImagePro Workspace

Extensions: .ipw

Owner: [Media Cybernetics](#)¹⁵³**Support**BSD-licensed: Export: 

Officially Supported Versions:





Supported Metadata Fields: *ImagePro Workspace*

We currently have:

- the [Image-Pro Plus](#)¹⁵⁴ 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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [IPWReader.java](#)¹⁵⁵

Notes:

Bio-Formats uses a modified version of the [Apache Jakarta POI](#)¹⁵⁶ library to read IPW files.¹⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SEQReader.java>¹⁵³<http://www.mediacy.com/>¹⁵⁴<http://www.mediacy.com/index.aspx?page=IPP>¹⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/IPWReader.java>¹⁵⁶<http://jakarta.apache.org/poi/>

18.46 IMAGIC

Extensions: .hed, .img

Developer: Image Science¹⁵⁷

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *IMAGIC*

Freely Available Software:

- [em2em](#)¹⁵⁸


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](#)¹⁵⁹

Notes:

See also:

[IMAGIC specification](#)¹⁶⁰

18.47 IMOD

Extensions: .mod

Developer: Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells¹⁶¹

Owner: Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells¹⁶²

Support

BSD-licensed: ✖

Export: ✖

¹⁵⁷<http://www.imagescience.de>

¹⁵⁸<http://www.imagescience.de/em2em.html>

¹⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImagicReader.java>

¹⁶⁰<http://www.imagescience.de/em2em.html>

¹⁶¹<http://bio3d.colorado.edu>

¹⁶²<http://bio3d.colorado.edu>

Officially Supported Versions:

Supported Metadata Fields: *IMOD*

Freely Available Software:


- [IMOD](#)¹⁶³

We currently have:

- a few sample datasets
- [official documentation](#)¹⁶⁴


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [IMODReader.java](#)¹⁶⁵

Notes:

18.48 Improvion Openlab LIFF

Extensions: .liff

Developer: [Improvion](#)¹⁶⁶

Owner: [PerkinElmer](#)¹⁶⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 2.0, 5.0

Supported Metadata Fields: *Improvion Openlab LIFF*


We currently have:

- an Openlab specification document (from 2000 February 8, in DOC)
- Improvion's XLIFFFileImporter code for reading Openlab LIFF v5 files (from 2006, in C++)
- several Openlab datasets

We would like to have:

- more Openlab datasets (preferably with 32-bit integer data)

Ratings

Pixels: 

Metadata: 




¹⁶³<http://bio3d.colorado.edu/imod/>

¹⁶⁴<http://bio3d.colorado.edu/imod/doc/bin-spec.html>

¹⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/IMODReader.java>

¹⁶⁶<http://www.improvion.com/>

¹⁶⁷<http://www.perkinelmer.com/>


Openness: Presence: Utility: **Additional Information**Source Code: [OpenlabReader.java](#)¹⁶⁸

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](#)¹⁶⁹

18.49 Improvisation Openlab Raw

Extensions: .raw

Developer: [Improvisation](#)¹⁷⁰Owner: [PerkinElmer](#)¹⁷¹**Support**BSD-licensed: Export: 




Officially Supported Versions:

Supported Metadata Fields: *Improvisation Openlab Raw*

We currently have:

- an [Openlab Raw specification document](#)¹⁷² (from 2004 November 09, in HTML)
- a few Openlab Raw datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [OpenlabRawReader.java](#)¹⁷³

Notes:

See also:[Openlab software review](#)¹⁷⁴¹⁶⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/OpenlabReader.java>¹⁶⁹<http://www.improvisation.com/products/openlab/>¹⁷⁰<http://www.improvisation.com/>¹⁷¹<http://www.perkinelmer.com/>¹⁷²http://cellularimaging.perkinelmer.com/support/technical_notes/detail.php?id=344¹⁷³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/OpenlabRawReader.java>¹⁷⁴<http://www.improvisation.com/products/openlab/>

18.50 Improvition TIFF

Extensions: .tif

Developer: Improvition¹⁷⁵

Owner: PerkinElmer¹⁷⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Improvition TIFF*

We currently have:

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

We would like to have:

Ratings

Pixels: ▲

Metadata: ▲

Openness: ▲

Presence: ▼

Utility: □

Additional Information

Source Code: `ImprovitionTiffReader.java`¹⁷⁷

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](#)¹⁷⁸

18.51 Inspector OBF

Extensions: .obf, .msr

Developer: Department of NanoBiophotonics, MPI-BPC¹⁷⁹

Owner: MPI-BPC¹⁸⁰

Support

BSD-licensed: ✅

Export: ❌

Officially Supported Versions:

¹⁷⁵<http://www.improvition.com/>

¹⁷⁶<http://www.perkinelmer.com/>

¹⁷⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ImprovitionTiffReader.java>

¹⁷⁸<http://www.improvition.com/products/openlab/>

¹⁷⁹<https://iinspector.mpibpc.mpg.de/index.html>

¹⁸⁰<http://www.mpibpc.mpg.de/>


Supported Metadata Fields: *Inspector OBF*


We currently have:


- a few .msr datasets
- a specification document¹⁸¹


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [OBFReader.java](#)¹⁸²


Notes:

18.52 InCell 1000

Extensions: .xdce, .tif

Developer: [GE](#)¹⁸³

Support

BSD-licensed: 

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](#)¹⁸⁴

¹⁸¹<https://inspector.mpibpc.mpg.de/documentation/fileformat.html>

¹⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/OBFReader.java>

¹⁸³<http://gelifesciences.com/>

¹⁸⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InCellReader.java>

Notes:

18.53 InCell 3000

Extensions: .frm

Developer: [GE](#)¹⁸⁵

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *InCell 3000*

Sample Datasets:

- [Broad Bioimage Benchmark Collection](#)¹⁸⁶


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](#)¹⁸⁷

Notes:

18.54 INR

Extensions: .inr

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *INR*

We currently have:

- several sample .inr datasets

¹⁸⁵<http://gelifesciences.com/>

¹⁸⁶<http://www.broadinstitute.org/bbbc/BBBC013/>

¹⁸⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InCell3000Reader.java>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [INRReader.java](#)¹⁸⁸

Notes:

18.55 Inveon

Extensions: .hdr

Support

BSD-licensed:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Inveon*

We currently have:

a few Inveon datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [InveonReader.java](#)¹⁸⁹

Notes:

18.56 IPLab

Extensions: .ipl

Developer: Scanalytics

Owner: was [BD Biosystems](#)¹⁹⁰, now [BioVision Technologies](#)¹⁹¹

¹⁸⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/INRReader.java>

¹⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InveonReader.java>

¹⁹⁰<http://www.bdbiosciences.com/>

¹⁹¹<http://www.biovis.com/iplab.htm>

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *IPLab*

Freely Available Software:

- [IPLab Reader plugin for ImageJ](#)¹⁹²

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 InformationSource Code: [IPLabReader.java](#)¹⁹³

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:

- [Bitplane Imaris](#)¹⁹⁴
- [SVI Huygens](#)¹⁹⁵

See also:[IPLab software review](#)¹⁹⁶

18.57 IPLab-Mac

Extensions: .ipm

Owner: [BioVision Technologies](#)¹⁹⁷**Support**

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

¹⁹²<http://rsb.info.nih.gov/ij/plugins/iplab-reader.html>¹⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/IPLabReader.java>¹⁹⁴<http://www.bitplane.com/>¹⁹⁵<http://svi.nl/>¹⁹⁶<http://www.biovis.com/iplab.htm>¹⁹⁷<http://biovis.com/>

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](#)¹⁹⁸

Notes:


Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

18.58 JEOL

Extensions: .dat, .img, .par

Owner: [JEOL](#)¹⁹⁹

Support

BSD-licensed: 

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: 

¹⁹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/IvisionReader.java>

¹⁹⁹<http://www.jeol.com>

Additional Information

Source Code: [JEOLReader.java](#)²⁰⁰


Notes:

18.59 JPEG

Extensions: .jpg

Developer: [Independent JPEG Group](#)²⁰¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *JPEG*

We currently have:

- a [JPEG specification document](#)²⁰² (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](#)²⁰³ Source Code: [JPEGWriter.java](#)²⁰⁴

Notes:

Bio-Formats can save individual planes as JPEG. Bio-Formats uses the [Java Image I/O](#)²⁰⁵ API to read and write JPEG files. JPEG stands for “Joint Photographic Experts Group”.

See also:

[JPEG homepage](#)²⁰⁶

18.60 JPEG 2000

Extensions: .jp2

Developer: [Independent JPEG Group](#)²⁰⁷

²⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/JEOLReader.java>

²⁰¹<http://www.ijg.org/>

²⁰²<http://www.w3.org/Graphics/JPEG/jfif3.pdf>

²⁰³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/JPEGReader.java>


²⁰⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/JPEGWriter.java>

²⁰⁵<http://docs.oracle.com/javase/6/docs/technotes/guides/imageio/>

²⁰⁶<http://www.jpeg.org/jpeg/index.html>

²⁰⁷<http://www.ijg.org/>

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *JPEG 2000*

Freely Available Software:


- [JJ2000 \(JPEG 2000 library for Java\)](#)²⁰⁸

We currently have:


- a [JPEG 2000 specification document](#)²⁰⁹ (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](#)²¹⁰ Source Code: [JPEG2000Writer.java](#)²¹¹

Notes:

Bio-Formats uses the [JAI Image I/O Tools](#)²¹² library to read JP2 files. JPEG stands for “Joint Photographic Experts Group”.

18.61 JPK

Extensions: .jpk

Developer: [JPK Instruments](#)²¹³

Support

BSD-licensed: 

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

²⁰⁸<http://code.google.com/p/jj2000/>

²⁰⁹<http://www.jpeg.org/jpeg2000/CDs15444.html>

²¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/JPEG2000Reader.java>

²¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/JPEG2000Writer.java>

²¹²<https://java.net/projects/jai-imageio>


²¹³<http://www.jpk.com>


- more JPK files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [JPKReader.java](#)²¹⁴


Notes:

18.62 JPX

Extensions: .jpx

Developer: [JPEG Committee](#)²¹⁵

Support

BSD-licensed: 

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](#)²¹⁶

Notes:

18.63 Khoros VIFF (Visualization Image File Format) Bitmap

Extensions: .xv

Developer: [Khoral](#)²¹⁷

²¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/JPKReader.java>

²¹⁵<http://www.jpeg.org/jpeg2000/>

²¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/JPXReader.java>

²¹⁷<http://www.khoral.com/company/>

Owner: [AccuSoft](#)²¹⁸

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

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

Sample Datasets:


- [VIFF Images](#)²¹⁹

We currently have:

- several VIFF datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [KhorosReader.java](#)²²⁰

Notes:

See also:

[VisiQuest software overview \(formerly known as KhorosPro\)](#)²²¹

18.64 Kodak BIP

Extensions: .bip

Developer: [Kodak/Carestream](#)²²²

Support

BSD-licensed: ❌

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






²¹⁸<http://www.accusoft.com/company/>

²¹⁹<http://netghost.narod.ru/gff/sample/images/viff/index.htm>

²²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/KhorosReader.java>

²²¹<http://www.accusoft.com/products/visiquest/>

²²²<http://carestream.com>


RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [KodakReader.java](#)²²³

Notes:

See also:[Information on Image Station systems](#)²²⁴

18.65 Lambert Instruments FLIM

Extensions: .fli

Developer: [Lambert Instruments](#)²²⁵**Support**BSD-licensed: Export: 




Officially Supported Versions:

Supported Metadata Fields: *Lambert Instruments FLIM*

We currently have:

- an LI-FLIM specification document
- several example LI-FLIM datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [LiFlimReader.java](#)²²⁶

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.²²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/KodakReader.java>²²⁴<http://carestream.com/PublicContent.aspx?langType=1033&id=448953>²²⁵<http://www.lambert-instruments.com>²²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LiFlimReader.java>

18.66 LaVision Inspector

Extensions: .msr

Developer: [LaVision BioTec](http://www.lavisionbiotec.com/)²²⁷

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Supported Metadata Fields: *LaVision Inspector*

We currently have:

- a few .msr files

We would like to have:

Ratings

Pixels: ▼

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

Additional Information

Source Code: [InspectorReader.java](#)²²⁸

Notes:

18.67 Leica LCS LEI

Extensions: .lei, .tif

Developer: [Leica Microsystems CMS GmbH](http://www.leica-microsystems.com/)²²⁹

Owner: [Leica](http://www.leica.com/)²³⁰

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Supported Metadata Fields: *Leica LCS LEI*

Freely Available Software:

- [Leica LCS Lite](ftp://ftp.llt.de/softlib/LCSLite/LCSLite2611537.exe)²³¹

We currently have:

- an LEI specification document (beta 2.000, from no later than 2004 February 17, in PDF)
- many LEI datasets

²²⁷<http://www.lavisionbiotec.com/>

²²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/InspectorReader.java>


²²⁹<http://www.leica-microsystems.com/>

²³⁰<http://www.leica.com/>


²³¹<ftp://ftp.llt.de/softlib/LCSLite/LCSLite2611537.exe>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [LeicaReader.java](#)²³²

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](#)²³³
- [SVI Huygens](#)²³⁴
- [Image-Pro Plus](#)²³⁵


18.68 Leica LAS AF LIF (Leica Image File Format)

Extensions: .lif

Developer: [Leica Microsystems CMS GmbH](#)²³⁶

Owner: [Leica](#)²³⁷

Support

BSD-licensed: 

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](#)²³⁸ (links at bottom of page)

We currently have:

- a LIF specification document (version 2, from no later than 2007 July 26, in PDF)
- a LIF specification document (version 1, from no later than 2006 April 3, in PDF)
- numerous LIF datasets

We would like to have:

Ratings

Pixels: 

²³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LeicaReader.java>

²³³<http://www.bitplane.com/>





²³⁴<http://svi.nl/>

²³⁵<http://www.mediacy.com/>

²³⁶<http://www.leica-microsystems.com/>

²³⁷<http://www.leica.com/>

²³⁸<http://www.leica-microsystems.com/products/microscope-software/software-for-life-science-research/las-af-4-advanced-fluorescence/>

Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [LIFReader.java](#)²³⁹

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 Imaris²⁴⁰
- SVI Huygens²⁴¹
- Amira²⁴²

18.69 Leica SCN

Extensions: .scn

Developer: [Leica Microsystems](#)²⁴³**Support**BSD-licensed: 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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [LeicaSCNReader.java](#)²⁴⁴²³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LIFReader.java>²⁴⁰<http://www.bitplane.com/>²⁴¹<http://svi.nl/>²⁴²<http://www.amira.com/>²⁴³<http://www.leica-microsystems.com/>²⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LeicaSCNReader.java>

Notes:

18.70 LEO

Extensions: .sxm

Owner: Zeiss²⁴⁵

Support

BSD-licensed: ✖

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*²⁴⁶

Notes:

18.71 Li-Cor L2D

Extensions: .l2d, .tif, .scn

Owner: LiCor Biosciences²⁴⁷

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *Li-Cor L2D*

We currently have:

- a few L2D datasets

²⁴⁵<http://www.zeiss.de>


²⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LEOReader.java>


²⁴⁷<http://www.licor.com/>


We would like to have:


- an official specification document
- more L2D datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [L2DReader.java](#)²⁴⁸

Notes:


L2D datasets cannot be imported into OME using server-side import. They can, however, be imported from ImageJ, or using the omeul utility.

18.72 LIM (Laboratory Imaging/Nikon)

Extensions: .lim

Owner: [Laboratory Imaging](#)²⁴⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

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](#)²⁵⁰

Notes:

²⁴⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/L2DReader.java>

²⁴⁹<http://www.lim.cz/>

²⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/LIMReader.java>

Bio-Formats only supports uncompressed LIM files.

Commercial applications that support LIM include:

- NIS Elements²⁵¹

18.73 MetaMorph 7.5 TIFF

Extensions: .tiff

Owner: Molecular Devices²⁵²

Support

BSD-licensed: ✖

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: ▲

Metadata: ▲

Openness: ▲

Presence: ▼

Utility: □

Additional Information

Source Code: *MetamorphTiffReader.java*²⁵³

Notes:

18.74 MetaMorph Stack (STK)

Extensions: .stk, .nd

Owner: Molecular Devices²⁵⁴

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *MetaMorph Stack (STK)*

We currently have:

- an STK specification document (from 2006 November 21, in DOC)

²⁵¹<http://www.nis-elements.com/>

²⁵²<http://www.moleculardevices.com/>

²⁵³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MetamorphTiffReader.java>

²⁵⁴<http://www.moleculardevices.com/>

- 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](#)²⁵⁵

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 STK include:

- [Bitplane Imaris](#)²⁵⁶
- [SVI Huygens](#)²⁵⁷
- [DIMIN](#)²⁵⁸

See also:

[Metamorph imaging system overview](#)²⁵⁹

18.75 MIAS (Maia Scientific)

Extensions: .tif

Developer: [Maia Scientific](#)²⁶⁰

Support

BSD-licensed:

Export:

Officially Supported Versions:

Supported Metadata Fields: *MIAS (Maia Scientific)*

We currently have:

- several MIAS datasets

We would like to have:

Ratings

Pixels:

Metadata:

²⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MetamorphReader.java>




²⁵⁶<http://www.bitplane.com/>

²⁵⁷<http://svi.nl/>

²⁵⁸<http://dimin.net/>

²⁵⁹<http://www.metamorph.com/>

²⁶⁰<http://www.selectscience.net/supplier/maia-scientific/?compID=6088>

Openness: Presence: Utility: **Additional Information**Source Code: [MIASReader.java](#)²⁶¹

Notes:

18.76 Micro-Manager

Extensions: .tif, .txt, .xml

Developer: [Vale Lab](#)²⁶²**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Micro-Manager*





Freely Available Software:

- [Micro-Manager](#)²⁶³

We currently have:

- many Micro-manager datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [MicromanagerReader.java](#)²⁶⁴

Notes:

18.77 MINC MRI

Extensions: .mnc

Developer: [McGill University](#)²⁶⁵**Support**BSD-licensed: ²⁶¹ <https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MIASReader.java>²⁶² <http://valelab.ucsf.edu/>²⁶³ <http://micro-manager.org/>²⁶⁴ <https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/MicromanagerReader.java>²⁶⁵ <http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

Export: 

Officially Supported Versions:

Supported Metadata Fields: *MINC MRI*

Freely Available Software:


- [MINC²⁶⁶](#)

We currently have:

- a few MINC files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [MINCReader.java²⁶⁷](#)


Notes:

18.78 Minolta MRW

Extensions: .mrw

Developer: [Minolta²⁶⁸](#)

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Minolta MRW*

Freely Available Software:


- [dcraw²⁶⁹](#)

We currently have:


- several .mrw files

We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

²⁶⁶<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

²⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MINCReader.java>

²⁶⁸<http://www.konicaminolta.com/>

²⁶⁹<http://www.cybercom.net/%7Edcoffin/dcraw/>

Utility: 

Additional Information

Source Code: [MRWReader.java](#)²⁷⁰


Notes:

18.79 MNG (Multiple-image Network Graphics)

Extensions: .mng

Developer: [MNG Development Group](#)²⁷¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *MNG (Multiple-image Network Graphics)*

Freely Available Software:

- [libmng \(MNG reference library\)](#)²⁷²

Sample Datasets:


- [MNG sample files](#)²⁷³

We currently have:


- the [libmng-testsuites](#)²⁷⁴ 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

Source Code: [MNGReader.java](#)²⁷⁵

Notes:

See also:

[MNG homepage](#)²⁷⁶ [MNG specification](#)²⁷⁷

²⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MRWReader.java>

²⁷¹<http://www.libpng.org/pub/mng/mngnews.html>

²⁷²<http://sourceforge.net/projects/libmng/>

²⁷³<http://sourceforge.net/projects/libmng/files/libmng-testsuites/MNGsuite-1.0/MNGsuite.zip/download>

²⁷⁴<http://downloads.sourceforge.net/libmng/MNGsuite-20030305.zip>

²⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/MNGReader.java>

²⁷⁶<http://www.libpng.org/pub/mng/>

²⁷⁷<http://www.libpng.org/pub/mng/spec>

18.80 Molecular Imaging

Extensions: .stp

Owner: Molecular Imaging Corp, San Diego CA (closed)

Support

BSD-licensed: ❌

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](#)²⁷⁸

Notes:

18.81 MRC (Medical Research Council)

Extensions: .mrc

Developer: [MRC Laboratory of Molecular Biology](#)²⁷⁹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *MRC (Medical Research Council)*

Sample Datasets:

- [golgi.mrc](#)²⁸⁰

We currently have:

- an [MRC specification document](#)²⁸¹ (in HTML)

²⁷⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MolecularImagingReader.java>

²⁷⁹<http://www2.mrc-lmb.cam.ac.uk/>


²⁸⁰http://bio3d.colorado.edu/imod/files/imod_data.tar.gz

²⁸¹http://ami.scripps.edu/software/mrctools/mrc_specification.php


- another MRC specification document²⁸² (in TXT)
- a few MRC datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [MRCReader.java](#)²⁸³

Notes:

Commercial applications that support MRC include:

- [Bitplane Imaris](#)²⁸⁴

See also:


[MRC on Wikipedia](#)²⁸⁵

18.82 NEF (Nikon Electronic Format)

Extensions: .nef, .tif

Developer: [Nikon](#)²⁸⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *NEF (Nikon Electronic Format)*

Sample Datasets:


- [neffile1.zip](#)²⁸⁷
- [Sample NEF images](#)²⁸⁸

We currently have:

- a NEF specification document (v0.1, from 2003, in PDF)
- several NEF datasets

We would like to have:

Ratings

Pixels: 

Metadata: 

²⁸²http://bio3d.colorado.edu/imod/doc/mrc_format.txt

²⁸³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/MRCReader.java>



²⁸⁴<http://www.bitplane.com/>

²⁸⁵http://en.wikipedia.org/wiki/MRC_%28file_format%29

²⁸⁶<http://www.nikon.com/>

²⁸⁷http://www.outbackphoto.com/workshop/NEF_conversion/neffile1.zip

²⁸⁸http://www.nikondigital.org/articles/library/nikon_d2x_first_impressions.htm


Openness: Presence: Utility: **Additional Information**Source Code: [NikonReader.java](#)²⁸⁹

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](#)²⁹⁰

18.83 NifTI

Extensions: .img, .hdr

Developer: [National Institutes of Health](#)²⁹¹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *NifTI*




Sample Datasets:

- [Official test data](#)²⁹²

We currently have:

- [NifTI specification documents](#)²⁹³
- several NifTI datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [NiftiReader.java](#)²⁹⁴

Notes:

²⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NikonReader.java>²⁹⁰http://www.outbackphoto.com/workshop/NEF_conversion/nefconversion.html²⁹¹<http://www.nih.gov/>²⁹²<http://nifti.nih.gov/nifti-1/data>²⁹³<http://nifti.nih.gov/nifti-1/>²⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NiftiReader.java>

18.84 Nikon Elements TIFF

Extensions: .tiff

Developer: [Nikon](#)²⁹⁵

Support

BSD-licensed: ❌

Export: ❌

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](#)²⁹⁶

Notes:

18.85 Nikon EZ-C1 TIFF

Extensions: .tiff

Developer: [Nikon](#)²⁹⁷

Support

BSD-licensed: ❌

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: 🟢

²⁹⁵<http://www.nikon.com>

²⁹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NikonElementsTiffReader.java>


²⁹⁷<http://www.nikon.com/>

Openness: Presence: Utility: **Additional Information**Source Code: [NikonTiffReader.java](#)²⁹⁸

Notes:

18.86 Nikon NIS-Elements ND2

Extensions: .nd2

Developer: [Nikon USA](#)²⁹⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Nikon NIS-Elements ND2*

Freely Available Software:




- [NIS-Elements Viewer from Nikon](#)³⁰⁰

We currently have:

- many ND2 datasets

We would like to have:

- an official specification document

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [NativeND2Reader.java](#)³⁰¹

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](#)³⁰² library to read ND2 files compressed with JPEG-2000.

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](#)³⁰³ installed. Additionally, you will need to download [LegacyND2Reader.dll](#)³⁰⁴ and place it in your ImageJ plugin folder.

²⁹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NikonTiffReader.java>

²⁹⁹<http://www.nikonusa.com/>

³⁰⁰<http://www.nikoninstruments.com/Products/Software/NIS-Elements-Advanced-Research/NIS-Elements-Viewer>

³⁰¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/NativeND2Reader.java>

³⁰²<http://java.net/projects/jai-imageio>

³⁰³<http://rsb.info.nih.gov/ij/plugins/nd2-reader.html>


³⁰⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/lib/LegacyND2Reader.dll?raw=true>

18.87 NRRD (Nearly Raw Raster Data)

Extensions: `.nrrd`, `.nhdr`, `.raw`, `.txt`

Developer: [Teem developers](#)³⁰⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *NRRD (Nearly Raw Raster Data)*

Freely Available Software:

- [nrrd \(NRRD reference library\)](#)³⁰⁶

Sample Datasets:

- [Diffusion tensor MRI datasets](#)³⁰⁷

We currently have:


- [an nrrd specification document](#)³⁰⁸ (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](#)³⁰⁹

Notes:

18.88 Olympus CellIR/APL

Extensions: `.apl`, `.mtb`, `.tnb`, `.tif`, `.obsep`

Owner: [Olympus](#)³¹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Olympus CellIR/APL*

³⁰⁵<http://teem.sourceforge.net/>

³⁰⁶<http://teem.sourceforge.net/nrrd/>

³⁰⁷<http://www.sci.utah.edu/%7Egk/DTI-data/>

³⁰⁸<http://teem.sourceforge.net/nrrd/format.html>

³⁰⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/NRRDReader.java>

³¹⁰<http://www.olympus.com/>


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](#)³¹¹


Notes:

18.89 Olympus FluoView FV1000

Extensions: .oib, .oif

Owner: [Olympus](#)³¹²

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Olympus FluoView FV1000*

Freely Available Software:

- [FV-Viewer from Olympus](#)³¹³


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: 

³¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/APLReader.java>

³¹²<http://www.olympus.com/>

³¹³http://www.olympus.co.uk/microscopy/22_FluoView_FV1000__Confocal_Microscope.htm

Presence: Utility: **Additional Information**Source Code: [FV1000Reader.java](#)³¹⁴

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](#)³¹⁵ 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](#)³¹⁶
- [SVI Huygens](#)³¹⁷

See also:[Olympus FluoView Resource Center](#)³¹⁸

18.90 Olympus FluoView TIFF

Extensions: .tif

Owner: [Olympus](#)³¹⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Olympus FluoView TIFF*


Freely Available Software:


- [DIMIN](#)³²⁰

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:

RatingsPixels: Metadata: Openness: Presence: ³¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FV1000Reader.java>³¹⁵<http://jakarta.apache.org/poi/>³¹⁶<http://www.bitplane.com/>³¹⁷<http://svi.nl/>³¹⁸<http://www.olympusfluoview.com>³¹⁹<http://www.olympus.com/>³²⁰<http://www.dimin.net/>

Utility: 

Additional Information

Source Code: [FluoviewReader.java](#)³²¹

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 Imaris³²²
- SVI Huygens³²³


18.91 Olympus ScanR

Extensions: .xml, .dat, .tif

Developer: Olympus³²⁴

Owner: Olympus³²⁵

Support

BSD-licensed: 

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](#)³²⁶

Notes:

18.92 Olympus SIS TIFF

Extensions: .tiff

Developer: Olympus³²⁷

³²¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>

³²²<http://www.bitplane.com/>

³²³<http://svi.nl/>

³²⁴<http://www.olympus.com/>

³²⁵<http://www.olympus.com/>

³²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ScanrReader.java>

³²⁷<http://www.olympus-sis.com/>

Support

BSD-licensed: ❌

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: 🟡

Openness: 🟡

Presence: 🟠

Utility: 🟡

Additional InformationSource Code: [SISReader.java](#)³²⁸

Notes:

18.93 OME-TIFF

Extensions: [.ome.tiff](#)³²⁹Developer: [Open Microscopy Environment](#)³³⁰**Support**

BSD-licensed: ✅

Export: ✅

Officially Supported Versions: 2003FC, 2007-06, 2008-02, 2008-09, 2009-09, 2010-04, 2010-06, 2011-06, 2012-06, 2013-06

Supported Metadata Fields: *OME-TIFF*

We currently have:

- an [OME-TIFF specification document](#)³³¹ (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: 🟠

³²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SISReader.java>³²⁹<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>³³⁰<http://www.openmicroscopy.org/>³³¹<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/specification.html>

Utility: 

Additional Information

Source Code: [OMETiffReader.java](#)³³² Source Code: [OMETiffWriter.java](#)³³³

Notes:

Bio-Formats can save image stacks as OME-TIFF.

Commercial applications that support OME-TIFF include:

- [Bitplane Imaris](#)³³⁴
- [SVI Huygens](#)³³⁵

See also:


[OME-TIFF technical overview](#)³³⁶

18.94 OME-XML

Extensions: [.ome](#)³³⁷

Developer: [Open Microscopy Environment](#)³³⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 2003FC, 2007-06, 2008-02, 2008-09, 2009-09, 2010-04, 2010-06, 2011-06, 2012-06, 2013-06


Supported Metadata Fields: [OME-XML](#)

We currently have:

- [OME-XML specification documents](#)³³⁹
- 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](#)³⁴⁰ Source Code: [OMEXMLWriter.java](#)³⁴¹

Notes:

³³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/OMETiffReader.java>

³³³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/OMETiffWriter.java>

³³⁴<http://www.bitplane.com/>

³³⁵<http://svi.nl/>

³³⁶<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

³³⁷<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/index.html>

³³⁸<http://www.openmicroscopy.org/>

³³⁹<http://www.openmicroscopy.org/Schemas/>

³⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/OMEXMLReader.java>

³⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/OMEXMLWriter.java>

Bio-Formats uses the [OME-XML Java library](#)³⁴² to read OME-XML files.

Commercial applications that support OME-XML include:


- [Bitplane Imaris](#)³⁴³
- [SVI Huygens](#)³⁴⁴

18.95 Oxford Instruments

Extensions: .top

Owner: [Oxford Instruments](#)³⁴⁵

Support

BSD-licensed: 

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](#)³⁴⁶

Notes:

18.96 PCORAW

Extensions: .pcoraw, .rec

Developer: [PCO](#)³⁴⁷

Support

BSD-licensed: 

³⁴²<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/java-library.html>

³⁴³<http://www.bitplane.com/>

³⁴⁴<http://svi.nl/>

³⁴⁵<http://www.oxinst.com>

³⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/OxfordInstrumentsReader.java>

³⁴⁷<http://www.pco.de/>

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *PCORAW*

We currently have:

- a few example datasets

We would like to have:

Ratings

Pixels: ▲

Metadata: ◻

Openness: ▲

Presence: ▼

Utility: ◻

Additional Information

Source Code: [PCORAWReader.java](#)³⁴⁸

Notes:

18.97 PCX (PC Paintbrush)

Extensions: .pcx

Developer: ZSoft Corporation

Support

BSD-licensed: ✔

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *PCX (PC Paintbrush)*

We currently have:

- several .pcx files
- the ability to generate additional .pcx file

We would like to have:

Ratings

Pixels: ▲

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

Additional Information

Source Code: [PCXReader.java](#)³⁴⁹

Notes:

³⁴⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PCORAWReader.java>

³⁴⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/PCXReader.java>

Commercial applications that support PCX include [Zeiss LSM Image Browser](#)³⁵⁰.

18.98 Perkin Elmer Densitometer

Extensions: .pds

Developer: [Perkin Elmer](#)³⁵¹

Support

BSD-licensed: ✖

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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PDSReader.java](#)³⁵²

Notes:

18.99 PerkinElmer Operetta

Extensions: .tiff, .xml

Developer: [PerkinElmer](#)³⁵³

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *PerkinElmer Operetta*

We currently have:

- a few sample datasets

³⁵⁰http://www.zeiss.com.au/microscopy/en_au/downloads/lsm-5-series.html

³⁵¹<http://www.perkinelmer.com>


³⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PDSReader.java>


³⁵³<http://www.perkinelmer.com/>


We would like to have:


- an official specification document
- more sample datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [OperettaReader.java](#)³⁵⁴

Notes:

18.100 PerkinElmer UltraView

Extensions: .tif, .2, .3, .4, etc.

Owner: [PerkinElmer](#)³⁵⁵

Support

BSD-licensed: 

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](#)³⁵⁶

Notes:

Other associated extensions include: .tim, .zpo, .csv, .htm, .cfg, .ano, .rec

Commercial applications that support this format include:

- [Bitplane Imaris](#)³⁵⁷

³⁵⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/OperettaReader.java>

³⁵⁵<http://www.perkinelmer.com/>

³⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

³⁵⁷<http://www.bitplane.com/>

- Image-Pro Plus³⁵⁸

See also:


PerkinElmer UltraView system overview³⁵⁹

18.101 PGM (Portable Gray Map)

Extensions: .pgm

Developer: Netpbm developers

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *PGM (Portable Gray Map)*

Freely Available Software:


- Netpbm graphics filter³⁶⁰

We currently have:

- a PGM specification document³⁶¹ (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.java³⁶²

Notes:


18.102 Adobe Photoshop PSD

Extensions: .psd

Developer: Adobe³⁶³

Support

BSD-licensed: 

Export: 

³⁵⁸<http://www.mediacy.com/>

³⁵⁹<http://www.perkinelmer.com/pages/020/cellularimaging/products/ultraviewvoxsysteoverview.xhtml>

³⁶⁰<http://netpbm.sourceforge.net/>

³⁶¹<http://netpbm.sourceforge.net/doc/pgm.html>

³⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/PGMReader.java>

³⁶³<http://www.adobe.com/>

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:


- more PSD files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PSDReader.java](#)³⁶⁴


Notes:

18.103 Photoshop TIFF

Extensions: .tif, .tiff

Developer: [Adobe](#)³⁶⁵

Support

BSD-licensed: 

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

³⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PSDReader.java>

³⁶⁵<http://www.adobe.com>

Source Code: [PhotoshopTiffReader.java](#)³⁶⁶


Notes:

18.104 PicoQuant Bin

Extensions: .bin

Developer: [PicoQuant](#)³⁶⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *PicoQuant Bin*

Freely Available Software:

- [SymphoTime64](#)³⁶⁸

We currently have:


- a few example datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PQBinReader.java](#)³⁶⁹


Notes:

18.105 PICT (Macintosh Picture)

Extensions: .pict

Developer: [Apple Computer](#)³⁷⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *PICT (Macintosh Picture)*

We currently have:

³⁶⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PhotoshopTiffReader.java>

³⁶⁷<http://www.picoquant.com/>

³⁶⁸<http://www.picoquant.com/products/category/software/symphotime-64-fluorescence-lifetime-imaging-and-correlation-software>


³⁶⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PQBinReader.java>

³⁷⁰<http://www.apple.com>


- many PICT datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PictReader.java](#)³⁷¹

Notes:

[QuickTime for Java](#)³⁷² is required for reading vector files and some compressed files.

See also:


[PICT technical overview](#)³⁷³ [Another PICT technical overview](#)³⁷⁴

18.106 PNG (Portable Network Graphics)

Extensions: .png

Developer: [PNG Development Group](#)³⁷⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *PNG (Portable Network Graphics)*

Freely Available Software:


- [PNG Writer plugin for ImageJ](#)³⁷⁶

We currently have:

- [a PNG specification document](#)³⁷⁷ (W3C/ISO/IEC version, from 2003 November 10, in HTML)
- several PNG datasets


We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

³⁷¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/PictReader.java>

³⁷²<http://www.apple.com/quicktime/download/standalone.html>

³⁷³<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-107.html>

³⁷⁴<http://www.prepressure.com/formats/pict/fileformat.htm>

³⁷⁵<http://www.libpng.org/pub/png/pngnews.html>

³⁷⁶<http://rsb.info.nih.gov/ij/plugins/png-writer.html>

³⁷⁷<http://www.libpng.org/pub/png/spec/iso/>

Utility: 

Additional Information

Source Code: [APNGReader.java](#)³⁷⁸

Notes:

Bio-Formats uses the Java Image I/O³⁷⁹ API to read and write PNG files.

See also:


[PNG technical overview](#)³⁸⁰

18.107 Prairie Technologies TIFF

Extensions: .tif, .xml, .cfg

Developer: [Prairie Technologies](#)³⁸¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *Prairie Technologies TIFF*

We currently have:

- many Prairie datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PrairieReader.java](#)³⁸²

Notes:

18.108 Quesant

Extensions: .afm

Developer: Quesant Instrument Corporation

Owner: [KLA-Tencor Corporation](#)³⁸³

Support

³⁷⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/APNGReader.java>

³⁷⁹<http://docs.oracle.com/javase/6/docs/technotes/guides/imageio/>

³⁸⁰<http://www.libpng.org/pub/png/>

³⁸¹<http://www.prairie-technologies.com/>

³⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PrairieReader.java>

³⁸³<http://www.kla-tencor.com/surface-profilometry-and-metrology.html>

BSD-licensed: ❌

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: 

Additional Information

Source Code: [QuesantReader.java](#)³⁸⁴


Notes:

18.109 QuickTime Movie

Extensions: .mov

Owner: [Apple Computer](#)³⁸⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *QuickTime Movie*

Freely Available Software:

- [QuickTime Player](#)³⁸⁶

We currently have:

- a [QuickTime specification document](#)³⁸⁷ (from 2001 March 1, in HTML)
- several QuickTime datasets
- the ability to produce more datasets

We would like to have:

- more QuickTime datasets, including:

³⁸⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/QuesantReader.java>


³⁸⁵<http://www.apple.com/>


³⁸⁶<http://www.apple.com/quicktime/download/>


³⁸⁷<http://developer.apple.com/documentation/Quicktime/QTFIF/>


- 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](#)³⁸⁸ Source Code: [QTWriter.java](#)³⁸⁹

Notes:

Bio-Formats has two modes of operation for QuickTime:

- QTJava mode requires [QuickTime](#)³⁹⁰ 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](#)³⁹¹

18.110 RHK

Extensions: .sm2, .sm3

Owner: [RHK Technologies](#)³⁹²

Support


³⁸⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/NativeQTReader.java>

³⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/QTWriter.java>

³⁹⁰<http://www.apple.com/quicktime/download/>

³⁹¹<http://www.apple.com/quicktime/>

³⁹²<http://www.rhk-tech.com>

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *RHK*


We currently have:

- Pascal code that can read RHK files (from ImageSXM)
- a few RHK files


We would like to have:


- an official specification document
- more RHK files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


Source Code: [RHKReader.java](#)³⁹³

Notes:

18.111 SBIG

Owner: Santa Barbara Instrument Group (SBIG)³⁹⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *SBIG*


We currently have:

- an official SBIG specification document³⁹⁵
- a few SBIG files


We would like to have:

- more SBIG files

Ratings

Pixels: 


Metadata: 


Openness: 

³⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/RHKReader.java>

³⁹⁴<http://www.sbig.com>

³⁹⁵<http://sbig.impulse.net/pdffiles/file.format.pdf>

Presence: 

Utility: 

Additional Information

Source Code: [SBIGReader.java](#)³⁹⁶


Notes:

18.112 Seiko

Extensions: .xqd, .xqf

Owner: [Seiko](#)³⁹⁷

Support

BSD-licensed: 

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](#)³⁹⁸


Notes:

18.113 SimplePCI & HCImage

Extensions: .cxd

Developer: [Compix](#)³⁹⁹

Support

BSD-licensed: 

³⁹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SBIGReader.java>

³⁹⁷<http://www.seiko.co.jp/en/index.php>

³⁹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SeikoReader.java>

³⁹⁹<http://hcimage.com>

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](#)⁴⁰⁰

Notes:

Bio-Formats uses a modified version of the [Apache Jakarta POI library](#)⁴⁰¹ to read CXD files.

See also:

[SimplePCI software overview](#)⁴⁰²

18.114 SimplePCI & HCImage TIFF

Extensions: .tiff

Developer: [Hamamatsu](#)⁴⁰³

Support

BSD-licensed: ❌

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

Ratings

Pixels: ▲

Metadata: ◻

Openness: ▲


Presence: ▼

⁴⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/PCIReader.java>

⁴⁰¹<http://jakarta.apache.org/poi/>

⁴⁰²<http://hcimage.com/simple-pci-legacy/>

⁴⁰³<http://hcimage.com/simple-pci-legacy/>

Utility: 


Additional Information

Source Code: [SimplePCITiffReader.java](#)⁴⁰⁴

Notes:

18.115 SM Camera

Support

BSD-licensed: 

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](#)⁴⁰⁵

Notes:

18.116 SPIDER

Extensions: .spi, .stk

Developer: [Wadsworth Center](#)⁴⁰⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *SPIDER*

Freely Available Software:

⁴⁰⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SimplePCITiffReader.java>

⁴⁰⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SMCameraReader.java>

⁴⁰⁶http://www.wadsworth.org/spider_doc/spider/docs/spider.html


- [SPIDER](#)⁴⁰⁷


We currently have:


- a few example datasets
- [official file format documentation](#)⁴⁰⁸


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SpiderReader.java](#)⁴⁰⁹


Notes:

18.117 Targa

Extensions: .tga

Developer: [Truevision](#)⁴¹⁰

Support

BSD-licensed: 

Export: 

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](#)⁴¹¹

⁴⁰⁷http://www.wadsworth.org/spider_doc/spider/docs/spider.html

⁴⁰⁸http://www.wadsworth.org/spider_doc/spider/docs/image_doc.html

⁴⁰⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/SpiderReader.java>

⁴¹⁰<http://www.truevision.com>


⁴¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/TargaReader.java>

Notes:

18.118 Text

Extensions: .txt

Support

BSD-licensed: 

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](#)⁴¹²

Notes:

Reads tabular pixel data produced by a variety of software.


18.119 TIFF (Tagged Image File Format)

Extensions: .tif

Developer: Aldus and Microsoft

Owner: [Adobe](#)⁴¹³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *TIFF (Tagged Image File Format)*

Sample Datasets:

- [LZW TIFF data gallery](#)⁴¹⁴
- [Big TIFF](#)⁴¹⁵

We currently have:

⁴¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/TextReader.java>

⁴¹³<http://www.adobe.com>

⁴¹⁴http://marlin.life.utsa.edu/Data_Gallery.html

⁴¹⁵<http://tiffcentral.com/>

- a TIFF specification document⁴¹⁶ (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](#)⁴¹⁷ Source Code: [TiffWriter.java](#)⁴¹⁸

Notes:

Bio-Formats can also read BigTIFF files (TIFF files larger than 4 GB). Bio-Formats can save image stacks as TIFF or BigTIFF.

See also:

[TIFF technical overview](#)⁴¹⁹ [BigTIFF technical overview](#)⁴²⁰

18.120 TillPhotonics TillVision

Extensions: .vws

Developer: [TILL Photonics](#)⁴²¹

Support

BSD-licensed:

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:

⁴¹⁶<http://partners.adobe.com/asn/developer/PDFS/TN/TIFF6.pdf>

⁴¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/TiffReader.java>

⁴¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/out/TiffWriter.java>

⁴¹⁹<http://www.awaresystems.be/imaging/tiff/faq.html#q3>

⁴²⁰<http://www.awaresystems.be/imaging/tiff/bigtif.html>

⁴²¹<http://www.till-photonics.com/>

Additional Information

Source Code: [TillVisionReader.java](#)⁴²²


Notes:

18.121 Topometrix

Extensions: .tfr, .ffr, .zfr, .zfp, .2fl

Owner: [TopoMetrix \(now Veeco\)](#)⁴²³

Support

BSD-licensed: 

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](#)⁴²⁴

Notes:

18.122 Trestle

Extensions: .tif, .sld, .jpg

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Trestle*

Sample Datasets:

⁴²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/TillVisionReader.java>

⁴²³<http://www.veeco.com/>

⁴²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/TopometrixReader.java>


- [OpenSlide](#)⁴²⁵


We currently have:


- a few example datasets
- developer documentation from the [OpenSlide project](#)⁴²⁶


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


Source Code: [TrestleReader.java](#)⁴²⁷

Notes:

18.123 UBM

Extensions: .pr3

Support

BSD-licensed: 

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](#)⁴²⁸

⁴²⁵<http://openslide.cs.cmu.edu/download/openslide-testdata/Trestle/>

⁴²⁶<http://openslide.org/Trestle%20format/>

⁴²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/TrestleReader.java>

⁴²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/UBMReader.java>


Notes:

18.124 Unisoku

Extensions: .dat, .hdr

Owner: [Unisoku](#)⁴²⁹

Support

BSD-licensed: 

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](#)⁴³⁰

Notes:

18.125 Varian FDF

Extensions: .fdf

Developer: [Varian, Inc.](#)⁴³¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Varian FDF*

We currently have:

- a few Varian FDF datasets

⁴²⁹<http://www.unisoku.com>


⁴³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/UnisokuReader.java>


⁴³¹<http://www.varianinc.com>


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](#)⁴³²

Notes:

18.126 VG SAM

Extensions: .dti

Support

BSD-licensed: 

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: 

Utility: 

Additional Information

Source Code: [VGSAMReader.java](#)⁴³³

Notes:

⁴³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/VarianFDFReader.java>

⁴³³<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/VGSAMReader.java>

18.127 VisiTech XYS

Extensions: .xys, .html

Developer: [VisiTech International](#)⁴³⁴

Support

BSD-licensed: ❌

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](#)⁴³⁵

Notes:

18.128 Volocity

Extensions: .mvd2

Developer: [PerkinElmer](#)⁴³⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Volocity*

Sample Datasets:

- [PerkinElmer Downloads](#)⁴³⁷

We currently have:

- many example Volocity datasets

We would like to have:

⁴³⁴<http://www.visitech.co.uk/>

⁴³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/VisitechReader.java>


⁴³⁶<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.xhtml>


⁴³⁷<http://cellularimaging.perkinelmer.com/downloads/>


- an official specification document
- any Volocity datasets that do not open correctly


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [VolocityReader.java](#)⁴³⁸

Notes:


.mvd2 files are [Metakit database files](#)⁴³⁹.

18.129 Volocity Library Clipping

Extensions: .acff

Developer: [PerkinElmer](#)⁴⁴⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Volocity Library Clipping*


We currently have:

- several Volocity library clipping datasets


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](#)⁴⁴¹

Notes:

⁴³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/VolocityReader.java>

⁴³⁹<http://equi4.com/metakit/>

⁴⁴⁰<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.xhtml>

⁴⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/VolocityClippingReader.java>

RGB .acff files are not yet supported. See #6413⁴⁴².


18.130 WA-TOP

Extensions: .wat

Developer: WA Technology

Owner: Oxford Instruments⁴⁴³

Support

BSD-licensed: 

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: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [WATOPReader.java](#)⁴⁴⁴


Notes:

18.131 Windows Bitmap

Extensions: .bmp

Developer: Microsoft and IBM

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Windows Bitmap*

Freely Available Software:

⁴⁴²<http://trac.openmicroscopy.org.uk/ome/ticket/6413>

⁴⁴³<http://www.oxinst.com>

⁴⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/WATOPReader.java>

- [BMP Writer plugin for ImageJ](#)⁴⁴⁵

We currently have:

- many BMP datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Source Code: [BMPReader.java](#)⁴⁴⁶

Notes:

Compressed BMP files are currently not supported.

See also:

[Technical Overview](#)⁴⁴⁷

18.132 Woolz

Extensions: .wlz

Developer: [MRC Human Genetics Unit](#)⁴⁴⁸

Support

BSD-licensed:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Woolz*

Freely Available Software:

- [Woolz](#)⁴⁴⁹

We currently have:

- a few Woolz datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:


⁴⁴⁵<http://rsb.info.nih.gov/ij/plugins/bmp-writer.html>

⁴⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-bsd/src/loci/formats/in/BMPReader.java>

⁴⁴⁷<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-18.html>

⁴⁴⁸http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

⁴⁴⁹http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

Utility: 

Additional Information

Source Code: [WlzReader.java](#)⁴⁵⁰ Source Code: [WlzWriter.java](#)⁴⁵¹

Notes:


18.133 Zeiss AxioVision TIFF

Extensions: .xml, .tiff

Developer: [Carl Zeiss Microscopy GmbH](#)⁴⁵²

Owner: [Carl Zeiss Microscopy GmbH](#)⁴⁵³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Zeiss AxioVision TIFF*

Freely Available Software:

- [Zeiss ZEN Lite](#)⁴⁵⁴

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](#)⁴⁵⁵

Notes:

18.134 Zeiss AxioVision ZVI (Zeiss Vision Image)

Extensions: .zvi

Developer: [Carl Zeiss Microscopy GmbH \(AxioVision\)](#)⁴⁵⁶

⁴⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/WlzReader.java>

⁴⁵¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/out/WlzWriter.java>

⁴⁵²<http://www.zeiss.com/microscopy/>

⁴⁵³<http://www.zeiss.com/microscopy/>

⁴⁵⁴http://www.zeiss.com/microscopy/en_de/products/microscope-software/zen-lite.html

⁴⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ZeissTIFFReader.java>

⁴⁵⁶http://www.zeiss.com/microscopy/en_de/products/microscope-software/axiovision-for-biology.html

Owner: [Carl Zeiss Microscopy GmbH](#)⁴⁵⁷

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Zeiss AxioVision ZVI (Zeiss Vision Image)*

Freely Available Software:

- [Zeiss Axiovision LE](#)⁴⁵⁸

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](#)⁴⁵⁹

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](#)⁴⁶⁰ to read ZVI files.

Commercial applications that support ZVI include [Bitplane Imaris](#)⁴⁶¹.

See also:

[Axiovision software overview](#)⁴⁶²

18.135 Zeiss CZI

Extensions: `.czi`⁴⁶³

Developer: [Carl Zeiss Microscopy GmbH](#)⁴⁶⁴

⁴⁵⁷<http://www.zeiss.com/microscopy/>

⁴⁵⁸http://www.zeiss.com/microscopy/en_de/downloads/axiovision.html

⁴⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ZeissZVIReader.java>

⁴⁶⁰<http://jakarta.apache.org/poi/>

⁴⁶¹<http://www.bitplane.com/>

⁴⁶²http://www.zeiss.com/microscopy/en_de/products/microscope-software/axiovision-for-biology.html

⁴⁶³<http://www.zeiss.com/czi>

⁴⁶⁴<http://www.zeiss.com/czi>

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Zeiss CZI*

Freely Available Software:

- [Zeiss ZEN 2012](#)⁴⁶⁵

We currently have:

- many example datasets
- official specification documents

We would like to have:

Ratings

Pixels: 🌳

Metadata: 🌳

Openness: 🌳

Presence: 🌳

Utility: 🟡

Additional InformationSource Code: [ZeissCZIReader.java](#)⁴⁶⁶

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.

18.136 Zeiss LSM (Laser Scanning Microscope) 510/710

Extensions: .lsm, .mdb

Owner: [Carl Zeiss Microscopy GmbH](#)⁴⁶⁷**Support**

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Zeiss LSM (Laser Scanning Microscope) 510/710*

Freely Available Software:

- [Zeiss LSM Image Browser](#)⁴⁶⁸
- [LSM Toolbox plugin for ImageJ](#)⁴⁶⁹
- [LSM Reader plugin for ImageJ](#)⁴⁷⁰
- [DIMIN](#)⁴⁷¹


⁴⁶⁵http://www.zeiss.com/microscopy/en_de/products/microscope-software/zen-2012.html⁴⁶⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ZeissCZIReader.java>⁴⁶⁷<http://www.zeiss.com/microscopy/>⁴⁶⁸http://www.zeiss.com/microscopy/en_de/downloads/lsm-5-series.html⁴⁶⁹<http://imagejdocu.tudor.lu/Members/ppirrotte/lsmtoolbox>⁴⁷⁰<http://rsb.info.nih.gov/ij/plugins/lsm-reader.html>⁴⁷¹<http://www.dimin.net/>

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](#)⁴⁷²

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](#)⁴⁷³

Commercial applications that support this format include:

- [SVI Huygens](#)⁴⁷⁴
- [Bitplane Imaris](#)⁴⁷⁵
- [Amira](#)⁴⁷⁶
- [Image-Pro Plus](#)⁴⁷⁷

⁴⁷²<https://github.com/openmicroscopy/bioformats/blob/v5.0.5/components/formats-gpl/src/loci/formats/in/ZeissLSMReader.java>

⁴⁷³<http://mdbtools.sourceforge.net/>

⁴⁷⁴<http://www2.svi.nl/>

⁴⁷⁵<http://www.bitplane.com/>

⁴⁷⁶<http://www.amira.com/>

⁴⁷⁷<http://www.mediacy.com/>

SUMMARY OF SUPPORTED METADATA FIELDS

19.1 Format readers

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>AFIReader</i>	30	0	0	445
<i>AIMReader</i>	22	0	0	453
<i>APLReader</i>	21	0	0	454
<i>APNGReader</i>	19	0	0	456
<i>ARFReader</i>	19	0	0	456
<i>AVIReader</i>	19	0	0	456
<i>AliconaReader</i>	33	0	0	442
<i>AmiraReader</i>	22	0	0	453
<i>AnalyzeReader</i>	24	0	0	451
<i>BDReader</i>	57	0	0	418
<i>BIFormatReader</i>	19	0	0	456
<i>BMPReader</i>	21	0	0	454
<i>BaseTiffReader</i>	28	0	0	447
<i>BaseZeissReader</i>	83	0	0	392
<i>BioRadGelReader</i>	21	0	0	454
<i>BioRadReader</i>	40	0	0	435
<i>BioRadSCNReader</i>	29	0	0	446
<i>BrukerReader</i>	23	0	0	452
<i>BurleighReader</i>	22	0	0	453
<i>CanonRawReader</i>	19	0	0	456
<i>CellSensReader</i>	19	0	0	456
<i>CellVoyagerReader</i>	34	0	0	441
<i>CellWorxReader</i>	45	0	0	430
<i>CellomicsReader</i>	31	0	0	444
<i>DNGReader</i>	19	0	0	456
<i>DeltavisionReader</i>	52	0	0	423
<i>DicomReader</i>	23	0	0	452
<i>EPSReader</i>	19	0	0	456
<i>Ecat7Reader</i>	23	0	0	452
<i>FEIReader</i>	19	0	0	456
<i>FEITiffReader</i>	39	0	0	436
<i>FV1000Reader</i>	113	0	0	362
<i>FakeReader</i>	21	0	0	454
<i>FitsReader</i>	19	0	0	456
<i>FlexReader</i>	69	0	0	406
<i>FluoviewReader</i>	49	0	0	426
<i>FujiReader</i>	23	0	0	452
<i>GIFReader</i>	19	0	0	456
<i>GatanDM2Reader</i>	30	0	0	445
<i>GatanReader</i>	36	0	0	439
<i>GelReader</i>	21	0	0	454
<i>HISReader</i>	27	0	0	448

Continued on next page

Table 19.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>HRDGDFReader</i>	21	0	0	454
<i>HamamatsuVMSReader</i>	26	0	0	449
<i>HitachiReader</i>	31	0	0	444
<i>ICSReader</i>	72	0	0	403
<i>IMODReader</i>	44	0	0	431
<i>INRReader</i>	22	0	0	453
<i>IPLabReader</i>	31	0	0	444
<i>IPWReader</i>	20	0	0	455
<i>ImaconReader</i>	23	0	0	452
<i>ImageIOReader</i>	19	0	0	456
<i>ImagicReader</i>	22	0	0	453
<i>ImarisHDFReader</i>	23	0	0	452
<i>ImarisReader</i>	32	0	0	443
<i>ImarisTiffReader</i>	23	0	0	452
<i>ImprovisionTiffReader</i>	25	0	0	450
<i>InspectorReader</i>	19	0	0	456
<i>InCell3000Reader</i>	19	0	0	456
<i>InCellReader</i>	67	0	0	408
<i>InveonReader</i>	30	0	0	445
<i>IvisionReader</i>	34	0	0	441
<i>JEOLReader</i>	19	0	0	456
<i>JPEG2000Reader</i>	19	0	0	456
<i>JPEGReader</i>	19	0	0	456
<i>JPKReader</i>	19	0	0	456
<i>JPXReader</i>	19	0	0	456
<i>KhorosReader</i>	19	0	0	456
<i>KodakReader</i>	26	0	0	449
<i>L2DReader</i>	29	0	0	446
<i>LEOReader</i>	27	0	0	448
<i>LIFReader</i>	85	0	0	390
<i>LIMReader</i>	19	0	0	456
<i>LegacyND2Reader</i>	19	0	0	456
<i>LegacyQTReader</i>	19	0	0	456
<i>LeicaReader</i>	56	0	0	419
<i>LeicaSCNReader</i>	33	0	0	442
<i>LiFlimReader</i>	25	0	0	450
<i>MIASReader</i>	64	0	0	411
<i>MINCReader</i>	23	0	0	452
<i>MNGReader</i>	19	0	0	456
<i>MRCReader</i>	22	0	0	453
<i>MRWReader</i>	19	0	0	456
<i>MetamorphReader</i>	43	0	0	432
<i>MetamorphTiffReader</i>	38	0	0	437
<i>MicromanagerReader</i>	38	0	0	437
<i>MinimalTiffReader</i>	19	0	0	456
<i>MolecularImagingReader</i>	21	0	0	454
<i>NAFReader</i>	19	0	0	456
<i>ND2Reader</i>	19	0	0	456
<i>NDPIReader</i>	21	0	0	454
<i>NDPISReader</i>	19	0	0	456
<i>NRRDReader</i>	22	0	0	453
<i>NativeND2Reader</i>	52	0	0	423
<i>NativeQTReader</i>	19	0	0	456
<i>NiftiReader</i>	24	0	0	451
<i>NikonElementsTiffReader</i>	50	0	0	425
<i>NikonReader</i>	19	0	0	456
<i>NikonTiffReader</i>	47	0	0	428
<i>OBFReader</i>	19	0	0	456

Continued on next page

Table 19.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>OMETiffReader</i>	19	0	0	456
<i>OMEXMLReader</i>	19	0	0	456
<i>OpenlabRawReader</i>	19	0	0	456
<i>OpenlabReader</i>	32	0	0	443
<i>OperettaReader</i>	43	0	0	432
<i>OxfordInstrumentsReader</i>	22	0	0	453
<i>PCIRReader</i>	29	0	0	446
<i>PCORAWReader</i>	26	0	0	449
<i>PCXReader</i>	19	0	0	456
<i>PDSReader</i>	23	0	0	452
<i>PGMReader</i>	19	0	0	456
<i>PQBinReader</i>	21	0	0	454
<i>PSDReader</i>	19	0	0	456
<i>PerkinElmerReader</i>	30	0	0	445
<i>PhotoshopTiffReader</i>	19	0	0	456
<i>PictReader</i>	19	0	0	456
<i>PovrayReader</i>	19	0	0	456
<i>PrairieReader</i>	45	0	0	430
<i>PyramidTiffReader</i>	19	0	0	456
<i>QTReader</i>	19	0	0	456
<i>QuesantReader</i>	22	0	0	453
<i>RHKReader</i>	22	0	0	453
<i>SBIGReader</i>	22	0	0	453
<i>SDTReader</i>	19	0	0	456
<i>SEQReader</i>	19	0	0	456
<i>SIFReader</i>	20	0	0	455
<i>SISReader</i>	33	0	0	442
<i>SMCameraReader</i>	19	0	0	456
<i>SVSReader</i>	29	0	0	446
<i>ScanrReader</i>	43	0	0	432
<i>ScreenReader</i>	34	0	0	441
<i>SeikoReader</i>	22	0	0	453
<i>SimplePCITiffReader</i>	33	0	0	442
<i>SlidebookReader</i>	34	0	0	441
<i>SlidebookTiffReader</i>	30	0	0	445
<i>SpiderReader</i>	21	0	0	454
<i>TCSReader</i>	22	0	0	453
<i>TargaReader</i>	20	0	0	455
<i>TextReader</i>	19	0	0	456
<i>TiffDelegateReader</i>	19	0	0	456
<i>TiffJAIRReader</i>	19	0	0	456
<i>TiffReader</i>	22	0	0	453
<i>TileJPEGReader</i>	19	0	0	456
<i>TillVisionReader</i>	22	0	0	453
<i>TopometrixReader</i>	22	0	0	453
<i>TrestleReader</i>	26	0	0	449
<i>UBMReader</i>	19	0	0	456
<i>UnisokuReader</i>	22	0	0	453
<i>VGSAMReader</i>	19	0	0	456
<i>VarianFDFReader</i>	25	0	0	450
<i>VisitechReader</i>	19	0	0	456
<i>VolocityClippingReader</i>	19	0	0	456
<i>VolocityReader</i>	38	0	0	437
<i>WATOPReader</i>	22	0	0	453
<i>WlzReader</i>	26	0	0	449
<i>ZeissCZIRReader</i>	158	0	0	317
<i>ZeissLSMReader</i>	101	0	0	374
<i>ZeissTIFFReader</i>	19	0	0	456

Continued on next page

Table 19.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>ZeissZVIReader</i>	19	0	0	456
<i>ZipReader</i>	19	0	0	456

19.2 Metadata fields

Field	Supported	Unsupported	Partial	Unknown/Missing
Arc - ID ¹	0	0	0	160
Arc - LotNumber ²	1	0	0	159
Arc - Manufacturer ³	1	0	0	159
Arc - Model ⁴	1	0	0	159
Arc - Power ⁵	1	0	0	159
Arc - SerialNumber ⁶	1	0	0	159
Arc - Type ⁷	0	0	0	160
BooleanAnnotation - AnnotationRef ⁸	0	0	0	160
BooleanAnnotation - Description ⁹	0	0	0	160
BooleanAnnotation - ID ¹⁰	0	0	0	160
BooleanAnnotation - Namespace ¹¹	0	0	0	160
BooleanAnnotation - Value ¹²	0	0	0	160
Channel - AcquisitionMode ¹³	4	0	0	156
Channel - AnnotationRef ¹⁴	0	0	0	160
Channel - Color ¹⁵	8	0	0	152
Channel - ContrastMethod ¹⁶	0	0	0	160
Channel - EmissionWavelength ¹⁷	16	0	0	144
Channel - ExcitationWavelength ¹⁸	17	0	0	143
Channel - FilterSetRef ¹⁹	1	0	0	159
Channel - Fluor ²⁰	1	0	0	159
Channel - ID ²¹	160	0	0	0

Continued on next page

¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Arc_Type

⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID

⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description

¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID

¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace

¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#BooleanAnnotation_Value

¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID

¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ContrastMethod

¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSetRef_ID

²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Fluor

²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Channel - IlluminationType ²²	3	0	0	157
Channel - LightSourceSettingsAttenuation ²³	1	0	0	159
Channel - LightSourceSettingsID ²⁴	5	0	0	155
Channel - LightSourceSettingsWavelength ²⁵	2	0	0	158
Channel - NDFilter ²⁶	2	0	0	158
Channel - Name ²⁷	31	0	0	129
Channel - PinholeSize ²⁸	10	0	0	150
Channel - PockelCellSetting ²⁹	0	0	0	160
Channel - SamplesPerPixel ³⁰	160	0	0	0
CommentAnnotation - AnnotationRef ³¹	0	0	0	160
CommentAnnotation - Description ³²	0	0	0	160
CommentAnnotation - ID ³³	0	0	0	160
CommentAnnotation - Namespace ³⁴	0	0	0	160
CommentAnnotation - Value ³⁵	0	0	0	160
Dataset - AnnotationRef ³⁶	0	0	0	160
Dataset - Description ³⁷	0	0	0	160
Dataset - ExperimenterGroupRef ³⁸	0	0	0	160
Dataset - ExperimenterRef ³⁹	0	0	0	160
Dataset - ID ⁴⁰	0	0	0	160
Dataset - ImageRef ⁴¹	0	0	0	160
Dataset - Name ⁴²	0	0	0	160

Continued on next page

²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Attenuation²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_NDFilter²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PockelCellSetting³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#CommentAnnotation_Value³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dataset_Description³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroupRef_ID³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dataset_ID⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dataset_Name

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Detector - AmplificationGain ⁴³	2	0	0	158
Detector - Gain ⁴⁴	5	0	0	155
Detector - ID ⁴⁵	34	0	0	126
Detector - LotNumber ⁴⁶	1	0	0	159
Detector - Manufacturer ⁴⁷	4	0	0	156
Detector - Model ⁴⁸	13	0	0	147
Detector - Offset ⁴⁹	5	0	0	155
Detector - SerialNumber ⁵⁰	3	0	0	157
Detector - Type ⁵¹	27	0	0	133
Detector - Voltage ⁵²	2	0	0	158
Detector - Zoom ⁵³	4	0	0	156
DetectorSettings - Binning ⁵⁴	17	0	0	143
DetectorSettings - Gain ⁵⁵	19	0	0	141
DetectorSettings - ID ⁵⁶	32	0	0	128
DetectorSettings - Offset ⁵⁷	8	0	0	152
DetectorSettings - ReadOutRate ⁵⁸	5	0	0	155
DetectorSettings - Voltage ⁵⁹	6	0	0	154
Dichroic - ID ⁶⁰	6	0	0	154
Dichroic - LotNumber ⁶¹	1	0	0	159
Dichroic - Manufacturer ⁶²	1	0	0	159
Dichroic - Model ⁶³	6	0	0	154
Dichroic - SerialNumber ⁶⁴	1	0	0	159
DoubleAnnotation - AnnotationRef ⁶⁵	0	0	0	160

Continued on next page

⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_AmplificationGain⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Voltage⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
DoubleAnnotation - Description ⁶⁶	0	0	0	160
DoubleAnnotation - ID ⁶⁷	0	0	0	160
DoubleAnnotation - Namespace ⁶⁸	0	0	0	160
DoubleAnnotation - Value ⁶⁹	0	0	0	160
Ellipse - FillColor ⁷⁰	0	0	0	160
Ellipse - FillRule ⁷¹	0	0	0	160
Ellipse - FontFamily ⁷²	0	0	0	160
Ellipse - FontSize ⁷³	2	0	0	158
Ellipse - FontStyle ⁷⁴	0	0	0	160
Ellipse - ID ⁷⁵	5	0	0	155
Ellipse - LineCap ⁷⁶	0	0	0	160
Ellipse - Locked ⁷⁷	0	0	0	160
Ellipse - RadiusX ⁷⁸	5	0	0	155
Ellipse - RadiusY ⁷⁹	5	0	0	155
Ellipse - StrokeColor ⁸⁰	0	0	0	160
Ellipse - StrokeDashArray ⁸¹	0	0	0	160
Ellipse - StrokeWidth ⁸²	2	0	0	158
Ellipse - Text ⁸³	3	0	0	157
Ellipse - TheC ⁸⁴	0	0	0	160
Ellipse - TheT ⁸⁵	2	0	0	158
Ellipse - TheZ ⁸⁶	2	0	0	158
Ellipse - Transform ⁸⁷	2	0	0	158
Ellipse - Visible ⁸⁸	0	0	0	160
Ellipse - X ⁸⁹	5	0	0	155
Ellipse - Y ⁹⁰	5	0	0	155
Experiment - Description ⁹¹	1	0	0	159

Continued on next page

⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#DoubleAnnotation_Value⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Description

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Experiment - ExperimentRef ⁹²	0	0	0	160
Experiment - ID ⁹³	5	0	0	155
Experiment - Type ⁹⁴	5	0	0	155
Experimenter - AnnotationRef ⁹⁵	0	0	0	160
Experimenter - Email ⁹⁶	2	0	0	158
Experimenter - FirstName ⁹⁷	5	0	0	155
Experimenter - ID ⁹⁸	11	0	0	149
Experimenter - Institution ⁹⁹	4	0	0	156
Experimenter - LastName ¹⁰⁰	9	0	0	151
Experimenter - MiddleName ¹⁰¹	1	0	0	159
Experimenter - UserName ¹⁰²	3	0	0	157
ExperimenterGroup - AnnotationRef ¹⁰³	0	0	0	160
ExperimenterGroup - Description ¹⁰⁴	0	0	0	160
ExperimenterGroup - ExperimentRef ¹⁰⁵	0	0	0	160
ExperimenterGroup - ID ¹⁰⁶	0	0	0	160
ExperimenterGroup - Leader ¹⁰⁷	0	0	0	160
ExperimenterGroup - Name ¹⁰⁸	0	0	0	160
Filament - ID ¹⁰⁹	0	0	0	160
Filament - LotNumber ¹¹⁰	1	0	0	159
Filament - Manufacturer ¹¹¹	1	0	0	159
Filament - Model ¹¹²	1	0	0	159
Filament - Power ¹¹³	1	0	0	159

Continued on next page

⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Email⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_MiddleName¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroup_Description¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroup_ID¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Leader_ID¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroup_Name¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Filament - Serial-Number ¹¹⁴	1	0	0	159
Filament - Type ¹¹⁵	0	0	0	160
FileAnnotation - AnnotationRef ¹¹⁶	0	0	0	160
FileAnnotation - Description ¹¹⁷	0	0	0	160
FileAnnotation - ID ¹¹⁸	0	0	0	160
FileAnnotation - Namespace ¹¹⁹	0	0	0	160
Filter - Filter-Wheel ¹²⁰	2	0	0	158
Filter - ID ¹²¹	8	0	0	152
Filter - LotNumber ¹²²	1	0	0	159
Filter - Manufacturer ¹²³	1	0	0	159
Filter - Model ¹²⁴	8	0	0	152
Filter - SerialNumber ¹²⁵	1	0	0	159
Filter - Type ¹²⁶	2	0	0	158
FilterSet - DichroicRef ¹²⁷	2	0	0	158
FilterSet - Emission-FilterRef ¹²⁸	2	0	0	158
FilterSet - ExcitationFilterRef ¹²⁹	2	0	0	158
FilterSet - ID ¹³⁰	2	0	0	158
FilterSet - LotNumber ¹³¹	1	0	0	159
FilterSet - Manufacturer ¹³²	1	0	0	159
FilterSet - Model ¹³³	2	0	0	158
FilterSet - Serial-Number ¹³⁴	1	0	0	159
Image - Acquisition-Date ¹³⁵	160	0	0	0

Continued on next page

¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filament_Type¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_FilterWheel¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_Type¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSet_ID¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Image - Annotation-Ref ¹³⁶	0	0	0	160
Image - Description ¹³⁷	43	0	0	117
Image - ExperimentRef ¹³⁸	2	0	0	158
Image - ExperimenterGroupRef ¹³⁹	0	0	0	160
Image - ExperimenterRef ¹⁴⁰	6	0	0	154
Image - ID ¹⁴¹	160	0	0	0
Image - InstrumentRef ¹⁴²	43	0	0	117
Image - Microbeam-ManipulationRef ¹⁴³	0	0	0	160
Image - Name ¹⁴⁴	160	0	0	0
Image - ROIRef ¹⁴⁵	11	0	0	149
ImagingEnvironment - AirPressure ¹⁴⁶	1	0	0	159
ImagingEnvironment - CO2Percent ¹⁴⁷	1	0	0	159
ImagingEnvironment - Humidity ¹⁴⁸	1	0	0	159
ImagingEnvironment - Temperature ¹⁴⁹	10	0	0	150
Instrument - ID ¹⁵⁰	48	0	0	112
Label - FillColor ¹⁵¹	0	0	0	160
Label - FillRule ¹⁵²	0	0	0	160
Label - FontFamily ¹⁵³	0	0	0	160
Label - FontSize ¹⁵⁴	2	0	0	158
Label - FontStyle ¹⁵⁵	0	0	0	160
Label - ID ¹⁵⁶	3	0	0	157
Label - LineCap ¹⁵⁷	0	0	0	160
Label - Locked ¹⁵⁸	0	0	0	160
Label - StrokeColor ¹⁵⁹	0	0	0	160

Continued on next page

¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimentRef_ID¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroupRef_ID¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#MicrobeamManipulationRef_ID¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_AirPressure¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_CO2Percent¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Humidity¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Label - StrokeDashArray ¹⁶⁰	0	0	0	160
Label - StrokeWidth ¹⁶¹	2	0	0	158
Label - Text ¹⁶²	3	0	0	157
Label - TheC ¹⁶³	0	0	0	160
Label - TheT ¹⁶⁴	0	0	0	160
Label - TheZ ¹⁶⁵	0	0	0	160
Label - Transform ¹⁶⁶	0	0	0	160
Label - Visible ¹⁶⁷	0	0	0	160
Label - X ¹⁶⁸	3	0	0	157
Label - Y ¹⁶⁹	3	0	0	157
Laser - Frequency-Multiplication ¹⁷⁰	0	0	0	160
Laser - ID ¹⁷¹	9	0	0	151
Laser - Laser-Medium ¹⁷²	8	0	0	152
Laser - LotNumber ¹⁷³	1	0	0	159
Laser - Manufacturer ¹⁷⁴	2	0	0	158
Laser - Model ¹⁷⁵	4	0	0	156
Laser - PockelCell ¹⁷⁶	0	0	0	160
Laser - Power ¹⁷⁷	3	0	0	157
Laser - Pulse ¹⁷⁸	0	0	0	160
Laser - Pump ¹⁷⁹	0	0	0	160
Laser - Repetition-Rate ¹⁸⁰	1	0	0	159
Laser - SerialNumber ¹⁸¹	1	0	0	159
Laser - Tuneable ¹⁸²	0	0	0	160
Laser - Type ¹⁸³	8	0	0	152
Laser - Wavelength ¹⁸⁴	7	0	0	153
LightEmittingDiode - ID ¹⁸⁵	0	0	0	160

Continued on next page

¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_X¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_Y¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_FrequencyMultiplication¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_PockelCell¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Pulse¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pump_ID¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_RepetitionRate¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Tuneable¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
LightEmittingDiode - LotNumber ¹⁸⁶	1	0	0	159
LightEmittingDiode - Manufacturer ¹⁸⁷	1	0	0	159
LightEmittingDiode - Model ¹⁸⁸	1	0	0	159
LightEmittingDiode - Power ¹⁸⁹	1	0	0	159
LightEmittingDiode - SerialNumber ¹⁹⁰	1	0	0	159
LightPath - DichroicRef ¹⁹¹	3	0	0	157
LightPath - EmissionFilterRef ¹⁹²	5	0	0	155
LightPath - ExcitationFilterRef ¹⁹³	1	0	0	159
Line - FillColor ¹⁹⁴	0	0	0	160
Line - FillRule ¹⁹⁵	0	0	0	160
Line - FontFamily ¹⁹⁶	0	0	0	160
Line - FontSize ¹⁹⁷	2	0	0	158
Line - FontStyle ¹⁹⁸	0	0	0	160
Line - ID ¹⁹⁹	5	0	0	155
Line - LineCap ²⁰⁰	0	0	0	160
Line - Locked ²⁰¹	0	0	0	160
Line - MarkerEnd ²⁰²	0	0	0	160
Line - MarkerStart ²⁰³	0	0	0	160
Line - StrokeColor ²⁰⁴	0	0	0	160
Line - StrokeDashArray ²⁰⁵	0	0	0	160
Line - StrokeWidth ²⁰⁶	2	0	0	158
Line - Text ²⁰⁷	2	0	0	158
Line - TheC ²⁰⁸	0	0	0	160
Line - TheT ²⁰⁹	1	0	0	159
Line - TheZ ²¹⁰	1	0	0	159
Line - Transform ²¹¹	1	0	0	159

Continued on next page

¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_MarkerEnd²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_MarkerStart²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Line - Visible ²¹²	0	0	0	160
Line - X1 ²¹³	5	0	0	155
Line - X2 ²¹⁴	5	0	0	155
Line - Y1 ²¹⁵	5	0	0	155
Line - Y2 ²¹⁶	5	0	0	155
ListAnnotation - AnnotationRef ²¹⁷	0	0	0	160
ListAnnotation - Description ²¹⁸	0	0	0	160
ListAnnotation - ID ²¹⁹	0	0	0	160
ListAnnotation - Namespace ²²⁰	0	0	0	160
LongAnnotation - AnnotationRef ²²¹	0	0	0	160
LongAnnotation - Description ²²²	0	0	0	160
LongAnnotation - ID ²²³	0	0	0	160
LongAnnotation - Namespace ²²⁴	0	0	0	160
LongAnnotation - Value ²²⁵	0	0	0	160
Mask - FillColor ²²⁶	1	0	0	159
Mask - FillRule ²²⁷	0	0	0	160
Mask - FontFamily ²²⁸	0	0	0	160
Mask - FontSize ²²⁹	0	0	0	160
Mask - Height ²³⁰	2	0	0	158
Mask - ID ²³¹	2	0	0	158
Mask - LineCap ²³²	0	0	0	160
Mask - Locked ²³³	0	0	0	160
Mask - StrokeColor ²³⁴	1	0	0	159
Mask - StrokeDashArray ²³⁵	0	0	0	160

Continued on next page

²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#LongAnnotation_Value²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Height²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Mask - StrokeWidth ²³⁶	0	0	0	160
Mask - Text ²³⁷	0	0	0	160
Mask - TheC ²³⁸	0	0	0	160
Mask - TheT ²³⁹	0	0	0	160
Mask - TheZ ²⁴⁰	0	0	0	160
Mask - Transform ²⁴¹	0	0	0	160
Mask - Visible ²⁴²	0	0	0	160
Mask - Width ²⁴³	2	0	0	158
Mask - X ²⁴⁴	2	0	0	158
Mask - Y ²⁴⁵	2	0	0	158
MicrobeamManipulation - ExperimenterRef ²⁴⁶	0	0	0	160
MicrobeamManipulation - ID ²⁴⁷	0	0	0	160
MicrobeamManipulation - ROIRef ²⁴⁸	0	0	0	160
MicrobeamManipulation - Type ²⁴⁹	0	0	0	160
MicrobeamManipulationLightSourceSettings - Attenuation ²⁵⁰	0	0	0	160
MicrobeamManipulationLightSourceSettings - ID ²⁵¹	0	0	0	160
MicrobeamManipulationLightSourceSettings - Wavelength ²⁵²	0	0	0	160
Microscope - Lot-Number ²⁵³	1	0	0	159
Microscope - Manufacturer ²⁵⁴	2	0	0	158
Microscope - Model ²⁵⁵	11	0	0	149
Microscope - Serial-Number ²⁵⁶	4	0	0	156
Microscope - Type ²⁵⁷	3	0	0	157
Objective - CalibratedMagnification ²⁵⁸	9	0	0	151
Objective - Correction ²⁵⁹	25	0	0	135

Continued on next page

²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#MicrobeamManipulation_ID²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#MicrobeamManipulation_Type²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Attenuation²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Objective - ID ²⁶⁰	33	0	0	127
Objective - Immersion ²⁶¹	26	0	0	134
Objective - Iris ²⁶²	2	0	0	158
Objective - LensNA ²⁶³	19	0	0	141
Objective - LotNumber ²⁶⁴	1	0	0	159
Objective - Manufacturer ²⁶⁵	5	0	0	155
Objective - Model ²⁶⁶	12	0	0	148
Objective - NominalMagnification ²⁶⁷	25	0	0	135
Objective - SerialNumber ²⁶⁸	3	0	0	157
Objective - WorkingDistance ²⁶⁹	9	0	0	151
ObjectiveSettings - CorrectionCollar ²⁷⁰	1	0	0	159
ObjectiveSettings - ID ²⁷¹	28	0	0	132
ObjectiveSettings - Medium ²⁷²	1	0	0	159
ObjectiveSettings - RefractiveIndex ²⁷³	7	0	0	153
Pixels - AnnotationRef ²⁷⁴	0	0	0	160
Pixels - BigEndian ²⁷⁵	160	0	0	0
Pixels - DimensionOrder ²⁷⁶	160	0	0	0
Pixels - ID ²⁷⁷	160	0	0	0
Pixels - Interleaved ²⁷⁸	160	0	0	0
Pixels - PhysicalSizeX ²⁷⁹	85	0	0	75
Pixels - PhysicalSizeY ²⁸⁰	85	0	0	75
Pixels - PhysicalSizeZ ²⁸¹	42	0	0	118

Continued on next page

²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Iris²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_Medium²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Pixels - Significant-Bits ²⁸²	160	0	0	0
Pixels - SizeC ²⁸³	160	0	0	0
Pixels - SizeT ²⁸⁴	160	0	0	0
Pixels - SizeX ²⁸⁵	160	0	0	0
Pixels - SizeY ²⁸⁶	160	0	0	0
Pixels - SizeZ ²⁸⁷	160	0	0	0
Pixels - TimeIncrement ²⁸⁸	16	0	0	144
Pixels - Type ²⁸⁹	160	0	0	0
Plane - Annotation-Ref ²⁹⁰	0	0	0	160
Plane - DeltaT ²⁹¹	24	0	0	136
Plane - Exposure-Time ²⁹²	30	0	0	130
Plane - HashSHA1 ²⁹³	0	0	0	160
Plane - PositionX ²⁹⁴	27	0	0	133
Plane - PositionY ²⁹⁵	27	0	0	133
Plane - PositionZ ²⁹⁶	21	0	0	139
Plane - TheC ²⁹⁷	160	0	0	0
Plane - TheT ²⁹⁸	160	0	0	0
Plane - TheZ ²⁹⁹	160	0	0	0
Plate - Annotation-Ref ³⁰⁰	0	0	0	160
Plate - ColumnNamingConvention ³⁰¹	8	0	0	152
Plate - Columns ³⁰²	4	0	0	156
Plate - Description ³⁰³	2	0	0	158
Plate - ExternalIdentifier ³⁰⁴	3	0	0	157
Plate - ID ³⁰⁵	10	0	0	150
Plate - Name ³⁰⁶	9	0	0	151
Plate - RowNamingConvention ³⁰⁷	8	0	0	152

Continued on next page

²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_HashSHA1²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Description³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Plate - Rows ³⁰⁸	4	0	0	156
Plate - Status ³⁰⁹	0	0	0	160
Plate - WellOriginX ³¹⁰	1	0	0	159
Plate - WellOriginY ³¹¹	1	0	0	159
PlateAcquisition - AnnotationRef ³¹²	0	0	0	160
PlateAcquisition - Description ³¹³	0	0	0	160
PlateAcquisition - EndTime ³¹⁴	2	0	0	158
PlateAcquisition - ID ³¹⁵	8	0	0	152
PlateAcquisition - MaximumFieldCount ³¹⁶	8	0	0	152
PlateAcquisition - Name ³¹⁷	0	0	0	160
PlateAcquisition - StartTime ³¹⁸	3	0	0	157
PlateAcquisition - WellSampleRef ³¹⁹	7	0	0	153
Point - FillColor ³²⁰	0	0	0	160
Point - FillRule ³²¹	0	0	0	160
Point - FontFamily ³²²	0	0	0	160
Point - FontSize ³²³	1	0	0	159
Point - FontStyle ³²⁴	0	0	0	160
Point - ID ³²⁵	3	0	0	157
Point - LineCap ³²⁶	0	0	0	160
Point - Locked ³²⁷	0	0	0	160
Point - StrokeColor ³²⁸	1	0	0	159
Point - StrokeDashArray ³²⁹	1	0	0	159
Point - StrokeWidth ³³⁰	2	0	0	158
Point - Text ³³¹	1	0	0	159

Continued on next page

³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Status³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginX³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginY³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_Description³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_EndTime³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_Name³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Point - TheC ³³²	0	0	0	160
Point - TheT ³³³	1	0	0	159
Point - TheZ ³³⁴	2	0	0	158
Point - Transform ³³⁵	0	0	0	160
Point - Visible ³³⁶	0	0	0	160
Point - X ³³⁷	3	0	0	157
Point - Y ³³⁸	3	0	0	157
Polygon - Fill-Color ³³⁹	0	0	0	160
Polygon - FillRule ³⁴⁰	0	0	0	160
Polygon - FontFamily ³⁴¹	0	0	0	160
Polygon - Font-Size ³⁴²	2	0	0	158
Polygon - FontStyle ³⁴³	0	0	0	160
Polygon - ID ³⁴⁴	7	0	0	153
Polygon - LineCap ³⁴⁵	0	0	0	160
Polygon - Locked ³⁴⁶	0	0	0	160
Polygon - Points ³⁴⁷	7	0	0	153
Polygon - Stroke-Color ³⁴⁸	1	0	0	159
Polygon - StrokeDashArray ³⁴⁹	1	0	0	159
Polygon - StrokeWidth ³⁵⁰	3	0	0	157
Polygon - Text ³⁵¹	2	0	0	158
Polygon - TheC ³⁵²	0	0	0	160
Polygon - TheT ³⁵³	1	0	0	159
Polygon - TheZ ³⁵⁴	2	0	0	158
Polygon - Transform ³⁵⁵	1	0	0	159
Polygon - Visible ³⁵⁶	0	0	0	160
Polyline - Fill-Color ³⁵⁷	0	0	0	160

Continued on next page

³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_X³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_Y³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Polyline - FillRule ³⁵⁸	0	0	0	160
Polyline - FontFamily ³⁵⁹	0	0	0	160
Polyline - FontSize ³⁶⁰	2	0	0	158
Polyline - FontStyle ³⁶¹	0	0	0	160
Polyline - ID ³⁶²	5	0	0	155
Polyline - LineCap ³⁶³	0	0	0	160
Polyline - Locked ³⁶⁴	0	0	0	160
Polyline - MarkerEnd ³⁶⁵	0	0	0	160
Polyline - MarkerStart ³⁶⁶	0	0	0	160
Polyline - Points ³⁶⁷	5	0	0	155
Polyline - StrokeColor ³⁶⁸	1	0	0	159
Polyline - StrokeDashArray ³⁶⁹	1	0	0	159
Polyline - StrokeWidth ³⁷⁰	3	0	0	157
Polyline - Text ³⁷¹	2	0	0	158
Polyline - TheC ³⁷²	0	0	0	160
Polyline - TheT ³⁷³	1	0	0	159
Polyline - TheZ ³⁷⁴	2	0	0	158
Polyline - Transform ³⁷⁵	1	0	0	159
Polyline - Visible ³⁷⁶	0	0	0	160
Project - AnnotationRef ³⁷⁷	0	0	0	160
Project - DatasetRef ³⁷⁸	0	0	0	160
Project - Description ³⁷⁹	0	0	0	160
Project - ExperimenterGroupRef ³⁸⁰	0	0	0	160
Project - ExperimenterRef ³⁸¹	0	0	0	160

Continued on next page

³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_MarkerEnd³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_MarkerStart³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DatasetRef_ID³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Project_Description³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterGroupRef_ID³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Project - ID ³⁸²	0	0	0	160
Project - Name ³⁸³	0	0	0	160
ROI - Annotation-Ref ³⁸⁴	0	0	0	160
ROI - Description ³⁸⁵	1	0	0	159
ROI - ID ³⁸⁶	11	0	0	149
ROI - Name ³⁸⁷	3	0	0	157
ROI - Namespace ³⁸⁸	0	0	0	160
Reagent - AnnotationRef ³⁸⁹	0	0	0	160
Reagent - Description ³⁹⁰	0	0	0	160
Reagent - ID ³⁹¹	0	0	0	160
Reagent - Name ³⁹²	0	0	0	160
Reagent - ReagentIdentifier ³⁹³	0	0	0	160
Rectangle - FillColor ³⁹⁴	0	0	0	160
Rectangle - FillRule ³⁹⁵	0	0	0	160
Rectangle - FontFamily ³⁹⁶	0	0	0	160
Rectangle - FontSize ³⁹⁷	2	0	0	158
Rectangle - FontStyle ³⁹⁸	0	0	0	160
Rectangle - Height ³⁹⁹	7	0	0	153
Rectangle - ID ⁴⁰⁰	7	0	0	153
Rectangle - LineCap ⁴⁰¹	0	0	0	160
Rectangle - Locked ⁴⁰²	0	0	0	160
Rectangle - StrokeColor ⁴⁰³	0	0	0	160
Rectangle - StrokeDashArray ⁴⁰⁴	0	0	0	160
Rectangle - StrokeWidth ⁴⁰⁵	2	0	0	158

Continued on next page

³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Project_ID³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Project_Name³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Description³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Name³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Namespace³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Reagent_Description³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Reagent_ID³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Reagent_Name³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Reagent_ReagentIdentifier³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Rectangle - Text ⁴⁰⁶	2	0	0	158
Rectangle - TheC ⁴⁰⁷	0	0	0	160
Rectangle - TheT ⁴⁰⁸	1	0	0	159
Rectangle - TheZ ⁴⁰⁹	1	0	0	159
Rectangle - Transform ⁴¹⁰	1	0	0	159
Rectangle - Visible ⁴¹¹	0	0	0	160
Rectangle - Width ⁴¹²	7	0	0	153
Rectangle - X ⁴¹³	7	0	0	153
Rectangle - Y ⁴¹⁴	7	0	0	153
Screen - AnnotationRef ⁴¹⁵	0	0	0	160
Screen - Description ⁴¹⁶	0	0	0	160
Screen - ID ⁴¹⁷	1	0	0	159
Screen - Name ⁴¹⁸	1	0	0	159
Screen - PlateRef ⁴¹⁹	1	0	0	159
Screen - ProtocolDescription ⁴²⁰	0	0	0	160
Screen - ProtocolIdentifier ⁴²¹	0	0	0	160
Screen - ReagentSetDescription ⁴²²	0	0	0	160
Screen - ReagentSetIdentifier ⁴²³	0	0	0	160
Screen - Type ⁴²⁴	0	0	0	160
StageLabel - Name ⁴²⁵	3	0	0	157
StageLabel - X ⁴²⁶	2	0	0	158
StageLabel - Y ⁴²⁷	2	0	0	158
StageLabel - Z ⁴²⁸	3	0	0	157
TagAnnotation - AnnotationRef ⁴²⁹	0	0	0	160
TagAnnotation - Description ⁴³⁰	0	0	0	160

Continued on next page

⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_Description⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_ID⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_Name⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_Screen_PlateRef_ID⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_ProtocolDescription⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_ProtocolIdentifier⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_ReagentSetDescription⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_ReagentSetIdentifier⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Screen_Type⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_X⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Y⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
TagAnnotation ID ⁴³¹	0	0	0	160
TagAnnotation Namespace ⁴³²	0	0	0	160
TagAnnotation Value ⁴³³	0	0	0	160
TermAnnotation AnnotationRef ⁴³⁴	0	0	0	160
TermAnnotation Description ⁴³⁵	0	0	0	160
TermAnnotation ID ⁴³⁶	0	0	0	160
TermAnnotation Namespace ⁴³⁷	0	0	0	160
TermAnnotation Value ⁴³⁸	0	0	0	160
TiffData - FirstC ⁴³⁹	0	0	0	160
TiffData - FirstT ⁴⁴⁰	0	0	0	160
TiffData - FirstZ ⁴⁴¹	0	0	0	160
TiffData - IFD ⁴⁴²	0	0	0	160
TiffData PlaneCount ⁴⁴³	0	0	0	160
TimestampAnnotation - AnnotationRef ⁴⁴⁴	0	0	0	160
TimestampAnnotation - Description ⁴⁴⁵	0	0	0	160
TimestampAnnotation - ID ⁴⁴⁶	0	0	0	160
TimestampAnnotation - Namespace ⁴⁴⁷	0	0	0	160
TimestampAnnotation - Value ⁴⁴⁸	0	0	0	160
TransmittanceRange - CutIn ⁴⁴⁹	5	0	0	155
TransmittanceRange - CutInTolerance ⁴⁵⁰	1	0	0	159
TransmittanceRange - CutOut ⁴⁵¹	5	0	0	155

Continued on next page

⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#TagAnnotation_Value⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#TermAnnotation_Value⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_FirstC⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_FirstT⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_FirstZ⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_IFD⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_PlaneCount⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#TimestampAnnotation_Value⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutInTolerance⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
TransmittanceRange - CutOutTolerance ⁴⁵²	1	0	0	159
TransmittanceRange - Transmittance ⁴⁵³	1	0	0	159
UUID - FileName ⁴⁵⁴	0	0	0	160
UUID - Value ⁴⁵⁵	0	0	0	160
Well - Annotation-Ref ⁴⁵⁶	0	0	0	160
Well - Color ⁴⁵⁷	0	0	0	160
Well - Column ⁴⁵⁸	11	0	0	149
Well - ExternalDescription ⁴⁵⁹	0	0	0	160
Well - ExternalIdentifier ⁴⁶⁰	0	0	0	160
Well - ID ⁴⁶¹	11	0	0	149
Well - ReagentRef ⁴⁶²	0	0	0	160
Well - Row ⁴⁶³	11	0	0	149
Well - Type ⁴⁶⁴	0	0	0	160
WellSample - AnnotationRef ⁴⁶⁵	0	0	0	160
WellSample - ID ⁴⁶⁶	11	0	0	149
WellSample - ImageRef ⁴⁶⁷	10	0	0	150
WellSample - Index ⁴⁶⁸	11	0	0	149
WellSample - PositionX ⁴⁶⁹	5	0	0	155
WellSample - PositionY ⁴⁷⁰	5	0	0	155
WellSample - Timepoint ⁴⁷¹	0	0	0	160
XMLAnnotation - AnnotationRef ⁴⁷²	0	0	0	160
XMLAnnotation - ID ⁴⁷³	0	0	0	160
XMLAnnotation - Namespace ⁴⁷⁴	0	0	0	160

Continued on next page

⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOutTolerance⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_Transmittance⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TiffData_TiffData_UUID_FileName⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#UniversallyUniqueIdentifier⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Color⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ExternalDescription⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ExternalIdentifier⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#ReagentRef_ID⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Type⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Timepoint⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#AnnotationRef_ID⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace

Table 19.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
XMLAnnotation Value ⁴⁷⁵	0	0	0	160

19.2.1 SlidebookReader

This page lists supported metadata fields for the Bio-Formats Olympus Slidebook format reader.

These fields are from the [OME data model](#)⁴⁷⁶. 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 475 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%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus Slidebook format reader:

- Channel : ID⁴⁷⁷
- Channel : NDFilter⁴⁷⁸
- Channel : Name⁴⁷⁹
- Channel : SamplesPerPixel⁴⁸⁰
- Image : AcquisitionDate⁴⁸¹
- Image : Description⁴⁸²
- Image : ID⁴⁸³
- Image : InstrumentRef⁴⁸⁴
- Image : Name⁴⁸⁵
- Instrument : ID⁴⁸⁶
- Objective : Correction⁴⁸⁷
- Objective : ID⁴⁸⁸
- Objective : Immersion⁴⁸⁹
- Objective : Model⁴⁹⁰
- Objective : NominalMagnification⁴⁹¹
- ObjectiveSettings : ID⁴⁹²

⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#XMLAnnotation_Value

⁴⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_NDFilter

⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

- Pixels : BigEndian⁴⁹³
- Pixels : DimensionOrder⁴⁹⁴
- Pixels : ID⁴⁹⁵
- Pixels : Interleaved⁴⁹⁶
- Pixels : PhysicalSizeX⁴⁹⁷
- Pixels : PhysicalSizeY⁴⁹⁸
- Pixels : PhysicalSizeZ⁴⁹⁹
- Pixels : SignificantBits⁵⁰⁰
- Pixels : SizeC⁵⁰¹
- Pixels : SizeT⁵⁰²
- Pixels : SizeX⁵⁰³
- Pixels : SizeY⁵⁰⁴
- Pixels : SizeZ⁵⁰⁵
- Pixels : Type⁵⁰⁶
- Plane : ExposureTime⁵⁰⁷
- Plane : TheC⁵⁰⁸
- Plane : TheT⁵⁰⁹
- Plane : TheZ⁵¹⁰

Total supported: 34

Total unknown or missing: 441

19.2.2 AIMReader

This page lists supported metadata fields for the Bio-Formats AIM format reader.

These fields are from the [OME data model](#)⁵¹¹. 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 475 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%).

⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁵¹¹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats AIM format reader:

- Channel : ID⁵¹²
- Channel : SamplesPerPixel⁵¹³
- Image : AcquisitionDate⁵¹⁴
- Image : ID⁵¹⁵
- Image : Name⁵¹⁶
- Pixels : BigEndian⁵¹⁷
- Pixels : DimensionOrder⁵¹⁸
- Pixels : ID⁵¹⁹
- Pixels : Interleaved⁵²⁰
- Pixels : PhysicalSizeX⁵²¹
- Pixels : PhysicalSizeY⁵²²
- Pixels : PhysicalSizeZ⁵²³
- Pixels : SignificantBits⁵²⁴
- Pixels : SizeC⁵²⁵
- Pixels : SizeT⁵²⁶
- Pixels : SizeX⁵²⁷
- Pixels : SizeY⁵²⁸
- Pixels : SizeZ⁵²⁹
- Pixels : Type⁵³⁰
- Plane : TheC⁵³¹
- Plane : TheT⁵³²
- Plane : TheZ⁵³³

Total supported: 22

Total unknown or missing: 453

- ⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.3 AliconaReader

This page lists supported metadata fields for the Bio-Formats Alicona AL3D format reader.

These fields are from the [OME data model](#)⁵³⁴. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 33 of them (6%).
- Of those, Bio-Formats fully or partially converts 33 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Alicona AL3D format reader:

- Channel : ID⁵³⁵
- Channel : SamplesPerPixel⁵³⁶
- Detector : ID⁵³⁷
- Detector : Type⁵³⁸
- DetectorSettings : ID⁵³⁹
- DetectorSettings : Voltage⁵⁴⁰
- Image : AcquisitionDate⁵⁴¹
- Image : ID⁵⁴²
- Image : InstrumentRef⁵⁴³
- Image : Name⁵⁴⁴
- Instrument : ID⁵⁴⁵
- Objective : CalibratedMagnification⁵⁴⁶
- Objective : Correction⁵⁴⁷
- Objective : ID⁵⁴⁸
- Objective : Immersion⁵⁴⁹
- Objective : WorkingDistance⁵⁵⁰
- ObjectiveSettings : ID⁵⁵¹
- Pixels : BigEndian⁵⁵²

⁵³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁵⁵³
- Pixels : ID⁵⁵⁴
- Pixels : Interleaved⁵⁵⁵
- Pixels : PhysicalSizeX⁵⁵⁶
- Pixels : PhysicalSizeY⁵⁵⁷
- Pixels : SignificantBits⁵⁵⁸
- Pixels : SizeC⁵⁵⁹
- Pixels : SizeT⁵⁶⁰
- Pixels : SizeX⁵⁶¹
- Pixels : SizeY⁵⁶²
- Pixels : SizeZ⁵⁶³
- Pixels : Type⁵⁶⁴
- Plane : TheC⁵⁶⁵
- Plane : TheT⁵⁶⁶
- Plane : TheZ⁵⁶⁷

Total supported: 33

Total unknown or missing: 442

19.2.4 GelReader

This page lists supported metadata fields for the Bio-Formats Amersham Biosciences GEL format reader.

These fields are from the [OME data model](#)⁵⁶⁸. 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 475 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 Amersham Biosciences GEL format reader:

- Channel : ID⁵⁶⁹
- Channel : SamplesPerPixel⁵⁷⁰

⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁵⁶⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁵⁷¹
- Image : ID⁵⁷²
- Image : Name⁵⁷³
- Pixels : BigEndian⁵⁷⁴
- Pixels : DimensionOrder⁵⁷⁵
- Pixels : ID⁵⁷⁶
- Pixels : Interleaved⁵⁷⁷
- Pixels : PhysicalSizeX⁵⁷⁸
- Pixels : PhysicalSizeY⁵⁷⁹
- Pixels : SignificantBits⁵⁸⁰
- Pixels : SizeC⁵⁸¹
- Pixels : SizeT⁵⁸²
- Pixels : SizeX⁵⁸³
- Pixels : SizeY⁵⁸⁴
- Pixels : SizeZ⁵⁸⁵
- Pixels : Type⁵⁸⁶
- Plane : TheC⁵⁸⁷
- Plane : TheT⁵⁸⁸
- Plane : TheZ⁵⁸⁹

Total supported: 21

Total unknown or missing: 454

19.2.5 AmiraReader

This page lists supported metadata fields for the Bio-Formats Amira format reader.

These fields are from the [OME data model](#)⁵⁹⁰. 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 475 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%).

⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁵⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Amira format reader:

- Channel : ID⁵⁹¹
- Channel : SamplesPerPixel⁵⁹²
- Image : AcquisitionDate⁵⁹³
- Image : ID⁵⁹⁴
- Image : Name⁵⁹⁵
- Pixels : BigEndian⁵⁹⁶
- Pixels : DimensionOrder⁵⁹⁷
- Pixels : ID⁵⁹⁸
- Pixels : Interleaved⁵⁹⁹
- Pixels : PhysicalSizeX⁶⁰⁰
- Pixels : PhysicalSizeY⁶⁰¹
- Pixels : PhysicalSizeZ⁶⁰²
- Pixels : SignificantBits⁶⁰³
- Pixels : SizeC⁶⁰⁴
- Pixels : SizeT⁶⁰⁵
- Pixels : SizeX⁶⁰⁶
- Pixels : SizeY⁶⁰⁷
- Pixels : SizeZ⁶⁰⁸
- Pixels : Type⁶⁰⁹
- Plane : TheC⁶¹⁰
- Plane : TheT⁶¹¹
- Plane : TheZ⁶¹²

Total supported: 22

Total unknown or missing: 453

-
- ⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.6 AnalyzeReader

This page lists supported metadata fields for the Bio-Formats Analyze 7.5 format reader.

These fields are from the [OME data model](#)⁶¹³. 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 475 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 Analyze 7.5 format reader:

- Channel : ID⁶¹⁴
- Channel : SamplesPerPixel⁶¹⁵
- Image : AcquisitionDate⁶¹⁶
- Image : Description⁶¹⁷
- Image : ID⁶¹⁸
- Image : Name⁶¹⁹
- Pixels : BigEndian⁶²⁰
- Pixels : DimensionOrder⁶²¹
- Pixels : ID⁶²²
- Pixels : Interleaved⁶²³
- Pixels : PhysicalSizeX⁶²⁴
- Pixels : PhysicalSizeY⁶²⁵
- Pixels : PhysicalSizeZ⁶²⁶
- Pixels : SignificantBits⁶²⁷
- Pixels : SizeC⁶²⁸
- Pixels : SizeT⁶²⁹
- Pixels : SizeX⁶³⁰
- Pixels : SizeY⁶³¹

⁶¹³<http://www.openmicroscopy.org/site/support/ome-model/>

⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁶³²
- Pixels : TimeIncrement⁶³³
- Pixels : Type⁶³⁴
- Plane : TheC⁶³⁵
- Plane : TheT⁶³⁶
- Plane : TheZ⁶³⁷

Total supported: 24

Total unknown or missing: 451

19.2.7 AFIREader

This page lists supported metadata fields for the Bio-Formats Aperio AFI format reader.

These fields are from the [OME data model](#)⁶³⁸. 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 475 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 Aperio AFI format reader:

- Channel : EmissionWavelength⁶³⁹
- Channel : ExcitationWavelength⁶⁴⁰
- Channel : ID⁶⁴¹
- Channel : Name⁶⁴²
- Channel : SamplesPerPixel⁶⁴³
- Image : AcquisitionDate⁶⁴⁴
- Image : ID⁶⁴⁵
- Image : InstrumentRef⁶⁴⁶
- Image : Name⁶⁴⁷
- Instrument : ID⁶⁴⁸
- Objective : ID⁶⁴⁹

⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁶³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

- Objective : NominalMagnification⁶⁵⁰
- ObjectiveSettings : ID⁶⁵¹
- Pixels : BigEndian⁶⁵²
- Pixels : DimensionOrder⁶⁵³
- Pixels : ID⁶⁵⁴
- Pixels : Interleaved⁶⁵⁵
- Pixels : PhysicalSizeX⁶⁵⁶
- Pixels : PhysicalSizeY⁶⁵⁷
- Pixels : SignificantBits⁶⁵⁸
- Pixels : SizeC⁶⁵⁹
- Pixels : SizeT⁶⁶⁰
- Pixels : SizeX⁶⁶¹
- Pixels : SizeY⁶⁶²
- Pixels : SizeZ⁶⁶³
- Pixels : Type⁶⁶⁴
- Plane : ExposureTime⁶⁶⁵
- Plane : TheC⁶⁶⁶
- Plane : TheT⁶⁶⁷
- Plane : TheZ⁶⁶⁸

Total supported: 30

Total unknown or missing: 445

19.2.8 SVSReader

This page lists supported metadata fields for the Bio-Formats Aperio SVS format reader.

These fields are from the [OME data model](#)⁶⁶⁹. 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 475 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%).

⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁶⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Aperio SVS format reader:

- Channel : EmissionWavelength⁶⁷⁰
- Channel : ExcitationWavelength⁶⁷¹
- Channel : ID⁶⁷²
- Channel : SamplesPerPixel⁶⁷³
- Image : AcquisitionDate⁶⁷⁴
- Image : Description⁶⁷⁵
- Image : ID⁶⁷⁶
- Image : InstrumentRef⁶⁷⁷
- Image : Name⁶⁷⁸
- Instrument : ID⁶⁷⁹
- Objective : ID⁶⁸⁰
- Objective : NominalMagnification⁶⁸¹
- ObjectiveSettings : ID⁶⁸²
- Pixels : BigEndian⁶⁸³
- Pixels : DimensionOrder⁶⁸⁴
- Pixels : ID⁶⁸⁵
- Pixels : Interleaved⁶⁸⁶
- Pixels : PhysicalSizeX⁶⁸⁷
- Pixels : PhysicalSizeY⁶⁸⁸
- Pixels : SignificantBits⁶⁸⁹
- Pixels : SizeC⁶⁹⁰
- Pixels : SizeT⁶⁹¹
- Pixels : SizeX⁶⁹²
- Pixels : SizeY⁶⁹³

⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁶⁹⁴
- Pixels : Type⁶⁹⁵
- Plane : TheC⁶⁹⁶
- Plane : TheT⁶⁹⁷
- Plane : TheZ⁶⁹⁸

Total supported: 29

Total unknown or missing: 446

19.2.9 CellWorxReader

This page lists supported metadata fields for the Bio-Formats CellWorx format reader.

These fields are from the [OME data model](#)⁶⁹⁹. 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 475 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 CellWorx format reader:

- Channel : EmissionWavelength⁷⁰⁰
- Channel : ExcitationWavelength⁷⁰¹
- Channel : ID⁷⁰²
- Channel : Name⁷⁰³
- Channel : SamplesPerPixel⁷⁰⁴
- Detector : ID⁷⁰⁵
- DetectorSettings : Gain⁷⁰⁶
- DetectorSettings : ID⁷⁰⁷
- Image : AcquisitionDate⁷⁰⁸
- Image : ID⁷⁰⁹
- Image : InstrumentRef⁷¹⁰
- Image : Name⁷¹¹

⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁶⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Instrument : ID⁷¹²
- Microscope : SerialNumber⁷¹³
- Pixels : BigEndian⁷¹⁴
- Pixels : DimensionOrder⁷¹⁵
- Pixels : ID⁷¹⁶
- Pixels : Interleaved⁷¹⁷
- Pixels : PhysicalSizeX⁷¹⁸
- Pixels : PhysicalSizeY⁷¹⁹
- Pixels : SignificantBits⁷²⁰
- Pixels : SizeC⁷²¹
- Pixels : SizeT⁷²²
- Pixels : SizeX⁷²³
- Pixels : SizeY⁷²⁴
- Pixels : SizeZ⁷²⁵
- Pixels : Type⁷²⁶
- Plane : TheC⁷²⁷
- Plane : TheT⁷²⁸
- Plane : TheZ⁷²⁹
- Plate : ID⁷³⁰
- Plate : Name⁷³¹
- PlateAcquisition : EndTime⁷³²
- PlateAcquisition : ID⁷³³
- PlateAcquisition : MaximumFieldCount⁷³⁴
- PlateAcquisition : StartTime⁷³⁵
- PlateAcquisition : WellSampleRef⁷³⁶
- Well : Column⁷³⁷

⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_EndTime

⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

- Well : ID⁷³⁸
- Well : Row⁷³⁹
- WellSample : ID⁷⁴⁰
- WellSample : ImageRef⁷⁴¹
- WellSample : Index⁷⁴²
- WellSample : PositionX⁷⁴³
- WellSample : PositionY⁷⁴⁴

Total supported: 45

Total unknown or missing: 430

19.2.10 AVIReader

This page lists supported metadata fields for the Bio-Formats Audio Video Interleave format reader.

These fields are from the [OME data model](#)⁷⁴⁵. 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 475 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 Audio Video Interleave format reader:

- Channel : ID⁷⁴⁶
- Channel : SamplesPerPixel⁷⁴⁷
- Image : AcquisitionDate⁷⁴⁸
- Image : ID⁷⁴⁹
- Image : Name⁷⁵⁰
- Pixels : BigEndian⁷⁵¹
- Pixels : DimensionOrder⁷⁵²
- Pixels : ID⁷⁵³
- Pixels : Interleaved⁷⁵⁴
- Pixels : SignificantBits⁷⁵⁵

⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

⁷⁴⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁷⁵⁶
- Pixels : SizeT⁷⁵⁷
- Pixels : SizeX⁷⁵⁸
- Pixels : SizeY⁷⁵⁹
- Pixels : SizeZ⁷⁶⁰
- Pixels : Type⁷⁶¹
- Plane : TheC⁷⁶²
- Plane : TheT⁷⁶³
- Plane : TheZ⁷⁶⁴

Total supported: 19

Total unknown or missing: 456

19.2.11 ARFReader

This page lists supported metadata fields for the Bio-Formats ARF format reader.

These fields are from the [OME data model](#)⁷⁶⁵. 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 475 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 ARF format reader:

- Channel : ID⁷⁶⁶
- Channel : SamplesPerPixel⁷⁶⁷
- Image : AcquisitionDate⁷⁶⁸
- Image : ID⁷⁶⁹
- Image : Name⁷⁷⁰
- Pixels : BigEndian⁷⁷¹
- Pixels : DimensionOrder⁷⁷²
- Pixels : ID⁷⁷³

⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷⁶⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁷⁷⁴
- Pixels : SignificantBits⁷⁷⁵
- Pixels : SizeC⁷⁷⁶
- Pixels : SizeT⁷⁷⁷
- Pixels : SizeX⁷⁷⁸
- Pixels : SizeY⁷⁷⁹
- Pixels : SizeZ⁷⁸⁰
- Pixels : Type⁷⁸¹
- Plane : TheC⁷⁸²
- Plane : TheT⁷⁸³
- Plane : TheZ⁷⁸⁴

Total supported: 19

Total unknown or missing: 456

19.2.12 BDReader

This page lists supported metadata fields for the Bio-Formats BD Pathway format reader.

These fields are from the [OME data model](#)⁷⁸⁵. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 57 of them (12%).
- Of those, Bio-Formats fully or partially converts 57 (100%).

Supported fields

These fields are fully supported by the Bio-Formats BD Pathway format reader:

- Channel : EmissionWavelength⁷⁸⁶
- Channel : ExcitationWavelength⁷⁸⁷
- Channel : ID⁷⁸⁸
- Channel : Name⁷⁸⁹
- Channel : SamplesPerPixel⁷⁹⁰
- Detector : ID⁷⁹¹

⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

- `DetectorSettings : Binning`⁷⁹²
- `DetectorSettings : Gain`⁷⁹³
- `DetectorSettings : ID`⁷⁹⁴
- `DetectorSettings : Offset`⁷⁹⁵
- `Image : AcquisitionDate`⁷⁹⁶
- `Image : ID`⁷⁹⁷
- `Image : InstrumentRef`⁷⁹⁸
- `Image : Name`⁷⁹⁹
- `Image : ROIRef`⁸⁰⁰
- `Instrument : ID`⁸⁰¹
- `Objective : ID`⁸⁰²
- `Objective : LensNA`⁸⁰³
- `Objective : Manufacturer`⁸⁰⁴
- `Objective : NominalMagnification`⁸⁰⁵
- `ObjectiveSettings : ID`⁸⁰⁶
- `Pixels : BigEndian`⁸⁰⁷
- `Pixels : DimensionOrder`⁸⁰⁸
- `Pixels : ID`⁸⁰⁹
- `Pixels : Interleaved`⁸¹⁰
- `Pixels : SignificantBits`⁸¹¹
- `Pixels : SizeC`⁸¹²
- `Pixels : SizeT`⁸¹³
- `Pixels : SizeX`⁸¹⁴
- `Pixels : SizeY`⁸¹⁵
- `Pixels : SizeZ`⁸¹⁶
- `Pixels : Type`⁸¹⁷

⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : DeltaT⁸¹⁸
- Plane : ExposureTime⁸¹⁹
- Plane : TheC⁸²⁰
- Plane : TheT⁸²¹
- Plane : TheZ⁸²²
- Plate : ColumnNamingConvention⁸²³
- Plate : Description⁸²⁴
- Plate : ID⁸²⁵
- Plate : Name⁸²⁶
- Plate : RowNamingConvention⁸²⁷
- PlateAcquisition : ID⁸²⁸
- PlateAcquisition : MaximumFieldCount⁸²⁹
- PlateAcquisition : WellSampleRef⁸³⁰
- ROI : ID⁸³¹
- Rectangle : Height⁸³²
- Rectangle : ID⁸³³
- Rectangle : Width⁸³⁴
- Rectangle : X⁸³⁵
- Rectangle : Y⁸³⁶
- Well : Column⁸³⁷
- Well : ID⁸³⁸
- Well : Row⁸³⁹
- WellSample : ID⁸⁴⁰
- WellSample : ImageRef⁸⁴¹
- WellSample : Index⁸⁴²

Total supported: 57

Total unknown or missing: 418

⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Description

⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

19.2.13 SDTReader

This page lists supported metadata fields for the Bio-Formats SPCImage Data format reader.

These fields are from the [OME data model](#)⁸⁴³. 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 475 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 SPCImage Data format reader:

- Channel : ID⁸⁴⁴
- Channel : SamplesPerPixel⁸⁴⁵
- Image : AcquisitionDate⁸⁴⁶
- Image : ID⁸⁴⁷
- Image : Name⁸⁴⁸
- Pixels : BigEndian⁸⁴⁹
- Pixels : DimensionOrder⁸⁵⁰
- Pixels : ID⁸⁵¹
- Pixels : Interleaved⁸⁵²
- Pixels : SignificantBits⁸⁵³
- Pixels : SizeC⁸⁵⁴
- Pixels : SizeT⁸⁵⁵
- Pixels : SizeX⁸⁵⁶
- Pixels : SizeY⁸⁵⁷
- Pixels : SizeZ⁸⁵⁸
- Pixels : Type⁸⁵⁹
- Plane : TheC⁸⁶⁰
- Plane : TheT⁸⁶¹

⁸⁴³<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁸⁶²

Total supported: 19

Total unknown or missing: 456

19.2.14 BioRadGelReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad GEL format reader.

These fields are from the [OME data model](#)⁸⁶³. 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 475 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 Bio-Rad GEL format reader:

- Channel : ID⁸⁶⁴
- Channel : SamplesPerPixel⁸⁶⁵
- Image : AcquisitionDate⁸⁶⁶
- Image : ID⁸⁶⁷
- Image : Name⁸⁶⁸
- Pixels : BigEndian⁸⁶⁹
- Pixels : DimensionOrder⁸⁷⁰
- Pixels : ID⁸⁷¹
- Pixels : Interleaved⁸⁷²
- Pixels : PhysicalSizeX⁸⁷³
- Pixels : PhysicalSizeY⁸⁷⁴
- Pixels : SignificantBits⁸⁷⁵
- Pixels : SizeC⁸⁷⁶
- Pixels : SizeT⁸⁷⁷
- Pixels : SizeX⁸⁷⁸
- Pixels : SizeY⁸⁷⁹

⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁸⁶³<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁸⁸⁰
- Pixels : Type⁸⁸¹
- Plane : TheC⁸⁸²
- Plane : TheT⁸⁸³
- Plane : TheZ⁸⁸⁴

Total supported: 21

Total unknown or missing: 454

19.2.15 BioRadReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad PIC format reader.

These fields are from the [OME data model](#)⁸⁸⁵. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 40 of them (8%).
- Of those, Bio-Formats fully or partially converts 40 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Bio-Rad PIC format reader:

- Channel : ID⁸⁸⁶
- Channel : SamplesPerPixel⁸⁸⁷
- Detector : Gain⁸⁸⁸
- Detector : ID⁸⁸⁹
- Detector : Offset⁸⁹⁰
- Detector : Type⁸⁹¹
- DetectorSettings : Gain⁸⁹²
- DetectorSettings : ID⁸⁹³
- DetectorSettings : Offset⁸⁹⁴
- Experiment : ID⁸⁹⁵
- Experiment : Type⁸⁹⁶
- Image : AcquisitionDate⁸⁹⁷

⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁸⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID⁸⁹⁸
- Image : InstrumentRef⁸⁹⁹
- Image : Name⁹⁰⁰
- Instrument : ID⁹⁰¹
- Objective : Correction⁹⁰²
- Objective : ID⁹⁰³
- Objective : Immersion⁹⁰⁴
- Objective : LensNA⁹⁰⁵
- Objective : Model⁹⁰⁶
- Objective : NominalMagnification⁹⁰⁷
- ObjectiveSettings : ID⁹⁰⁸
- Pixels : BigEndian⁹⁰⁹
- Pixels : DimensionOrder⁹¹⁰
- Pixels : ID⁹¹¹
- Pixels : Interleaved⁹¹²
- Pixels : PhysicalSizeX⁹¹³
- Pixels : PhysicalSizeY⁹¹⁴
- Pixels : PhysicalSizeZ⁹¹⁵
- Pixels : SignificantBits⁹¹⁶
- Pixels : SizeC⁹¹⁷
- Pixels : SizeT⁹¹⁸
- Pixels : SizeX⁹¹⁹
- Pixels : SizeY⁹²⁰
- Pixels : SizeZ⁹²¹
- Pixels : Type⁹²²
- Plane : TheC⁹²³

⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁹²⁴
- Plane : TheZ⁹²⁵

Total supported: 40

Total unknown or missing: 435

19.2.16 BioRadSCNReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad SCN format reader.

These fields are from the [OME data model](#)⁹²⁶. 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 475 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 Bio-Rad SCN format reader:

- Channel : ID⁹²⁷
- Channel : SamplesPerPixel⁹²⁸
- Detector : ID⁹²⁹
- DetectorSettings : Binning⁹³⁰
- DetectorSettings : Gain⁹³¹
- DetectorSettings : ID⁹³²
- Image : AcquisitionDate⁹³³
- Image : ID⁹³⁴
- Image : Name⁹³⁵
- Instrument : ID⁹³⁶
- Microscope : Model⁹³⁷
- Microscope : SerialNumber⁹³⁸
- Pixels : BigEndian⁹³⁹
- Pixels : DimensionOrder⁹⁴⁰
- Pixels : ID⁹⁴¹

⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹²⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁹⁴²
- Pixels : PhysicalSizeX⁹⁴³
- Pixels : PhysicalSizeY⁹⁴⁴
- Pixels : SignificantBits⁹⁴⁵
- Pixels : SizeC⁹⁴⁶
- Pixels : SizeT⁹⁴⁷
- Pixels : SizeX⁹⁴⁸
- Pixels : SizeY⁹⁴⁹
- Pixels : SizeZ⁹⁵⁰
- Pixels : Type⁹⁵¹
- Plane : ExposureTime⁹⁵²
- Plane : TheC⁹⁵³
- Plane : TheT⁹⁵⁴
- Plane : TheZ⁹⁵⁵

Total supported: 29

Total unknown or missing: 446

19.2.17 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](#)⁹⁵⁶. 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 475 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 Bitplane Imaris 5.5 (HDF) format reader:

- Channel : Color⁹⁵⁷
- Channel : ID⁹⁵⁸
- Channel : SamplesPerPixel⁹⁵⁹

⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁹⁶⁰
- Image : ID⁹⁶¹
- Image : Name⁹⁶²
- Pixels : BigEndian⁹⁶³
- Pixels : DimensionOrder⁹⁶⁴
- Pixels : ID⁹⁶⁵
- Pixels : Interleaved⁹⁶⁶
- Pixels : PhysicalSizeX⁹⁶⁷
- Pixels : PhysicalSizeY⁹⁶⁸
- Pixels : PhysicalSizeZ⁹⁶⁹
- Pixels : SignificantBits⁹⁷⁰
- Pixels : SizeC⁹⁷¹
- Pixels : SizeT⁹⁷²
- Pixels : SizeX⁹⁷³
- Pixels : SizeY⁹⁷⁴
- Pixels : SizeZ⁹⁷⁵
- Pixels : Type⁹⁷⁶
- Plane : TheC⁹⁷⁷
- Plane : TheT⁹⁷⁸
- Plane : TheZ⁹⁷⁹

Total supported: 23

Total unknown or missing: 452

19.2.18 BrukerReader

This page lists supported metadata fields for the Bio-Formats Bruker format reader.

These fields are from the [OME data model](#)⁹⁸⁰. 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 475 fields documented in the *metadata summary table*:

- ⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ⁹⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 Bruker format reader:

- Channel : ID⁹⁸¹
- Channel : SamplesPerPixel⁹⁸²
- Experimenter : ID⁹⁸³
- Experimenter : Institution⁹⁸⁴
- Experimenter : LastName⁹⁸⁵
- Image : AcquisitionDate⁹⁸⁶
- Image : ExperimenterRef⁹⁸⁷
- Image : ID⁹⁸⁸
- Image : Name⁹⁸⁹
- Pixels : BigEndian⁹⁹⁰
- Pixels : DimensionOrder⁹⁹¹
- Pixels : ID⁹⁹²
- Pixels : Interleaved⁹⁹³
- Pixels : SignificantBits⁹⁹⁴
- Pixels : SizeC⁹⁹⁵
- Pixels : SizeT⁹⁹⁶
- Pixels : SizeX⁹⁹⁷
- Pixels : SizeY⁹⁹⁸
- Pixels : SizeZ⁹⁹⁹
- Pixels : Type¹⁰⁰⁰
- Plane : TheC¹⁰⁰¹
- Plane : TheT¹⁰⁰²
- Plane : TheZ¹⁰⁰³

⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

Total supported: 23

Total unknown or missing: 452

19.2.19 BurleighReader

This page lists supported metadata fields for the Bio-Formats Burleigh format reader.

These fields are from the [OME data model](#)¹⁰⁰⁴. 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 475 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 Burleigh format reader:

- Channel : ID¹⁰⁰⁵
- Channel : SamplesPerPixel¹⁰⁰⁶
- Image : AcquisitionDate¹⁰⁰⁷
- Image : ID¹⁰⁰⁸
- Image : Name¹⁰⁰⁹
- Pixels : BigEndian¹⁰¹⁰
- Pixels : DimensionOrder¹⁰¹¹
- Pixels : ID¹⁰¹²
- Pixels : Interleaved¹⁰¹³
- Pixels : PhysicalSizeX¹⁰¹⁴
- Pixels : PhysicalSizeY¹⁰¹⁵
- Pixels : PhysicalSizeZ¹⁰¹⁶
- Pixels : SignificantBits¹⁰¹⁷
- Pixels : SizeC¹⁰¹⁸
- Pixels : SizeT¹⁰¹⁹
- Pixels : SizeX¹⁰²⁰
- Pixels : SizeY¹⁰²¹

¹⁰⁰⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁰²²
- Pixels : Type¹⁰²³
- Plane : TheC¹⁰²⁴
- Plane : TheT¹⁰²⁵
- Plane : TheZ¹⁰²⁶

Total supported: 22

Total unknown or missing: 453

19.2.20 DNGReader

This page lists supported metadata fields for the Bio-Formats DNG format reader.

These fields are from the [OME data model](#)¹⁰²⁷. 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 475 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 DNG format reader:

- Channel : ID¹⁰²⁸
- Channel : SamplesPerPixel¹⁰²⁹
- Image : AcquisitionDate¹⁰³⁰
- Image : ID¹⁰³¹
- Image : Name¹⁰³²
- Pixels : BigEndian¹⁰³³
- Pixels : DimensionOrder¹⁰³⁴
- Pixels : ID¹⁰³⁵
- Pixels : Interleaved¹⁰³⁶
- Pixels : SignificantBits¹⁰³⁷
- Pixels : SizeC¹⁰³⁸
- Pixels : SizeT¹⁰³⁹

¹⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹⁰⁴⁰
- Pixels : SizeY¹⁰⁴¹
- Pixels : SizeZ¹⁰⁴²
- Pixels : Type¹⁰⁴³
- Plane : TheC¹⁰⁴⁴
- Plane : TheT¹⁰⁴⁵
- Plane : TheZ¹⁰⁴⁶

Total supported: 19

Total unknown or missing: 456

19.2.21 CellomicsReader

This page lists supported metadata fields for the Bio-Formats Cellomics C01 format reader.

These fields are from the [OME data model](#)¹⁰⁴⁷. 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 475 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 Cellomics C01 format reader:

- Channel : ID¹⁰⁴⁸
- Channel : SamplesPerPixel¹⁰⁴⁹
- Image : AcquisitionDate¹⁰⁵⁰
- Image : ID¹⁰⁵¹
- Image : Name¹⁰⁵²
- Pixels : BigEndian¹⁰⁵³
- Pixels : DimensionOrder¹⁰⁵⁴
- Pixels : ID¹⁰⁵⁵
- Pixels : Interleaved¹⁰⁵⁶
- Pixels : PhysicalSizeX¹⁰⁵⁷

¹⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY¹⁰⁵⁸
- Pixels : SignificantBits¹⁰⁵⁹
- Pixels : SizeC¹⁰⁶⁰
- Pixels : SizeT¹⁰⁶¹
- Pixels : SizeX¹⁰⁶²
- Pixels : SizeY¹⁰⁶³
- Pixels : SizeZ¹⁰⁶⁴
- Pixels : Type¹⁰⁶⁵
- Plane : TheC¹⁰⁶⁶
- Plane : TheT¹⁰⁶⁷
- Plane : TheZ¹⁰⁶⁸
- Plate : ColumnNamingConvention¹⁰⁶⁹
- Plate : ID¹⁰⁷⁰
- Plate : Name¹⁰⁷¹
- Plate : RowNamingConvention¹⁰⁷²
- Well : Column¹⁰⁷³
- Well : ID¹⁰⁷⁴
- Well : Row¹⁰⁷⁵
- WellSample : ID¹⁰⁷⁶
- WellSample : ImageRef¹⁰⁷⁷
- WellSample : Index¹⁰⁷⁸

Total supported: 31

Total unknown or missing: 444

19.2.22 CellSensReader

This page lists supported metadata fields for the Bio-Formats CellSens VSI format reader.

These fields are from the [OME data model](#)¹⁰⁷⁹. 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.

¹⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

¹⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹⁰⁷⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 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 CellSens VSI format reader:

- Channel : ID¹⁰⁸⁰
- Channel : SamplesPerPixel¹⁰⁸¹
- Image : AcquisitionDate¹⁰⁸²
- Image : ID¹⁰⁸³
- Image : Name¹⁰⁸⁴
- Pixels : BigEndian¹⁰⁸⁵
- Pixels : DimensionOrder¹⁰⁸⁶
- Pixels : ID¹⁰⁸⁷
- Pixels : Interleaved¹⁰⁸⁸
- Pixels : SignificantBits¹⁰⁸⁹
- Pixels : SizeC¹⁰⁹⁰
- Pixels : SizeT¹⁰⁹¹
- Pixels : SizeX¹⁰⁹²
- Pixels : SizeY¹⁰⁹³
- Pixels : SizeZ¹⁰⁹⁴
- Pixels : Type¹⁰⁹⁵
- Plane : TheC¹⁰⁹⁶
- Plane : TheT¹⁰⁹⁷
- Plane : TheZ¹⁰⁹⁸

Total supported: 19

Total unknown or missing: 456

- ¹⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.23 CellVoyagerReader

This page lists supported metadata fields for the Bio-Formats CellVoyager 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 475 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%).

Supported fields

These fields are fully supported by the Bio-Formats CellVoyager format reader:

- Channel : ID¹¹⁰⁰
- Channel : Name¹¹⁰¹
- Channel : PinholeSize¹¹⁰²
- Channel : SamplesPerPixel¹¹⁰³
- Image : AcquisitionDate¹¹⁰⁴
- Image : ID¹¹⁰⁵
- Image : Name¹¹⁰⁶
- Pixels : BigEndian¹¹⁰⁷
- Pixels : DimensionOrder¹¹⁰⁸
- Pixels : ID¹¹⁰⁹
- Pixels : Interleaved¹¹¹⁰
- Pixels : SignificantBits¹¹¹¹
- Pixels : SizeC¹¹¹²
- Pixels : SizeT¹¹¹³
- Pixels : SizeX¹¹¹⁴
- Pixels : SizeY¹¹¹⁵
- Pixels : SizeZ¹¹¹⁶
- Pixels : Type¹¹¹⁷

¹⁰⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

¹¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC¹¹¹⁸
- Plane : TheT¹¹¹⁹
- Plane : TheZ¹¹²⁰
- Plate : Columns¹¹²¹
- Plate : Rows¹¹²²
- PlateAcquisition : EndTime¹¹²³
- PlateAcquisition : ID¹¹²⁴
- PlateAcquisition : MaximumFieldCount¹¹²⁵
- PlateAcquisition : StartTime¹¹²⁶
- Well : Column¹¹²⁷
- Well : ID¹¹²⁸
- Well : Row¹¹²⁹
- WellSample : ID¹¹³⁰
- WellSample : Index¹¹³¹
- WellSample : PositionX¹¹³²
- WellSample : PositionY¹¹³³

Total supported: 34

Total unknown or missing: 441

19.2.24 DeltavisionReader

This page lists supported metadata fields for the Bio-Formats Deltavision format reader.

These fields are from the OME data model¹¹³⁴. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 52 of them (10%).
- Of those, Bio-Formats fully or partially converts 52 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Deltavision format reader:

- Channel : EmissionWavelength¹¹³⁵

¹¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns

¹¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows

¹¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_EndTime

¹¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

¹¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

¹¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹¹³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

- Channel : ExcitationWavelength¹¹³⁶
- Channel : ID¹¹³⁷
- Channel : NDFilter¹¹³⁸
- Channel : Name¹¹³⁹
- Channel : SamplesPerPixel¹¹⁴⁰
- Detector : ID¹¹⁴¹
- Detector : Model¹¹⁴²
- Detector : Type¹¹⁴³
- DetectorSettings : Binning¹¹⁴⁴
- DetectorSettings : Gain¹¹⁴⁵
- DetectorSettings : ID¹¹⁴⁶
- DetectorSettings : ReadOutRate¹¹⁴⁷
- Image : AcquisitionDate¹¹⁴⁸
- Image : Description¹¹⁴⁹
- Image : ID¹¹⁵⁰
- Image : InstrumentRef¹¹⁵¹
- Image : Name¹¹⁵²
- ImagingEnvironment : Temperature¹¹⁵³
- Instrument : ID¹¹⁵⁴
- Objective : CalibratedMagnification¹¹⁵⁵
- Objective : Correction¹¹⁵⁶
- Objective : ID¹¹⁵⁷
- Objective : Immersion¹¹⁵⁸
- Objective : LensNA¹¹⁵⁹
- Objective : Manufacturer¹¹⁶⁰
- Objective : Model¹¹⁶¹

¹¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_NDFilter

¹¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

¹¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

¹¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Objective : NominalMagnification¹¹⁶²
- Objective : WorkingDistance¹¹⁶³
- ObjectiveSettings : ID¹¹⁶⁴
- Pixels : BigEndian¹¹⁶⁵
- Pixels : DimensionOrder¹¹⁶⁶
- Pixels : ID¹¹⁶⁷
- Pixels : Interleaved¹¹⁶⁸
- Pixels : PhysicalSizeX¹¹⁶⁹
- Pixels : PhysicalSizeY¹¹⁷⁰
- Pixels : PhysicalSizeZ¹¹⁷¹
- Pixels : SignificantBits¹¹⁷²
- Pixels : SizeC¹¹⁷³
- Pixels : SizeT¹¹⁷⁴
- Pixels : SizeX¹¹⁷⁵
- Pixels : SizeY¹¹⁷⁶
- Pixels : SizeZ¹¹⁷⁷
- Pixels : Type¹¹⁷⁸
- Plane : DeltaT¹¹⁷⁹
- Plane : ExposureTime¹¹⁸⁰
- Plane : PositionX¹¹⁸¹
- Plane : PositionY¹¹⁸²
- Plane : PositionZ¹¹⁸³
- Plane : TheC¹¹⁸⁴
- Plane : TheT¹¹⁸⁵
- Plane : TheZ¹¹⁸⁶

Total supported: 52

Total unknown or missing: 423

¹¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.25 DicomReader

This page lists supported metadata fields for the Bio-Formats DICOM format reader.

These fields are from the [OME data model](#)¹¹⁸⁷. 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 475 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 DICOM format reader:

- Channel : ID¹¹⁸⁸
- Channel : SamplesPerPixel¹¹⁸⁹
- Image : AcquisitionDate¹¹⁹⁰
- Image : Description¹¹⁹¹
- Image : ID¹¹⁹²
- Image : Name¹¹⁹³
- Pixels : BigEndian¹¹⁹⁴
- Pixels : DimensionOrder¹¹⁹⁵
- Pixels : ID¹¹⁹⁶
- Pixels : Interleaved¹¹⁹⁷
- Pixels : PhysicalSizeX¹¹⁹⁸
- Pixels : PhysicalSizeY¹¹⁹⁹
- Pixels : PhysicalSizeZ¹²⁰⁰
- Pixels : SignificantBits¹²⁰¹
- Pixels : SizeC¹²⁰²
- Pixels : SizeT¹²⁰³
- Pixels : SizeX¹²⁰⁴
- Pixels : SizeY¹²⁰⁵

¹¹⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹²⁰⁶
- Pixels : Type¹²⁰⁷
- Plane : TheC¹²⁰⁸
- Plane : TheT¹²⁰⁹
- Plane : TheZ¹²¹⁰

Total supported: 23

Total unknown or missing: 452

19.2.26 Ecat7Reader

This page lists supported metadata fields for the Bio-Formats ECAT7 format reader.

These fields are from the [OME data model](#)¹²¹¹. 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 475 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 ECAT7 format reader:

- Channel : ID¹²¹²
- Channel : SamplesPerPixel¹²¹³
- Image : AcquisitionDate¹²¹⁴
- Image : Description¹²¹⁵
- Image : ID¹²¹⁶
- Image : Name¹²¹⁷
- Pixels : BigEndian¹²¹⁸
- Pixels : DimensionOrder¹²¹⁹
- Pixels : ID¹²²⁰
- Pixels : Interleaved¹²²¹
- Pixels : PhysicalSizeX¹²²²
- Pixels : PhysicalSizeY¹²²³

¹²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹²¹¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : PhysicalSizeZ¹²²⁴
- Pixels : SignificantBits¹²²⁵
- Pixels : SizeC¹²²⁶
- Pixels : SizeT¹²²⁷
- Pixels : SizeX¹²²⁸
- Pixels : SizeY¹²²⁹
- Pixels : SizeZ¹²³⁰
- Pixels : Type¹²³¹
- Plane : TheC¹²³²
- Plane : TheT¹²³³
- Plane : TheZ¹²³⁴

Total supported: 23

Total unknown or missing: 452

19.2.27 EPSReader

This page lists supported metadata fields for the Bio-Formats Encapsulated PostScript format reader.

These fields are from the [OME data model](#)¹²³⁵. 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 475 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 Encapsulated PostScript format reader:

- Channel : ID¹²³⁶
- Channel : SamplesPerPixel¹²³⁷
- Image : AcquisitionDate¹²³⁸
- Image : ID¹²³⁹
- Image : Name¹²⁴⁰
- Pixels : BigEndian¹²⁴¹

¹²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹²³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder¹²⁴²
- Pixels : ID¹²⁴³
- Pixels : Interleaved¹²⁴⁴
- Pixels : SignificantBits¹²⁴⁵
- Pixels : SizeC¹²⁴⁶
- Pixels : SizeT¹²⁴⁷
- Pixels : SizeX¹²⁴⁸
- Pixels : SizeY¹²⁴⁹
- Pixels : SizeZ¹²⁵⁰
- Pixels : Type¹²⁵¹
- Plane : TheC¹²⁵²
- Plane : TheT¹²⁵³
- Plane : TheZ¹²⁵⁴

Total supported: 19

Total unknown or missing: 456

19.2.28 FlexReader

This page lists supported metadata fields for the Bio-Formats Evotec Flex format reader.

These fields are from the [OME data model](#)¹²⁵⁵. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 69 of them (14%).
- Of those, Bio-Formats fully or partially converts 69 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Evotec Flex format reader:

- Channel : ID¹²⁵⁶
- Channel : LightSourceSettingsID¹²⁵⁷
- Channel : Name¹²⁵⁸
- Channel : SamplesPerPixel¹²⁵⁹

¹²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹²⁵⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

¹²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID¹²⁶⁰
- Detector : Type¹²⁶¹
- DetectorSettings : Binning¹²⁶²
- DetectorSettings : ID¹²⁶³
- Dichroic : ID¹²⁶⁴
- Dichroic : Model¹²⁶⁵
- Filter : FilterWheel¹²⁶⁶
- Filter : ID¹²⁶⁷
- Filter : Model¹²⁶⁸
- Image : AcquisitionDate¹²⁶⁹
- Image : ID¹²⁷⁰
- Image : InstrumentRef¹²⁷¹
- Image : Name¹²⁷²
- Instrument : ID¹²⁷³
- Laser : ID¹²⁷⁴
- Laser : LaserMedium¹²⁷⁵
- Laser : Type¹²⁷⁶
- Laser : Wavelength¹²⁷⁷
- LightPath : DichroicRef¹²⁷⁸
- LightPath : EmissionFilterRef¹²⁷⁹
- LightPath : ExcitationFilterRef¹²⁸⁰
- Objective : CalibratedMagnification¹²⁸¹
- Objective : Correction¹²⁸²
- Objective : ID¹²⁸³
- Objective : Immersion¹²⁸⁴
- Objective : LensNA¹²⁸⁵

¹²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

¹²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_FilterWheel

¹²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

¹²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

¹²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

¹²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

¹²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

¹²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

¹²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

- ObjectiveSettings : ID¹²⁸⁶
- Pixels : BigEndian¹²⁸⁷
- Pixels : DimensionOrder¹²⁸⁸
- Pixels : ID¹²⁸⁹
- Pixels : Interleaved¹²⁹⁰
- Pixels : PhysicalSizeX¹²⁹¹
- Pixels : PhysicalSizeY¹²⁹²
- Pixels : SignificantBits¹²⁹³
- Pixels : SizeC¹²⁹⁴
- Pixels : SizeT¹²⁹⁵
- Pixels : SizeX¹²⁹⁶
- Pixels : SizeY¹²⁹⁷
- Pixels : SizeZ¹²⁹⁸
- Pixels : Type¹²⁹⁹
- Plane : DeltaT¹³⁰⁰
- Plane : ExposureTime¹³⁰¹
- Plane : PositionX¹³⁰²
- Plane : PositionY¹³⁰³
- Plane : PositionZ¹³⁰⁴
- Plane : TheC¹³⁰⁵
- Plane : TheT¹³⁰⁶
- Plane : TheZ¹³⁰⁷
- Plate : ColumnNamingConvention¹³⁰⁸
- Plate : ExternalIdentifier¹³⁰⁹
- Plate : ID¹³¹⁰
- Plate : Name¹³¹¹

¹²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

¹³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

- Plate : RowNamingConvention¹³¹²
- PlateAcquisition : ID¹³¹³
- PlateAcquisition : MaximumFieldCount¹³¹⁴
- PlateAcquisition : StartTime¹³¹⁵
- PlateAcquisition : WellSampleRef¹³¹⁶
- Well : Column¹³¹⁷
- Well : ID¹³¹⁸
- Well : Row¹³¹⁹
- WellSample : ID¹³²⁰
- WellSample : ImageRef¹³²¹
- WellSample : Index¹³²²
- WellSample : PositionX¹³²³
- WellSample : PositionY¹³²⁴

Total supported: 69

Total unknown or missing: 406

19.2.29 FEIReader

This page lists supported metadata fields for the Bio-Formats FEI/Philips format reader.

These fields are from the OME data model¹³²⁵. 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 475 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 FEI/Philips format reader:

- Channel : ID¹³²⁶
- Channel : SamplesPerPixel¹³²⁷
- Image : AcquisitionDate¹³²⁸
- Image : ID¹³²⁹

¹³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

¹³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

¹³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

¹³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹³²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name¹³³⁰
- Pixels : BigEndian¹³³¹
- Pixels : DimensionOrder¹³³²
- Pixels : ID¹³³³
- Pixels : Interleaved¹³³⁴
- Pixels : SignificantBits¹³³⁵
- Pixels : SizeC¹³³⁶
- Pixels : SizeT¹³³⁷
- Pixels : SizeX¹³³⁸
- Pixels : SizeY¹³³⁹
- Pixels : SizeZ¹³⁴⁰
- Pixels : Type¹³⁴¹
- Plane : TheC¹³⁴²
- Plane : TheT¹³⁴³
- Plane : TheZ¹³⁴⁴

Total supported: 19

Total unknown or missing: 456

19.2.30 FEITiffReader

This page lists supported metadata fields for the Bio-Formats FEI TIFF format reader.

These fields are from the [OME data model](#)¹³⁴⁵. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 39 of them (8%).
- Of those, Bio-Formats fully or partially converts 39 (100%).

Supported fields

These fields are fully supported by the Bio-Formats FEI TIFF format reader:

- Channel : ID¹³⁴⁶
- Channel : SamplesPerPixel¹³⁴⁷

¹³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁴⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID¹³⁴⁸
- Detector : Model¹³⁴⁹
- Detector : Type¹³⁵⁰
- Experimenter : ID¹³⁵¹
- Experimenter : LastName¹³⁵²
- Image : AcquisitionDate¹³⁵³
- Image : Description¹³⁵⁴
- Image : ID¹³⁵⁵
- Image : InstrumentRef¹³⁵⁶
- Image : Name¹³⁵⁷
- Instrument : ID¹³⁵⁸
- Microscope : Model¹³⁵⁹
- Objective : Correction¹³⁶⁰
- Objective : ID¹³⁶¹
- Objective : Immersion¹³⁶²
- Objective : NominalMagnification¹³⁶³
- Pixels : BigEndian¹³⁶⁴
- Pixels : DimensionOrder¹³⁶⁵
- Pixels : ID¹³⁶⁶
- Pixels : Interleaved¹³⁶⁷
- Pixels : PhysicalSizeX¹³⁶⁸
- Pixels : PhysicalSizeY¹³⁶⁹
- Pixels : SignificantBits¹³⁷⁰
- Pixels : SizeC¹³⁷¹
- Pixels : SizeT¹³⁷²
- Pixels : SizeX¹³⁷³

¹³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹³⁷⁴
- Pixels : SizeZ¹³⁷⁵
- Pixels : TimeIncrement¹³⁷⁶
- Pixels : Type¹³⁷⁷
- Plane : TheC¹³⁷⁸
- Plane : TheT¹³⁷⁹
- Plane : TheZ¹³⁸⁰
- StageLabel : Name¹³⁸¹
- StageLabel : X¹³⁸²
- StageLabel : Y¹³⁸³
- StageLabel : Z¹³⁸⁴

Total supported: 39

Total unknown or missing: 436

19.2.31 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](#)¹³⁸⁵. 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 475 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 Flexible Image Transport System format reader:

- Channel : ID¹³⁸⁶
- Channel : SamplesPerPixel¹³⁸⁷
- Image : AcquisitionDate¹³⁸⁸
- Image : ID¹³⁸⁹
- Image : Name¹³⁹⁰
- Pixels : BigEndian¹³⁹¹

¹³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name

¹³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_X

¹³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Y

¹³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z

¹³⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder¹³⁹²
- Pixels : ID¹³⁹³
- Pixels : Interleaved¹³⁹⁴
- Pixels : SignificantBits¹³⁹⁵
- Pixels : SizeC¹³⁹⁶
- Pixels : SizeT¹³⁹⁷
- Pixels : SizeX¹³⁹⁸
- Pixels : SizeY¹³⁹⁹
- Pixels : SizeZ¹⁴⁰⁰
- Pixels : Type¹⁴⁰¹
- Plane : TheC¹⁴⁰²
- Plane : TheT¹⁴⁰³
- Plane : TheZ¹⁴⁰⁴

Total supported: 19

Total unknown or missing: 456

19.2.32 GatanDM2Reader

This page lists supported metadata fields for the Bio-Formats Gatan DM2 format reader.

These fields are from the [OME data model](#)¹⁴⁰⁵. 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 475 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 Gatan DM2 format reader:

- Channel : ID¹⁴⁰⁶
- Channel : SamplesPerPixel¹⁴⁰⁷
- Detector : ID¹⁴⁰⁸
- DetectorSettings : Binning¹⁴⁰⁹

¹³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁴⁰⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

- DetectorSettings : ID¹⁴¹⁰
- Experimenter : FirstName¹⁴¹¹
- Experimenter : ID¹⁴¹²
- Experimenter : LastName¹⁴¹³
- Image : AcquisitionDate¹⁴¹⁴
- Image : ExperimenterRef¹⁴¹⁵
- Image : ID¹⁴¹⁶
- Image : InstrumentRef¹⁴¹⁷
- Image : Name¹⁴¹⁸
- Instrument : ID¹⁴¹⁹
- Pixels : BigEndian¹⁴²⁰
- Pixels : DimensionOrder¹⁴²¹
- Pixels : ID¹⁴²²
- Pixels : Interleaved¹⁴²³
- Pixels : PhysicalSizeX¹⁴²⁴
- Pixels : PhysicalSizeY¹⁴²⁵
- Pixels : SignificantBits¹⁴²⁶
- Pixels : SizeC¹⁴²⁷
- Pixels : SizeT¹⁴²⁸
- Pixels : SizeX¹⁴²⁹
- Pixels : SizeY¹⁴³⁰
- Pixels : SizeZ¹⁴³¹
- Pixels : Type¹⁴³²
- Plane : TheC¹⁴³³
- Plane : TheT¹⁴³⁴
- Plane : TheZ¹⁴³⁵

¹⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

¹⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

¹⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

Total supported: 30

Total unknown or missing: 445

19.2.33 GatanReader

This page lists supported metadata fields for the Bio-Formats Gatan Digital Micrograph format reader.

These fields are from the [OME data model](#)¹⁴³⁶. 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 475 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 Gatan Digital Micrograph format reader:

- Channel : AcquisitionMode¹⁴³⁷
- Channel : ID¹⁴³⁸
- Channel : SamplesPerPixel¹⁴³⁹
- Detector : ID¹⁴⁴⁰
- DetectorSettings : ID¹⁴⁴¹
- DetectorSettings : Voltage¹⁴⁴²
- Image : AcquisitionDate¹⁴⁴³
- Image : ID¹⁴⁴⁴
- Image : Name¹⁴⁴⁵
- Instrument : ID¹⁴⁴⁶
- Objective : Correction¹⁴⁴⁷
- Objective : ID¹⁴⁴⁸
- Objective : Immersion¹⁴⁴⁹
- Objective : NominalMagnification¹⁴⁵⁰
- ObjectiveSettings : ID¹⁴⁵¹
- Pixels : BigEndian¹⁴⁵²
- Pixels : DimensionOrder¹⁴⁵³

¹⁴³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

¹⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

¹⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID¹⁴⁵⁴
- Pixels : Interleaved¹⁴⁵⁵
- Pixels : PhysicalSizeX¹⁴⁵⁶
- Pixels : PhysicalSizeY¹⁴⁵⁷
- Pixels : PhysicalSizeZ¹⁴⁵⁸
- Pixels : SignificantBits¹⁴⁵⁹
- Pixels : SizeC¹⁴⁶⁰
- Pixels : SizeT¹⁴⁶¹
- Pixels : SizeX¹⁴⁶²
- Pixels : SizeY¹⁴⁶³
- Pixels : SizeZ¹⁴⁶⁴
- Pixels : Type¹⁴⁶⁵
- Plane : ExposureTime¹⁴⁶⁶
- Plane : PositionX¹⁴⁶⁷
- Plane : PositionY¹⁴⁶⁸
- Plane : PositionZ¹⁴⁶⁹
- Plane : TheC¹⁴⁷⁰
- Plane : TheT¹⁴⁷¹
- Plane : TheZ¹⁴⁷²

Total supported: 36

Total unknown or missing: 439

19.2.34 GIFReader

This page lists supported metadata fields for the Bio-Formats Graphics Interchange Format format reader.

These fields are from the [OME data model](#)¹⁴⁷³. 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 475 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%).

¹⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁴⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Graphics Interchange Format format reader:

- Channel : ID¹⁴⁷⁴
- Channel : SamplesPerPixel¹⁴⁷⁵
- Image : AcquisitionDate¹⁴⁷⁶
- Image : ID¹⁴⁷⁷
- Image : Name¹⁴⁷⁸
- Pixels : BigEndian¹⁴⁷⁹
- Pixels : DimensionOrder¹⁴⁸⁰
- Pixels : ID¹⁴⁸¹
- Pixels : Interleaved¹⁴⁸²
- Pixels : SignificantBits¹⁴⁸³
- Pixels : SizeC¹⁴⁸⁴
- Pixels : SizeT¹⁴⁸⁵
- Pixels : SizeX¹⁴⁸⁶
- Pixels : SizeY¹⁴⁸⁷
- Pixels : SizeZ¹⁴⁸⁸
- Pixels : Type¹⁴⁸⁹
- Plane : TheC¹⁴⁹⁰
- Plane : TheT¹⁴⁹¹
- Plane : TheZ¹⁴⁹²

Total supported: 19

Total unknown or missing: 456

19.2.35 NAFReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu Aquacosmos format reader.

These fields are from the [OME data model](#)¹⁴⁹³. 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.

- ¹⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ¹⁴⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 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 Aquacosmos format reader:

- Channel : ID¹⁴⁹⁴
- Channel : SamplesPerPixel¹⁴⁹⁵
- Image : AcquisitionDate¹⁴⁹⁶
- Image : ID¹⁴⁹⁷
- Image : Name¹⁴⁹⁸
- Pixels : BigEndian¹⁴⁹⁹
- Pixels : DimensionOrder¹⁵⁰⁰
- Pixels : ID¹⁵⁰¹
- Pixels : Interleaved¹⁵⁰²
- Pixels : SignificantBits¹⁵⁰³
- Pixels : SizeC¹⁵⁰⁴
- Pixels : SizeT¹⁵⁰⁵
- Pixels : SizeX¹⁵⁰⁶
- Pixels : SizeY¹⁵⁰⁷
- Pixels : SizeZ¹⁵⁰⁸
- Pixels : Type¹⁵⁰⁹
- Plane : TheC¹⁵¹⁰
- Plane : TheT¹⁵¹¹
- Plane : TheZ¹⁵¹²

Total supported: 19

Total unknown or missing: 456

- ¹⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.36 HISReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu HIS 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 475 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 Hamamatsu HIS format reader:

- Channel : ID¹⁵¹⁴
- Channel : SamplesPerPixel¹⁵¹⁵
- Detector : ID¹⁵¹⁶
- Detector : Offset¹⁵¹⁷
- Detector : Type¹⁵¹⁸
- DetectorSettings : Binning¹⁵¹⁹
- DetectorSettings : ID¹⁵²⁰
- Image : AcquisitionDate¹⁵²¹
- Image : ID¹⁵²²
- Image : InstrumentRef¹⁵²³
- Image : Name¹⁵²⁴
- Instrument : ID¹⁵²⁵
- Pixels : BigEndian¹⁵²⁶
- Pixels : DimensionOrder¹⁵²⁷
- Pixels : ID¹⁵²⁸
- Pixels : Interleaved¹⁵²⁹
- Pixels : SignificantBits¹⁵³⁰
- Pixels : SizeC¹⁵³¹

¹⁵¹³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

¹⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹⁵³²
- Pixels : SizeX¹⁵³³
- Pixels : SizeY¹⁵³⁴
- Pixels : SizeZ¹⁵³⁵
- Pixels : Type¹⁵³⁶
- Plane : ExposureTime¹⁵³⁷
- Plane : TheC¹⁵³⁸
- Plane : TheT¹⁵³⁹
- Plane : TheZ¹⁵⁴⁰

Total supported: 27

Total unknown or missing: 448

19.2.37 NDPIReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu NDPI format reader.

These fields are from the [OME data model](#)¹⁵⁴¹. 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 475 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 Hamamatsu NDPI format reader:

- Channel : ID¹⁵⁴²
- Channel : SamplesPerPixel¹⁵⁴³
- Image : AcquisitionDate¹⁵⁴⁴
- Image : ID¹⁵⁴⁵
- Image : Name¹⁵⁴⁶
- Pixels : BigEndian¹⁵⁴⁷
- Pixels : DimensionOrder¹⁵⁴⁸
- Pixels : ID¹⁵⁴⁹

¹⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹⁵⁵⁰
- Pixels : PhysicalSizeX¹⁵⁵¹
- Pixels : PhysicalSizeY¹⁵⁵²
- Pixels : SignificantBits¹⁵⁵³
- Pixels : SizeC¹⁵⁵⁴
- Pixels : SizeT¹⁵⁵⁵
- Pixels : SizeX¹⁵⁵⁶
- Pixels : SizeY¹⁵⁵⁷
- Pixels : SizeZ¹⁵⁵⁸
- Pixels : Type¹⁵⁵⁹
- Plane : TheC¹⁵⁶⁰
- Plane : TheT¹⁵⁶¹
- Plane : TheZ¹⁵⁶²

Total supported: 21

Total unknown or missing: 454

19.2.38 HamamatsuVMSReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu VMS format reader.

These fields are from the [OME data model](#)¹⁵⁶³. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 26 of them (5%).
- Of those, Bio-Formats fully or partially converts 26 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu VMS format reader:

- Channel : ID¹⁵⁶⁴
- Channel : SamplesPerPixel¹⁵⁶⁵
- Image : AcquisitionDate¹⁵⁶⁶
- Image : ID¹⁵⁶⁷

¹⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵⁶³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : InstrumentRef¹⁵⁶⁸
- Image : Name¹⁵⁶⁹
- Instrument : ID¹⁵⁷⁰
- Objective : ID¹⁵⁷¹
- Objective : NominalMagnification¹⁵⁷²
- ObjectiveSettings : ID¹⁵⁷³
- Pixels : BigEndian¹⁵⁷⁴
- Pixels : DimensionOrder¹⁵⁷⁵
- Pixels : ID¹⁵⁷⁶
- Pixels : Interleaved¹⁵⁷⁷
- Pixels : PhysicalSizeX¹⁵⁷⁸
- Pixels : PhysicalSizeY¹⁵⁷⁹
- Pixels : SignificantBits¹⁵⁸⁰
- Pixels : SizeC¹⁵⁸¹
- Pixels : SizeT¹⁵⁸²
- Pixels : SizeX¹⁵⁸³
- Pixels : SizeY¹⁵⁸⁴
- Pixels : SizeZ¹⁵⁸⁵
- Pixels : Type¹⁵⁸⁶
- Plane : TheC¹⁵⁸⁷
- Plane : TheT¹⁵⁸⁸
- Plane : TheZ¹⁵⁸⁹

Total supported: 26

Total unknown or missing: 449

19.2.39 HitachiReader

This page lists supported metadata fields for the Bio-Formats Hitachi format reader.

- ¹⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID
- ¹⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ¹⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID
- ¹⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification
- ¹⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID
- ¹⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)¹⁵⁹⁰. 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 475 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 Hitachi format reader:

- Channel : ID¹⁵⁹¹
- Channel : SamplesPerPixel¹⁵⁹²
- Image : AcquisitionDate¹⁵⁹³
- Image : ID¹⁵⁹⁴
- Image : InstrumentRef¹⁵⁹⁵
- Image : Name¹⁵⁹⁶
- Instrument : ID¹⁵⁹⁷
- Microscope : Model¹⁵⁹⁸
- Microscope : SerialNumber¹⁵⁹⁹
- Objective : ID¹⁶⁰⁰
- Objective : WorkingDistance¹⁶⁰¹
- ObjectiveSettings : ID¹⁶⁰²
- Pixels : BigEndian¹⁶⁰³
- Pixels : DimensionOrder¹⁶⁰⁴
- Pixels : ID¹⁶⁰⁵
- Pixels : Interleaved¹⁶⁰⁶
- Pixels : PhysicalSizeX¹⁶⁰⁷
- Pixels : PhysicalSizeY¹⁶⁰⁸
- Pixels : SignificantBits¹⁶⁰⁹
- Pixels : SizeC¹⁶¹⁰

¹⁵⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹⁶¹¹
- Pixels : SizeX¹⁶¹²
- Pixels : SizeY¹⁶¹³
- Pixels : SizeZ¹⁶¹⁴
- Pixels : Type¹⁶¹⁵
- Plane : PositionX¹⁶¹⁶
- Plane : PositionY¹⁶¹⁷
- Plane : PositionZ¹⁶¹⁸
- Plane : TheC¹⁶¹⁹
- Plane : TheT¹⁶²⁰
- Plane : TheZ¹⁶²¹

Total supported: 31

Total unknown or missing: 444

19.2.40 ICSReader

This page lists supported metadata fields for the Bio-Formats Image Cytometry Standard format reader.

These fields are from the [OME data model](#)¹⁶²². 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 72 of them (15%).
- Of those, Bio-Formats fully or partially converts 72 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Image Cytometry Standard format reader:

- Channel : EmissionWavelength¹⁶²³
- Channel : ExcitationWavelength¹⁶²⁴
- Channel : ID¹⁶²⁵
- Channel : Name¹⁶²⁶
- Channel : PinholeSize¹⁶²⁷
- Channel : SamplesPerPixel¹⁶²⁸

¹⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁶²²<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

¹⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID¹⁶²⁹
- Detector : Manufacturer¹⁶³⁰
- Detector : Model¹⁶³¹
- Detector : Type¹⁶³²
- DetectorSettings : Gain¹⁶³³
- DetectorSettings : ID¹⁶³⁴
- Dichroic : ID¹⁶³⁵
- Dichroic : Model¹⁶³⁶
- Experiment : ID¹⁶³⁷
- Experiment : Type¹⁶³⁸
- Experimenter : ID¹⁶³⁹
- Experimenter : LastName¹⁶⁴⁰
- Filter : ID¹⁶⁴¹
- Filter : Model¹⁶⁴²
- FilterSet : DichroicRef¹⁶⁴³
- FilterSet : EmissionFilterRef¹⁶⁴⁴
- FilterSet : ExcitationFilterRef¹⁶⁴⁵
- FilterSet : ID¹⁶⁴⁶
- FilterSet : Model¹⁶⁴⁷
- Image : AcquisitionDate¹⁶⁴⁸
- Image : Description¹⁶⁴⁹
- Image : ID¹⁶⁵⁰
- Image : InstrumentRef¹⁶⁵¹
- Image : Name¹⁶⁵²
- Instrument : ID¹⁶⁵³
- Laser : ID¹⁶⁵⁴

¹⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

¹⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

¹⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

¹⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

¹⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

¹⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSet_ID

¹⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

- Laser : LaserMedium¹⁶⁵⁵
- Laser : Manufacturer¹⁶⁵⁶
- Laser : Model¹⁶⁵⁷
- Laser : Power¹⁶⁵⁸
- Laser : RepetitionRate¹⁶⁵⁹
- Laser : Type¹⁶⁶⁰
- Laser : Wavelength¹⁶⁶¹
- Microscope : Manufacturer¹⁶⁶²
- Microscope : Model¹⁶⁶³
- Objective : CalibratedMagnification¹⁶⁶⁴
- Objective : Correction¹⁶⁶⁵
- Objective : ID¹⁶⁶⁶
- Objective : Immersion¹⁶⁶⁷
- Objective : LensNA¹⁶⁶⁸
- Objective : Model¹⁶⁶⁹
- Objective : WorkingDistance¹⁶⁷⁰
- ObjectiveSettings : ID¹⁶⁷¹
- Pixels : BigEndian¹⁶⁷²
- Pixels : DimensionOrder¹⁶⁷³
- Pixels : ID¹⁶⁷⁴
- Pixels : Interleaved¹⁶⁷⁵
- Pixels : PhysicalSizeX¹⁶⁷⁶
- Pixels : PhysicalSizeY¹⁶⁷⁷
- Pixels : PhysicalSizeZ¹⁶⁷⁸
- Pixels : SignificantBits¹⁶⁷⁹
- Pixels : SizeC¹⁶⁸⁰

¹⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

¹⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

¹⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_RepetitionRate

¹⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

¹⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

¹⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹⁶⁸¹
- Pixels : SizeX¹⁶⁸²
- Pixels : SizeY¹⁶⁸³
- Pixels : SizeZ¹⁶⁸⁴
- Pixels : TimeIncrement¹⁶⁸⁵
- Pixels : Type¹⁶⁸⁶
- Plane : DeltaT¹⁶⁸⁷
- Plane : ExposureTime¹⁶⁸⁸
- Plane : PositionX¹⁶⁸⁹
- Plane : PositionY¹⁶⁹⁰
- Plane : PositionZ¹⁶⁹¹
- Plane : TheC¹⁶⁹²
- Plane : TheT¹⁶⁹³
- Plane : TheZ¹⁶⁹⁴

Total supported: 72

Total unknown or missing: 403

19.2.41 ImaconReader

This page lists supported metadata fields for the Bio-Formats Imacon format reader.

These fields are from the OME data model¹⁶⁹⁵. 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 475 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 Imacon format reader:

- Channel : ID¹⁶⁹⁶
- Channel : SamplesPerPixel¹⁶⁹⁷
- Experimenter : FirstName¹⁶⁹⁸

¹⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁶⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

- Experimenter : ID¹⁶⁹⁹
- Experimenter : LastName¹⁷⁰⁰
- Image : AcquisitionDate¹⁷⁰¹
- Image : ExperimenterRef¹⁷⁰²
- Image : ID¹⁷⁰³
- Image : Name¹⁷⁰⁴
- Pixels : BigEndian¹⁷⁰⁵
- Pixels : DimensionOrder¹⁷⁰⁶
- Pixels : ID¹⁷⁰⁷
- Pixels : Interleaved¹⁷⁰⁸
- Pixels : SignificantBits¹⁷⁰⁹
- Pixels : SizeC¹⁷¹⁰
- Pixels : SizeT¹⁷¹¹
- Pixels : SizeX¹⁷¹²
- Pixels : SizeY¹⁷¹³
- Pixels : SizeZ¹⁷¹⁴
- Pixels : Type¹⁷¹⁵
- Plane : TheC¹⁷¹⁶
- Plane : TheT¹⁷¹⁷
- Plane : TheZ¹⁷¹⁸

Total supported: 23

Total unknown or missing: 452

19.2.42 SEQReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Sequence format reader.

These fields are from the [OME data model](#)¹⁷¹⁹. 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 475 fields documented in the *metadata summary table*:

- ¹⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID
- ¹⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName
- ¹⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID
- ¹⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ¹⁷¹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 Image-Pro Sequence format reader:

- Channel : ID¹⁷²⁰
- Channel : SamplesPerPixel¹⁷²¹
- Image : AcquisitionDate¹⁷²²
- Image : ID¹⁷²³
- Image : Name¹⁷²⁴
- Pixels : BigEndian¹⁷²⁵
- Pixels : DimensionOrder¹⁷²⁶
- Pixels : ID¹⁷²⁷
- Pixels : Interleaved¹⁷²⁸
- Pixels : SignificantBits¹⁷²⁹
- Pixels : SizeC¹⁷³⁰
- Pixels : SizeT¹⁷³¹
- Pixels : SizeX¹⁷³²
- Pixels : SizeY¹⁷³³
- Pixels : SizeZ¹⁷³⁴
- Pixels : Type¹⁷³⁵
- Plane : TheC¹⁷³⁶
- Plane : TheT¹⁷³⁷
- Plane : TheZ¹⁷³⁸

Total supported: 19

Total unknown or missing: 456

- ¹⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.43 IPWReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Workspace format reader.

These fields are from the [OME data model](#)¹⁷³⁹. 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 475 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 Image-Pro Workspace format reader:

- Channel : ID¹⁷⁴⁰
- Channel : SamplesPerPixel¹⁷⁴¹
- Image : AcquisitionDate¹⁷⁴²
- Image : Description¹⁷⁴³
- Image : ID¹⁷⁴⁴
- Image : Name¹⁷⁴⁵
- Pixels : BigEndian¹⁷⁴⁶
- Pixels : DimensionOrder¹⁷⁴⁷
- Pixels : ID¹⁷⁴⁸
- Pixels : Interleaved¹⁷⁴⁹
- Pixels : SignificantBits¹⁷⁵⁰
- Pixels : SizeC¹⁷⁵¹
- Pixels : SizeT¹⁷⁵²
- Pixels : SizeX¹⁷⁵³
- Pixels : SizeY¹⁷⁵⁴
- Pixels : SizeZ¹⁷⁵⁵
- Pixels : Type¹⁷⁵⁶
- Plane : TheC¹⁷⁵⁷

¹⁷³⁹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT¹⁷⁵⁸
- Plane : TheZ¹⁷⁵⁹

Total supported: 20

Total unknown or missing: 455

19.2.44 ImagicReader

This page lists supported metadata fields for the Bio-Formats IMAGIC format reader.

These fields are from the [OME data model](#)¹⁷⁶⁰. 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 475 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 IMAGIC format reader:

- Channel : ID¹⁷⁶¹
- Channel : SamplesPerPixel¹⁷⁶²
- Image : AcquisitionDate¹⁷⁶³
- Image : ID¹⁷⁶⁴
- Image : Name¹⁷⁶⁵
- Pixels : BigEndian¹⁷⁶⁶
- Pixels : DimensionOrder¹⁷⁶⁷
- Pixels : ID¹⁷⁶⁸
- Pixels : Interleaved¹⁷⁶⁹
- Pixels : PhysicalSizeX¹⁷⁷⁰
- Pixels : PhysicalSizeY¹⁷⁷¹
- Pixels : PhysicalSizeZ¹⁷⁷²
- Pixels : SignificantBits¹⁷⁷³
- Pixels : SizeC¹⁷⁷⁴
- Pixels : SizeT¹⁷⁷⁵

¹⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁷⁶⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹⁷⁷⁶
- Pixels : SizeY¹⁷⁷⁷
- Pixels : SizeZ¹⁷⁷⁸
- Pixels : Type¹⁷⁷⁹
- Plane : TheC¹⁷⁸⁰
- Plane : TheT¹⁷⁸¹
- Plane : TheZ¹⁷⁸²

Total supported: 22

Total unknown or missing: 453

19.2.45 IMODReader

This page lists supported metadata fields for the Bio-Formats IMOD format reader.

These fields are from the [OME data model](#)¹⁷⁸³. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 44 of them (9%).
- Of those, Bio-Formats fully or partially converts 44 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IMOD format reader:

- Channel : ID¹⁷⁸⁴
- Channel : SamplesPerPixel¹⁷⁸⁵
- Image : AcquisitionDate¹⁷⁸⁶
- Image : ID¹⁷⁸⁷
- Image : Name¹⁷⁸⁸
- Image : ROIRef¹⁷⁸⁹
- Pixels : BigEndian¹⁷⁹⁰
- Pixels : DimensionOrder¹⁷⁹¹
- Pixels : ID¹⁷⁹²
- Pixels : Interleaved¹⁷⁹³

¹⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁷⁸³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

¹⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX¹⁷⁹⁴
- Pixels : PhysicalSizeY¹⁷⁹⁵
- Pixels : PhysicalSizeZ¹⁷⁹⁶
- Pixels : SignificantBits¹⁷⁹⁷
- Pixels : SizeC¹⁷⁹⁸
- Pixels : SizeT¹⁷⁹⁹
- Pixels : SizeX¹⁸⁰⁰
- Pixels : SizeY¹⁸⁰¹
- Pixels : SizeZ¹⁸⁰²
- Pixels : Type¹⁸⁰³
- Plane : TheC¹⁸⁰⁴
- Plane : TheT¹⁸⁰⁵
- Plane : TheZ¹⁸⁰⁶
- Point : ID¹⁸⁰⁷
- Point : StrokeColor¹⁸⁰⁸
- Point : StrokeDashArray¹⁸⁰⁹
- Point : StrokeWidth¹⁸¹⁰
- Point : TheZ¹⁸¹¹
- Point : X¹⁸¹²
- Point : Y¹⁸¹³
- Polygon : ID¹⁸¹⁴
- Polygon : Points¹⁸¹⁵
- Polygon : StrokeColor¹⁸¹⁶
- Polygon : StrokeDashArray¹⁸¹⁷
- Polygon : StrokeWidth¹⁸¹⁸
- Polygon : TheZ¹⁸¹⁹

¹⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

¹⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

¹⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_X

¹⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_Y

¹⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

¹⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

¹⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

- Polyline : ID¹⁸²⁰
- Polyline : Points¹⁸²¹
- Polyline : StrokeColor¹⁸²²
- Polyline : StrokeDashArray¹⁸²³
- Polyline : StrokeWidth¹⁸²⁴
- Polyline : TheZ¹⁸²⁵
- ROI : ID¹⁸²⁶
- ROI : Name¹⁸²⁷

Total supported: 44

Total unknown or missing: 431

19.2.46 OpenlabReader

This page lists supported metadata fields for the Bio-Formats Openlab LIFF format reader.

These fields are from the [OME data model](#)¹⁸²⁸. 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 475 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 Openlab LIFF format reader:

- Channel : ID¹⁸²⁹
- Channel : Name¹⁸³⁰
- Channel : SamplesPerPixel¹⁸³¹
- Detector : ID¹⁸³²
- Detector : Type¹⁸³³
- DetectorSettings : Gain¹⁸³⁴
- DetectorSettings : ID¹⁸³⁵
- DetectorSettings : Offset¹⁸³⁶
- Image : AcquisitionDate¹⁸³⁷

¹⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

¹⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

¹⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

¹⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

¹⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Name

¹⁸²⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

¹⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID¹⁸³⁸
- Image : InstrumentRef¹⁸³⁹
- Image : Name¹⁸⁴⁰
- Instrument : ID¹⁸⁴¹
- Pixels : BigEndian¹⁸⁴²
- Pixels : DimensionOrder¹⁸⁴³
- Pixels : ID¹⁸⁴⁴
- Pixels : Interleaved¹⁸⁴⁵
- Pixels : PhysicalSizeX¹⁸⁴⁶
- Pixels : PhysicalSizeY¹⁸⁴⁷
- Pixels : SignificantBits¹⁸⁴⁸
- Pixels : SizeC¹⁸⁴⁹
- Pixels : SizeT¹⁸⁵⁰
- Pixels : SizeX¹⁸⁵¹
- Pixels : SizeY¹⁸⁵²
- Pixels : SizeZ¹⁸⁵³
- Pixels : Type¹⁸⁵⁴
- Plane : PositionX¹⁸⁵⁵
- Plane : PositionY¹⁸⁵⁶
- Plane : PositionZ¹⁸⁵⁷
- Plane : TheC¹⁸⁵⁸
- Plane : TheT¹⁸⁵⁹
- Plane : TheZ¹⁸⁶⁰

Total supported: 32

Total unknown or missing: 443

-
- ¹⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
 - ¹⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID
 - ¹⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
 - ¹⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
 - ¹⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
 - ¹⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
 - ¹⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
 - ¹⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
 - ¹⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ¹⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ¹⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
 - ¹⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
 - ¹⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
 - ¹⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
 - ¹⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
 - ¹⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
 - ¹⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
 - ¹⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
 - ¹⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
 - ¹⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ
 - ¹⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
 - ¹⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
 - ¹⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.47 OpenlabRawReader

This page lists supported metadata fields for the Bio-Formats Openlab RAW format reader.

These fields are from the [OME data model](#)¹⁸⁶¹. 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 475 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 Openlab RAW format reader:

- Channel : ID¹⁸⁶²
- Channel : SamplesPerPixel¹⁸⁶³
- Image : AcquisitionDate¹⁸⁶⁴
- Image : ID¹⁸⁶⁵
- Image : Name¹⁸⁶⁶
- Pixels : BigEndian¹⁸⁶⁷
- Pixels : DimensionOrder¹⁸⁶⁸
- Pixels : ID¹⁸⁶⁹
- Pixels : Interleaved¹⁸⁷⁰
- Pixels : SignificantBits¹⁸⁷¹
- Pixels : SizeC¹⁸⁷²
- Pixels : SizeT¹⁸⁷³
- Pixels : SizeX¹⁸⁷⁴
- Pixels : SizeY¹⁸⁷⁵
- Pixels : SizeZ¹⁸⁷⁶
- Pixels : Type¹⁸⁷⁷
- Plane : TheC¹⁸⁷⁸
- Plane : TheT¹⁸⁷⁹

¹⁸⁶¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁸⁸⁰

Total supported: 19

Total unknown or missing: 456

19.2.48 ImprovionTiffReader

This page lists supported metadata fields for the Bio-Formats Improvion TIFF format reader.

These fields are from the [OME data model](#)¹⁸⁸¹. 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 475 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 Improvion TIFF format reader:

- Channel : ID¹⁸⁸²
- Channel : Name¹⁸⁸³
- Channel : SamplesPerPixel¹⁸⁸⁴
- Image : AcquisitionDate¹⁸⁸⁵
- Image : Description¹⁸⁸⁶
- Image : ID¹⁸⁸⁷
- Image : Name¹⁸⁸⁸
- Pixels : BigEndian¹⁸⁸⁹
- Pixels : DimensionOrder¹⁸⁹⁰
- Pixels : ID¹⁸⁹¹
- Pixels : Interleaved¹⁸⁹²
- Pixels : PhysicalSizeX¹⁸⁹³
- Pixels : PhysicalSizeY¹⁸⁹⁴
- Pixels : PhysicalSizeZ¹⁸⁹⁵
- Pixels : SignificantBits¹⁸⁹⁶
- Pixels : SizeC¹⁸⁹⁷

¹⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁸⁸¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹⁸⁹⁸
- Pixels : SizeX¹⁸⁹⁹
- Pixels : SizeY¹⁹⁰⁰
- Pixels : SizeZ¹⁹⁰¹
- Pixels : TimeIncrement¹⁹⁰²
- Pixels : Type¹⁹⁰³
- Plane : TheC¹⁹⁰⁴
- Plane : TheT¹⁹⁰⁵
- Plane : TheZ¹⁹⁰⁶

Total supported: 25

Total unknown or missing: 450

19.2.49 OBFReader

This page lists supported metadata fields for the Bio-Formats OBF format reader.

These fields are from the [OME data model](#)¹⁹⁰⁷. 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 475 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 OBF format reader:

- Channel : ID¹⁹⁰⁸
- Channel : SamplesPerPixel¹⁹⁰⁹
- Image : AcquisitionDate¹⁹¹⁰
- Image : ID¹⁹¹¹
- Image : Name¹⁹¹²
- Pixels : BigEndian¹⁹¹³
- Pixels : DimensionOrder¹⁹¹⁴
- Pixels : ID¹⁹¹⁵

¹⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹⁹¹⁶
- Pixels : SignificantBits¹⁹¹⁷
- Pixels : SizeC¹⁹¹⁸
- Pixels : SizeT¹⁹¹⁹
- Pixels : SizeX¹⁹²⁰
- Pixels : SizeY¹⁹²¹
- Pixels : SizeZ¹⁹²²
- Pixels : Type¹⁹²³
- Plane : TheC¹⁹²⁴
- Plane : TheT¹⁹²⁵
- Plane : TheZ¹⁹²⁶

Total supported: 19

Total unknown or missing: 456

19.2.50 InCellReader

This page lists supported metadata fields for the Bio-Formats InCell 1000/2000 format reader.

These fields are from the [OME data model](#)¹⁹²⁷. 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 475 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 InCell 1000/2000 format reader:

- Channel : EmissionWavelength¹⁹²⁸
- Channel : ExcitationWavelength¹⁹²⁹
- Channel : ID¹⁹³⁰
- Channel : Name¹⁹³¹
- Channel : SamplesPerPixel¹⁹³²
- Detector : ID¹⁹³³

¹⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

- Detector : Model¹⁹³⁴
- Detector : Type¹⁹³⁵
- DetectorSettings : Binning¹⁹³⁶
- DetectorSettings : Gain¹⁹³⁷
- DetectorSettings : ID¹⁹³⁸
- Experiment : ID¹⁹³⁹
- Experiment : Type¹⁹⁴⁰
- Image : AcquisitionDate¹⁹⁴¹
- Image : Description¹⁹⁴²
- Image : ExperimentRef¹⁹⁴³
- Image : ID¹⁹⁴⁴
- Image : InstrumentRef¹⁹⁴⁵
- Image : Name¹⁹⁴⁶
- ImagingEnvironment : Temperature¹⁹⁴⁷
- Instrument : ID¹⁹⁴⁸
- Objective : Correction¹⁹⁴⁹
- Objective : ID¹⁹⁵⁰
- Objective : Immersion¹⁹⁵¹
- Objective : LensNA¹⁹⁵²
- Objective : Manufacturer¹⁹⁵³
- Objective : NominalMagnification¹⁹⁵⁴
- ObjectiveSettings : ID¹⁹⁵⁵
- ObjectiveSettings : RefractiveIndex¹⁹⁵⁶
- Pixels : BigEndian¹⁹⁵⁷
- Pixels : DimensionOrder¹⁹⁵⁸
- Pixels : ID¹⁹⁵⁹

¹⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

¹⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

¹⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimentRef_ID

¹⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

¹⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

¹⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹⁹⁶⁰
- Pixels : PhysicalSizeX¹⁹⁶¹
- Pixels : PhysicalSizeY¹⁹⁶²
- Pixels : SignificantBits¹⁹⁶³
- Pixels : SizeC¹⁹⁶⁴
- Pixels : SizeT¹⁹⁶⁵
- Pixels : SizeX¹⁹⁶⁶
- Pixels : SizeY¹⁹⁶⁷
- Pixels : SizeZ¹⁹⁶⁸
- Pixels : Type¹⁹⁶⁹
- Plane : DeltaT¹⁹⁷⁰
- Plane : ExposureTime¹⁹⁷¹
- Plane : PositionX¹⁹⁷²
- Plane : PositionY¹⁹⁷³
- Plane : PositionZ¹⁹⁷⁴
- Plane : TheC¹⁹⁷⁵
- Plane : TheT¹⁹⁷⁶
- Plane : TheZ¹⁹⁷⁷
- Plate : ColumnNamingConvention¹⁹⁷⁸
- Plate : ID¹⁹⁷⁹
- Plate : Name¹⁹⁸⁰
- Plate : RowNamingConvention¹⁹⁸¹
- Plate : WellOriginX¹⁹⁸²
- Plate : WellOriginY¹⁹⁸³
- PlateAcquisition : ID¹⁹⁸⁴
- PlateAcquisition : MaximumFieldCount¹⁹⁸⁵

¹⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

¹⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginX

¹⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginY

¹⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

- PlateAcquisition : WellSampleRef¹⁹⁸⁶
- Well : Column¹⁹⁸⁷
- Well : ID¹⁹⁸⁸
- Well : Row¹⁹⁸⁹
- WellSample : ID¹⁹⁹⁰
- WellSample : ImageRef¹⁹⁹¹
- WellSample : Index¹⁹⁹²
- WellSample : PositionX¹⁹⁹³
- WellSample : PositionY¹⁹⁹⁴

Total supported: 67

Total unknown or missing: 408

19.2.51 InCell3000Reader

This page lists supported metadata fields for the Bio-Formats InCell 3000 format reader.

These fields are from the [OME data model](#)¹⁹⁹⁵. 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 475 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 InCell 3000 format reader:

- Channel : ID¹⁹⁹⁶
- Channel : SamplesPerPixel¹⁹⁹⁷
- Image : AcquisitionDate¹⁹⁹⁸
- Image : ID¹⁹⁹⁹
- Image : Name²⁰⁰⁰
- Pixels : BigEndian²⁰⁰¹
- Pixels : DimensionOrder²⁰⁰²
- Pixels : ID²⁰⁰³

¹⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

¹⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

¹⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹⁹⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁰⁰⁴
- Pixels : SignificantBits²⁰⁰⁵
- Pixels : SizeC²⁰⁰⁶
- Pixels : SizeT²⁰⁰⁷
- Pixels : SizeX²⁰⁰⁸
- Pixels : SizeY²⁰⁰⁹
- Pixels : SizeZ²⁰¹⁰
- Pixels : Type²⁰¹¹
- Plane : TheC²⁰¹²
- Plane : TheT²⁰¹³
- Plane : TheZ²⁰¹⁴

Total supported: 19

Total unknown or missing: 456

19.2.52 INRReader

This page lists supported metadata fields for the Bio-Formats INR format reader.

These fields are from the [OME data model](#)²⁰¹⁵. 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 475 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 INR format reader:

- Channel : ID²⁰¹⁶
- Channel : SamplesPerPixel²⁰¹⁷
- Image : AcquisitionDate²⁰¹⁸
- Image : ID²⁰¹⁹
- Image : Name²⁰²⁰
- Pixels : BigEndian²⁰²¹

²⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²⁰²²
- Pixels : ID²⁰²³
- Pixels : Interleaved²⁰²⁴
- Pixels : PhysicalSizeX²⁰²⁵
- Pixels : PhysicalSizeY²⁰²⁶
- Pixels : PhysicalSizeZ²⁰²⁷
- Pixels : SignificantBits²⁰²⁸
- Pixels : SizeC²⁰²⁹
- Pixels : SizeT²⁰³⁰
- Pixels : SizeX²⁰³¹
- Pixels : SizeY²⁰³²
- Pixels : SizeZ²⁰³³
- Pixels : Type²⁰³⁴
- Plane : TheC²⁰³⁵
- Plane : TheT²⁰³⁶
- Plane : TheZ²⁰³⁷

Total supported: 22

Total unknown or missing: 453

19.2.53 InveonReader

This page lists supported metadata fields for the Bio-Formats Inveon format reader.

These fields are from the [OME data model](#)²⁰³⁸. 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 475 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 Inveon format reader:

- Channel : ID²⁰³⁹

²⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel²⁰⁴⁰
- Experimenter : ID²⁰⁴¹
- Experimenter : Institution²⁰⁴²
- Experimenter : UserName²⁰⁴³
- Image : AcquisitionDate²⁰⁴⁴
- Image : Description²⁰⁴⁵
- Image : ExperimenterRef²⁰⁴⁶
- Image : ID²⁰⁴⁷
- Image : InstrumentRef²⁰⁴⁸
- Image : Name²⁰⁴⁹
- Instrument : ID²⁰⁵⁰
- Microscope : Model²⁰⁵¹
- Pixels : BigEndian²⁰⁵²
- Pixels : DimensionOrder²⁰⁵³
- Pixels : ID²⁰⁵⁴
- Pixels : Interleaved²⁰⁵⁵
- Pixels : PhysicalSizeX²⁰⁵⁶
- Pixels : PhysicalSizeY²⁰⁵⁷
- Pixels : PhysicalSizeZ²⁰⁵⁸
- Pixels : SignificantBits²⁰⁵⁹
- Pixels : SizeC²⁰⁶⁰
- Pixels : SizeT²⁰⁶¹
- Pixels : SizeX²⁰⁶²
- Pixels : SizeY²⁰⁶³
- Pixels : SizeZ²⁰⁶⁴
- Pixels : Type²⁰⁶⁵

²⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

²⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

²⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

²⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

²⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC²⁰⁶⁶
- Plane : TheT²⁰⁶⁷
- Plane : TheZ²⁰⁶⁸

Total supported: 30

Total unknown or missing: 445

19.2.54 IvisionReader

This page lists supported metadata fields for the Bio-Formats IVison format reader.

These fields are from the [OME data model](#)²⁰⁶⁹. 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 475 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%).

Supported fields

These fields are fully supported by the Bio-Formats IVison format reader:

- Channel : ID²⁰⁷⁰
- Channel : SamplesPerPixel²⁰⁷¹
- Detector : ID²⁰⁷²
- Detector : Type²⁰⁷³
- DetectorSettings : Binning²⁰⁷⁴
- DetectorSettings : Gain²⁰⁷⁵
- DetectorSettings : ID²⁰⁷⁶
- Image : AcquisitionDate²⁰⁷⁷
- Image : ID²⁰⁷⁸
- Image : InstrumentRef²⁰⁷⁹
- Image : Name²⁰⁸⁰
- Instrument : ID²⁰⁸¹
- Objective : Correction²⁰⁸²
- Objective : ID²⁰⁸³

²⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

- Objective : Immersion²⁰⁸⁴
- Objective : LensNA²⁰⁸⁵
- Objective : NominalMagnification²⁰⁸⁶
- ObjectiveSettings : ID²⁰⁸⁷
- ObjectiveSettings : RefractiveIndex²⁰⁸⁸
- Pixels : BigEndian²⁰⁸⁹
- Pixels : DimensionOrder²⁰⁹⁰
- Pixels : ID²⁰⁹¹
- Pixels : Interleaved²⁰⁹²
- Pixels : SignificantBits²⁰⁹³
- Pixels : SizeC²⁰⁹⁴
- Pixels : SizeT²⁰⁹⁵
- Pixels : SizeX²⁰⁹⁶
- Pixels : SizeY²⁰⁹⁷
- Pixels : SizeZ²⁰⁹⁸
- Pixels : TimeIncrement²⁰⁹⁹
- Pixels : Type²¹⁰⁰
- Plane : TheC²¹⁰¹
- Plane : TheT²¹⁰²
- Plane : TheZ²¹⁰³

Total supported: 34

Total unknown or missing: 441

19.2.55 IPLabReader

This page lists supported metadata fields for the Bio-Formats IPLab format reader.

These fields are from the [OME data model](#)²¹⁰⁴. 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 475 fields documented in the *metadata summary table*:

²⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁰⁴<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 IPLab format reader:

- Channel : ID²¹⁰⁵
- Channel : SamplesPerPixel²¹⁰⁶
- Image : AcquisitionDate²¹⁰⁷
- Image : Description²¹⁰⁸
- Image : ID²¹⁰⁹
- Image : Name²¹¹⁰
- Image : ROIRef²¹¹¹
- Pixels : BigEndian²¹¹²
- Pixels : DimensionOrder²¹¹³
- Pixels : ID²¹¹⁴
- Pixels : Interleaved²¹¹⁵
- Pixels : PhysicalSizeX²¹¹⁶
- Pixels : PhysicalSizeY²¹¹⁷
- Pixels : SignificantBits²¹¹⁸
- Pixels : SizeC²¹¹⁹
- Pixels : SizeT²¹²⁰
- Pixels : SizeX²¹²¹
- Pixels : SizeY²¹²²
- Pixels : SizeZ²¹²³
- Pixels : TimeIncrement²¹²⁴
- Pixels : Type²¹²⁵
- Plane : DeltaT²¹²⁶
- Plane : TheC²¹²⁷

²¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT²¹²⁸
- Plane : TheZ²¹²⁹
- ROI : ID²¹³⁰
- Rectangle : Height²¹³¹
- Rectangle : ID²¹³²
- Rectangle : Width²¹³³
- Rectangle : X²¹³⁴
- Rectangle : Y²¹³⁵

Total supported: 31

Total unknown or missing: 444

19.2.56 JEOLReader

This page lists supported metadata fields for the Bio-Formats JEOL format reader.

These fields are from the [OME data model](#)²¹³⁶. 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 475 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 JEOL format reader:

- Channel : ID²¹³⁷
- Channel : SamplesPerPixel²¹³⁸
- Image : AcquisitionDate²¹³⁹
- Image : ID²¹⁴⁰
- Image : Name²¹⁴¹
- Pixels : BigEndian²¹⁴²
- Pixels : DimensionOrder²¹⁴³
- Pixels : ID²¹⁴⁴
- Pixels : Interleaved²¹⁴⁵

²¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

²¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

²¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

²¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

²¹³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : SignificantBits²¹⁴⁶
- Pixels : SizeC²¹⁴⁷
- Pixels : SizeT²¹⁴⁸
- Pixels : SizeX²¹⁴⁹
- Pixels : SizeY²¹⁵⁰
- Pixels : SizeZ²¹⁵¹
- Pixels : Type²¹⁵²
- Plane : TheC²¹⁵³
- Plane : TheT²¹⁵⁴
- Plane : TheZ²¹⁵⁵

Total supported: 19

Total unknown or missing: 456

19.2.57 JPEG2000Reader

This page lists supported metadata fields for the Bio-Formats JPEG-2000 format reader.

These fields are from the [OME data model](#)²¹⁵⁶. 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 475 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 JPEG-2000 format reader:

- Channel : ID²¹⁵⁷
- Channel : SamplesPerPixel²¹⁵⁸
- Image : AcquisitionDate²¹⁵⁹
- Image : ID²¹⁶⁰
- Image : Name²¹⁶¹
- Pixels : BigEndian²¹⁶²
- Pixels : DimensionOrder²¹⁶³

²¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²¹⁶⁴
- Pixels : Interleaved²¹⁶⁵
- Pixels : SignificantBits²¹⁶⁶
- Pixels : SizeC²¹⁶⁷
- Pixels : SizeT²¹⁶⁸
- Pixels : SizeX²¹⁶⁹
- Pixels : SizeY²¹⁷⁰
- Pixels : SizeZ²¹⁷¹
- Pixels : Type²¹⁷²
- Plane : TheC²¹⁷³
- Plane : TheT²¹⁷⁴
- Plane : TheZ²¹⁷⁵

Total supported: 19

Total unknown or missing: 456

19.2.58 JPEGReader

This page lists supported metadata fields for the Bio-Formats JPEG format reader.

These fields are from the [OME data model](#)²¹⁷⁶. 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 475 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 JPEG format reader:

- Channel : ID²¹⁷⁷
- Channel : SamplesPerPixel²¹⁷⁸
- Image : AcquisitionDate²¹⁷⁹
- Image : ID²¹⁸⁰
- Image : Name²¹⁸¹

²¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian²¹⁸²
- Pixels : DimensionOrder²¹⁸³
- Pixels : ID²¹⁸⁴
- Pixels : Interleaved²¹⁸⁵
- Pixels : SignificantBits²¹⁸⁶
- Pixels : SizeC²¹⁸⁷
- Pixels : SizeT²¹⁸⁸
- Pixels : SizeX²¹⁸⁹
- Pixels : SizeY²¹⁹⁰
- Pixels : SizeZ²¹⁹¹
- Pixels : Type²¹⁹²
- Plane : TheC²¹⁹³
- Plane : TheT²¹⁹⁴
- Plane : TheZ²¹⁹⁵

Total supported: 19

Total unknown or missing: 456

19.2.59 JPKReader

This page lists supported metadata fields for the Bio-Formats JPK Instruments format reader.

These fields are from the OME data model²¹⁹⁶. 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 475 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 JPK Instruments format reader:

- Channel : ID²¹⁹⁷
- Channel : SamplesPerPixel²¹⁹⁸
- Image : AcquisitionDate²¹⁹⁹

²¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID²²⁰⁰
- Image : Name²²⁰¹
- Pixels : BigEndian²²⁰²
- Pixels : DimensionOrder²²⁰³
- Pixels : ID²²⁰⁴
- Pixels : Interleaved²²⁰⁵
- Pixels : SignificantBits²²⁰⁶
- Pixels : SizeC²²⁰⁷
- Pixels : SizeT²²⁰⁸
- Pixels : SizeX²²⁰⁹
- Pixels : SizeY²²¹⁰
- Pixels : SizeZ²²¹¹
- Pixels : Type²²¹²
- Plane : TheC²²¹³
- Plane : TheT²²¹⁴
- Plane : TheZ²²¹⁵

Total supported: 19

Total unknown or missing: 456

19.2.60 JPXReader

This page lists supported metadata fields for the Bio-Formats JPX format reader.

These fields are from the [OME data model](#)²²¹⁶. 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 475 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 JPX format reader:

- Channel : ID²²¹⁷

²²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel²²¹⁸
- Image : AcquisitionDate²²¹⁹
- Image : ID²²²⁰
- Image : Name²²²¹
- Pixels : BigEndian²²²²
- Pixels : DimensionOrder²²²³
- Pixels : ID²²²⁴
- Pixels : Interleaved²²²⁵
- Pixels : SignificantBits²²²⁶
- Pixels : SizeC²²²⁷
- Pixels : SizeT²²²⁸
- Pixels : SizeX²²²⁹
- Pixels : SizeY²²³⁰
- Pixels : SizeZ²²³¹
- Pixels : Type²²³²
- Plane : TheC²²³³
- Plane : TheT²²³⁴
- Plane : TheZ²²³⁵

Total supported: 19

Total unknown or missing: 456

19.2.61 KhorosReader

This page lists supported metadata fields for the Bio-Formats Khoros XV format reader.

These fields are from the [OME data model](#)²²³⁶. 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 475 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%).

²²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Khoros XV format reader:

- Channel : ID²²³⁷
- Channel : SamplesPerPixel²²³⁸
- Image : AcquisitionDate²²³⁹
- Image : ID²²⁴⁰
- Image : Name²²⁴¹
- Pixels : BigEndian²²⁴²
- Pixels : DimensionOrder²²⁴³
- Pixels : ID²²⁴⁴
- Pixels : Interleaved²²⁴⁵
- Pixels : SignificantBits²²⁴⁶
- Pixels : SizeC²²⁴⁷
- Pixels : SizeT²²⁴⁸
- Pixels : SizeX²²⁴⁹
- Pixels : SizeY²²⁵⁰
- Pixels : SizeZ²²⁵¹
- Pixels : Type²²⁵²
- Plane : TheC²²⁵³
- Plane : TheT²²⁵⁴
- Plane : TheZ²²⁵⁵

Total supported: 19

Total unknown or missing: 456

19.2.62 KodakReader

This page lists supported metadata fields for the Bio-Formats Kodak Molecular Imaging format reader.

These fields are from the OME data model²²⁵⁶. 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.

²²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
²²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
²²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
²²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
²²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
²²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
²²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
²²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
²²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
²²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
²²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
²²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
²²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
²²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
²²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
²²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
²²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
²²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
²²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
²²⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 fields documented in the *metadata summary table*:

- The file format itself supports 26 of them (5%).
- Of those, Bio-Formats fully or partially converts 26 (100%).

Supported fields**These fields are fully supported by the Bio-Formats Kodak Molecular Imaging format reader:**

- Channel : ID²²⁵⁷
- Channel : SamplesPerPixel²²⁵⁸
- Image : AcquisitionDate²²⁵⁹
- Image : ID²²⁶⁰
- Image : InstrumentRef²²⁶¹
- Image : Name²²⁶²
- ImagingEnvironment : Temperature²²⁶³
- Instrument : ID²²⁶⁴
- Microscope : Model²²⁶⁵
- Pixels : BigEndian²²⁶⁶
- Pixels : DimensionOrder²²⁶⁷
- Pixels : ID²²⁶⁸
- Pixels : Interleaved²²⁶⁹
- Pixels : PhysicalSizeX²²⁷⁰
- Pixels : PhysicalSizeY²²⁷¹
- Pixels : SignificantBits²²⁷²
- Pixels : SizeC²²⁷³
- Pixels : SizeT²²⁷⁴
- Pixels : SizeX²²⁷⁵
- Pixels : SizeY²²⁷⁶
- Pixels : SizeZ²²⁷⁷
- Pixels : Type²²⁷⁸

²²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID²²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel²²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate²²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID²²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID²²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name²²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature²²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID²²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model²²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian²²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder²²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID²²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved²²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX²²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY²²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits²²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC²²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT²²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX²²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY²²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ²²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : ExposureTime²²⁷⁹
- Plane : TheC²²⁸⁰
- Plane : TheT²²⁸¹
- Plane : TheZ²²⁸²

Total supported: 26

Total unknown or missing: 449

19.2.63 LiFlimReader

This page lists supported metadata fields for the Bio-Formats LI-FLIM format reader.

These fields are from the [OME data model](#)²²⁸³. 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 475 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 LI-FLIM format reader:

- Channel : ID²²⁸⁴
- Channel : SamplesPerPixel²²⁸⁵
- Image : AcquisitionDate²²⁸⁶
- Image : ID²²⁸⁷
- Image : Name²²⁸⁸
- Image : ROIRef²²⁸⁹
- Pixels : BigEndian²²⁹⁰
- Pixels : DimensionOrder²²⁹¹
- Pixels : ID²²⁹²
- Pixels : Interleaved²²⁹³
- Pixels : SignificantBits²²⁹⁴
- Pixels : SizeC²²⁹⁵
- Pixels : SizeT²²⁹⁶

²²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²⁸³<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²²⁹⁷
- Pixels : SizeY²²⁹⁸
- Pixels : SizeZ²²⁹⁹
- Pixels : Type²³⁰⁰
- Plane : DeltaT²³⁰¹
- Plane : ExposureTime²³⁰²
- Plane : TheC²³⁰³
- Plane : TheT²³⁰⁴
- Plane : TheZ²³⁰⁵
- Polygon : ID²³⁰⁶
- Polygon : Points²³⁰⁷
- ROI : ID²³⁰⁸

Total supported: 25

Total unknown or missing: 450

19.2.64 InspectorReader

This page lists supported metadata fields for the Bio-Formats Lavisision Inspector format reader.

These fields are from the [OME data model](#)²³⁰⁹. 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 475 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 Lavisision Inspector format reader:

- Channel : ID²³¹⁰
- Channel : SamplesPerPixel²³¹¹
- Image : AcquisitionDate²³¹²
- Image : ID²³¹³
- Image : Name²³¹⁴

²²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

²³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²³⁰⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian²³¹⁵
- Pixels : DimensionOrder²³¹⁶
- Pixels : ID²³¹⁷
- Pixels : Interleaved²³¹⁸
- Pixels : SignificantBits²³¹⁹
- Pixels : SizeC²³²⁰
- Pixels : SizeT²³²¹
- Pixels : SizeX²³²²
- Pixels : SizeY²³²³
- Pixels : SizeZ²³²⁴
- Pixels : Type²³²⁵
- Plane : TheC²³²⁶
- Plane : TheT²³²⁷
- Plane : TheZ²³²⁸

Total supported: 19

Total unknown or missing: 456

19.2.65 LeicaReader

This page lists supported metadata fields for the Bio-Formats Leica format reader.

These fields are from the [OME data model](#)²³²⁹. 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 475 fields documented in the [metadata summary table](#):

- The file format itself supports 56 of them (11%).
- Of those, Bio-Formats fully or partially converts 56 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Leica format reader:

- Channel : Color²³³⁰
- Channel : EmissionWavelength²³³¹
- Channel : ExcitationWavelength²³³²

²³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²³²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

- Channel : ID²³³³
- Channel : Name²³³⁴
- Channel : PinholeSize²³³⁵
- Channel : SamplesPerPixel²³³⁶
- Detector : ID²³³⁷
- Detector : Offset²³³⁸
- Detector : Type²³³⁹
- Detector : Voltage²³⁴⁰
- DetectorSettings : ID²³⁴¹
- Filter : ID²³⁴²
- Filter : Model²³⁴³
- Image : AcquisitionDate²³⁴⁴
- Image : Description²³⁴⁵
- Image : ID²³⁴⁶
- Image : InstrumentRef²³⁴⁷
- Image : Name²³⁴⁸
- Instrument : ID²³⁴⁹
- LightPath : EmissionFilterRef²³⁵⁰
- Objective : Correction²³⁵¹
- Objective : ID²³⁵²
- Objective : Immersion²³⁵³
- Objective : LensNA²³⁵⁴
- Objective : Model²³⁵⁵
- Objective : NominalMagnification²³⁵⁶
- Objective : SerialNumber²³⁵⁷
- ObjectiveSettings : ID²³⁵⁸

²³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

²³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Voltage

²³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

²³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

- ObjectiveSettings : RefractiveIndex²³⁵⁹
- Pixels : BigEndian²³⁶⁰
- Pixels : DimensionOrder²³⁶¹
- Pixels : ID²³⁶²
- Pixels : Interleaved²³⁶³
- Pixels : PhysicalSizeX²³⁶⁴
- Pixels : PhysicalSizeY²³⁶⁵
- Pixels : PhysicalSizeZ²³⁶⁶
- Pixels : SignificantBits²³⁶⁷
- Pixels : SizeC²³⁶⁸
- Pixels : SizeT²³⁶⁹
- Pixels : SizeX²³⁷⁰
- Pixels : SizeY²³⁷¹
- Pixels : SizeZ²³⁷²
- Pixels : TimeIncrement²³⁷³
- Pixels : Type²³⁷⁴
- Plane : DeltaT²³⁷⁵
- Plane : ExposureTime²³⁷⁶
- Plane : PositionX²³⁷⁷
- Plane : PositionY²³⁷⁸
- Plane : TheC²³⁷⁹
- Plane : TheT²³⁸⁰
- Plane : TheZ²³⁸¹
- StageLabel : Name²³⁸²
- StageLabel : Z²³⁸³
- TransmittanceRange : CutIn²³⁸⁴

²³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name

²³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z

²³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

- TransmittanceRange : CutOut²³⁸⁵

Total supported: 56

Total unknown or missing: 419

19.2.66 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](#)²³⁸⁶. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 85 of them (17%).
- Of those, Bio-Formats fully or partially converts 85 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Leica Image File Format format reader:

- Channel : Color²³⁸⁷
- Channel : ExcitationWavelength²³⁸⁸
- Channel : ID²³⁸⁹
- Channel : LightSourceSettingsAttenuation²³⁹⁰
- Channel : LightSourceSettingsID²³⁹¹
- Channel : Name²³⁹²
- Channel : PinholeSize²³⁹³
- Channel : SamplesPerPixel²³⁹⁴
- Detector : ID²³⁹⁵
- Detector : Model²³⁹⁶
- Detector : Offset²³⁹⁷
- Detector : Type²³⁹⁸
- Detector : Zoom²³⁹⁹
- DetectorSettings : Gain²⁴⁰⁰
- DetectorSettings : ID²⁴⁰¹
- DetectorSettings : Offset²⁴⁰²

²³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

²³⁸⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Attenuation

²³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

²³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

²⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

- Filter : ID²⁴⁰³
- Filter : Model²⁴⁰⁴
- Image : AcquisitionDate²⁴⁰⁵
- Image : Description²⁴⁰⁶
- Image : ID²⁴⁰⁷
- Image : InstrumentRef²⁴⁰⁸
- Image : Name²⁴⁰⁹
- Image : ROIRef²⁴¹⁰
- Instrument : ID²⁴¹¹
- Label : FontSize²⁴¹²
- Label : ID²⁴¹³
- Label : StrokeWidth²⁴¹⁴
- Label : Text²⁴¹⁵
- Label : X²⁴¹⁶
- Label : Y²⁴¹⁷
- Laser : ID²⁴¹⁸
- Laser : LaserMedium²⁴¹⁹
- Laser : Type²⁴²⁰
- Laser : Wavelength²⁴²¹
- LightPath : EmissionFilterRef²⁴²²
- Line : ID²⁴²³
- Line : X1²⁴²⁴
- Line : X2²⁴²⁵
- Line : Y1²⁴²⁶
- Line : Y2²⁴²⁷
- Microscope : Model²⁴²⁸

²⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

²⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

²⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

²⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_X

²⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_Y

²⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

²⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

²⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

²⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

²⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

²⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

²⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Microscope : Type²⁴²⁹
- Objective : Correction²⁴³⁰
- Objective : ID²⁴³¹
- Objective : Immersion²⁴³²
- Objective : LensNA²⁴³³
- Objective : Model²⁴³⁴
- Objective : NominalMagnification²⁴³⁵
- Objective : SerialNumber²⁴³⁶
- ObjectiveSettings : ID²⁴³⁷
- ObjectiveSettings : RefractiveIndex²⁴³⁸
- Pixels : BigEndian²⁴³⁹
- Pixels : DimensionOrder²⁴⁴⁰
- Pixels : ID²⁴⁴¹
- Pixels : Interleaved²⁴⁴²
- Pixels : PhysicalSizeX²⁴⁴³
- Pixels : PhysicalSizeY²⁴⁴⁴
- Pixels : PhysicalSizeZ²⁴⁴⁵
- Pixels : SignificantBits²⁴⁴⁶
- Pixels : SizeC²⁴⁴⁷
- Pixels : SizeT²⁴⁴⁸
- Pixels : SizeX²⁴⁴⁹
- Pixels : SizeY²⁴⁵⁰
- Pixels : SizeZ²⁴⁵¹
- Pixels : TimeIncrement²⁴⁵²
- Pixels : Type²⁴⁵³
- Plane : DeltaT²⁴⁵⁴

²⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

²⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

- Plane : ExposureTime²⁴⁵⁵
- Plane : PositionX²⁴⁵⁶
- Plane : PositionY²⁴⁵⁷
- Plane : PositionZ²⁴⁵⁸
- Plane : TheC²⁴⁵⁹
- Plane : TheT²⁴⁶⁰
- Plane : TheZ²⁴⁶¹
- Polygon : ID²⁴⁶²
- Polygon : Points²⁴⁶³
- ROI : ID²⁴⁶⁴
- Rectangle : Height²⁴⁶⁵
- Rectangle : ID²⁴⁶⁶
- Rectangle : Width²⁴⁶⁷
- Rectangle : X²⁴⁶⁸
- Rectangle : Y²⁴⁶⁹
- TransmittanceRange : CutIn²⁴⁷⁰
- TransmittanceRange : CutOut²⁴⁷¹

Total supported: 85

Total unknown or missing: 390

19.2.67 LeicaSCNReader

This page lists supported metadata fields for the Bio-Formats Leica SCN format reader.

These fields are from the OME data model²⁴⁷². 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 33 of them (6%).
- Of those, Bio-Formats fully or partially converts 33 (100%).

²⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

²⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

²⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

²⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

²⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

²⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

²⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

²⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

²⁴⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Leica SCN format reader:

- Channel : ID²⁴⁷³
- Channel : IlluminationType²⁴⁷⁴
- Channel : SamplesPerPixel²⁴⁷⁵
- Image : AcquisitionDate²⁴⁷⁶
- Image : Description²⁴⁷⁷
- Image : ID²⁴⁷⁸
- Image : InstrumentRef²⁴⁷⁹
- Image : Name²⁴⁸⁰
- Instrument : ID²⁴⁸¹
- Objective : CalibratedMagnification²⁴⁸²
- Objective : ID²⁴⁸³
- Objective : LensNA²⁴⁸⁴
- Objective : NominalMagnification²⁴⁸⁵
- ObjectiveSettings : ID²⁴⁸⁶
- Pixels : BigEndian²⁴⁸⁷
- Pixels : DimensionOrder²⁴⁸⁸
- Pixels : ID²⁴⁸⁹
- Pixels : Interleaved²⁴⁹⁰
- Pixels : PhysicalSizeX²⁴⁹¹
- Pixels : PhysicalSizeY²⁴⁹²
- Pixels : PhysicalSizeZ²⁴⁹³
- Pixels : SignificantBits²⁴⁹⁴
- Pixels : SizeC²⁴⁹⁵
- Pixels : SizeT²⁴⁹⁶

²⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

²⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

²⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁴⁹⁷
- Pixels : SizeY²⁴⁹⁸
- Pixels : SizeZ²⁴⁹⁹
- Pixels : Type²⁵⁰⁰
- Plane : PositionX²⁵⁰¹
- Plane : PositionY²⁵⁰²
- Plane : TheC²⁵⁰³
- Plane : TheT²⁵⁰⁴
- Plane : TheZ²⁵⁰⁵

Total supported: 33

Total unknown or missing: 442

19.2.68 LEORReader

This page lists supported metadata fields for the Bio-Formats LEO format reader.

These fields are from the [OME data model](#)²⁵⁰⁶. 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 475 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 LEO format reader:

- Channel : ID²⁵⁰⁷
- Channel : SamplesPerPixel²⁵⁰⁸
- Image : AcquisitionDate²⁵⁰⁹
- Image : ID²⁵¹⁰
- Image : InstrumentRef²⁵¹¹
- Image : Name²⁵¹²
- Instrument : ID²⁵¹³
- Objective : Correction²⁵¹⁴

²⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

- Objective : ID²⁵¹⁵
- Objective : Immersion²⁵¹⁶
- Objective : WorkingDistance²⁵¹⁷
- Pixels : BigEndian²⁵¹⁸
- Pixels : DimensionOrder²⁵¹⁹
- Pixels : ID²⁵²⁰
- Pixels : Interleaved²⁵²¹
- Pixels : PhysicalSizeX²⁵²²
- Pixels : PhysicalSizeY²⁵²³
- Pixels : SignificantBits²⁵²⁴
- Pixels : SizeC²⁵²⁵
- Pixels : SizeT²⁵²⁶
- Pixels : SizeX²⁵²⁷
- Pixels : SizeY²⁵²⁸
- Pixels : SizeZ²⁵²⁹
- Pixels : Type²⁵³⁰
- Plane : TheC²⁵³¹
- Plane : TheT²⁵³²
- Plane : TheZ²⁵³³

Total supported: 27

Total unknown or missing: 448

19.2.69 L2DReader

This page lists supported metadata fields for the Bio-Formats Li-Cor L2D format reader.

These fields are from the [OME data model](#)²⁵³⁴. 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 475 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%).

²⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

²⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Li-Cor L2D format reader:

- Channel : ID²⁵³⁵
- Channel : LightSourceSettingsID²⁵³⁶
- Channel : SamplesPerPixel²⁵³⁷
- Image : AcquisitionDate²⁵³⁸
- Image : Description²⁵³⁹
- Image : ID²⁵⁴⁰
- Image : InstrumentRef²⁵⁴¹
- Image : Name²⁵⁴²
- Instrument : ID²⁵⁴³
- Laser : ID²⁵⁴⁴
- Laser : LaserMedium²⁵⁴⁵
- Laser : Type²⁵⁴⁶
- Laser : Wavelength²⁵⁴⁷
- Microscope : Model²⁵⁴⁸
- Microscope : Type²⁵⁴⁹
- Pixels : BigEndian²⁵⁵⁰
- Pixels : DimensionOrder²⁵⁵¹
- Pixels : ID²⁵⁵²
- Pixels : Interleaved²⁵⁵³
- Pixels : SignificantBits²⁵⁵⁴
- Pixels : SizeC²⁵⁵⁵
- Pixels : SizeT²⁵⁵⁶
- Pixels : SizeX²⁵⁵⁷
- Pixels : SizeY²⁵⁵⁸

²⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

²⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

²⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²⁵⁵⁹
- Pixels : Type²⁵⁶⁰
- Plane : TheC²⁵⁶¹
- Plane : TheT²⁵⁶²
- Plane : TheZ²⁵⁶³

Total supported: 29

Total unknown or missing: 446

19.2.70 LIMReader

This page lists supported metadata fields for the Bio-Formats Laboratory Imaging format reader.

These fields are from the [OME data model](#)²⁵⁶⁴. 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 475 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 Laboratory Imaging format reader:

- Channel : ID²⁵⁶⁵
- Channel : SamplesPerPixel²⁵⁶⁶
- Image : AcquisitionDate²⁵⁶⁷
- Image : ID²⁵⁶⁸
- Image : Name²⁵⁶⁹
- Pixels : BigEndian²⁵⁷⁰
- Pixels : DimensionOrder²⁵⁷¹
- Pixels : ID²⁵⁷²
- Pixels : Interleaved²⁵⁷³
- Pixels : SignificantBits²⁵⁷⁴
- Pixels : SizeC²⁵⁷⁵
- Pixels : SizeT²⁵⁷⁶

²⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵⁶⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁵⁷⁷
- Pixels : SizeY²⁵⁷⁸
- Pixels : SizeZ²⁵⁷⁹
- Pixels : Type²⁵⁸⁰
- Plane : TheC²⁵⁸¹
- Plane : TheT²⁵⁸²
- Plane : TheZ²⁵⁸³

Total supported: 19

Total unknown or missing: 456

19.2.71 MetamorphTiffReader

This page lists supported metadata fields for the Bio-Formats Metamorph TIFF format reader.

These fields are from the [OME data model](#)²⁵⁸⁴. 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 475 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 Metamorph TIFF format reader:

- Channel : ID²⁵⁸⁵
- Channel : Name²⁵⁸⁶
- Channel : SamplesPerPixel²⁵⁸⁷
- Image : AcquisitionDate²⁵⁸⁸
- Image : Description²⁵⁸⁹
- Image : ID²⁵⁹⁰
- Image : Name²⁵⁹¹
- ImagingEnvironment : Temperature²⁵⁹²
- Pixels : BigEndian²⁵⁹³
- Pixels : DimensionOrder²⁵⁹⁴

²⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²⁵⁹⁵
- Pixels : Interleaved²⁵⁹⁶
- Pixels : PhysicalSizeX²⁵⁹⁷
- Pixels : PhysicalSizeY²⁵⁹⁸
- Pixels : PhysicalSizeZ²⁵⁹⁹
- Pixels : SignificantBits²⁶⁰⁰
- Pixels : SizeC²⁶⁰¹
- Pixels : SizeT²⁶⁰²
- Pixels : SizeX²⁶⁰³
- Pixels : SizeY²⁶⁰⁴
- Pixels : SizeZ²⁶⁰⁵
- Pixels : Type²⁶⁰⁶
- Plane : DeltaT²⁶⁰⁷
- Plane : ExposureTime²⁶⁰⁸
- Plane : PositionX²⁶⁰⁹
- Plane : PositionY²⁶¹⁰
- Plane : TheC²⁶¹¹
- Plane : TheT²⁶¹²
- Plane : TheZ²⁶¹³
- Plate : ColumnNamingConvention²⁶¹⁴
- Plate : ID²⁶¹⁵
- Plate : RowNamingConvention²⁶¹⁶
- Well : Column²⁶¹⁷
- Well : ID²⁶¹⁸
- Well : Row²⁶¹⁹
- WellSample : ID²⁶²⁰

²⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

²⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

²⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

²⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

²⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

²⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

²⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

- WellSample : ImageRef²⁶²¹
- WellSample : Index²⁶²²

Total supported: 38

Total unknown or missing: 437

19.2.72 MetamorphReader

This page lists supported metadata fields for the Bio-Formats Metamorph STK format reader.

These fields are from the [OME data model](#)²⁶²³. 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 475 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 Metamorph STK format reader:

- Channel : ID²⁶²⁴
- Channel : LightSourceSettingsID²⁶²⁵
- Channel : LightSourceSettingsWavelength²⁶²⁶
- Channel : Name²⁶²⁷
- Channel : SamplesPerPixel²⁶²⁸
- Detector : ID²⁶²⁹
- Detector : Type²⁶³⁰
- DetectorSettings : Binning²⁶³¹
- DetectorSettings : Gain²⁶³²
- DetectorSettings : ID²⁶³³
- DetectorSettings : ReadOutRate²⁶³⁴
- Image : AcquisitionDate²⁶³⁵
- Image : Description²⁶³⁶
- Image : ID²⁶³⁷
- Image : InstrumentRef²⁶³⁸

²⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

²⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

²⁶²³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength

²⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name²⁶³⁹
- ImagingEnvironment : Temperature²⁶⁴⁰
- Instrument : ID²⁶⁴¹
- Laser : ID²⁶⁴²
- Laser : LaserMedium²⁶⁴³
- Laser : Type²⁶⁴⁴
- Pixels : BigEndian²⁶⁴⁵
- Pixels : DimensionOrder²⁶⁴⁶
- Pixels : ID²⁶⁴⁷
- Pixels : Interleaved²⁶⁴⁸
- Pixels : PhysicalSizeX²⁶⁴⁹
- Pixels : PhysicalSizeY²⁶⁵⁰
- Pixels : PhysicalSizeZ²⁶⁵¹
- Pixels : SignificantBits²⁶⁵²
- Pixels : SizeC²⁶⁵³
- Pixels : SizeT²⁶⁵⁴
- Pixels : SizeX²⁶⁵⁵
- Pixels : SizeY²⁶⁵⁶
- Pixels : SizeZ²⁶⁵⁷
- Pixels : Type²⁶⁵⁸
- Plane : DeltaT²⁶⁵⁹
- Plane : ExposureTime²⁶⁶⁰
- Plane : PositionX²⁶⁶¹
- Plane : PositionY²⁶⁶²
- Plane : PositionZ²⁶⁶³
- Plane : TheC²⁶⁶⁴

²⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

²⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT²⁶⁶⁵
- Plane : TheZ²⁶⁶⁶

Total supported: 43

Total unknown or missing: 432

19.2.73 MIASReader

This page lists supported metadata fields for the Bio-Formats MIAS format reader.

These fields are from the [OME data model](#)²⁶⁶⁷. 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 475 fields documented in the [metadata summary table](#):

- The file format itself supports 64 of them (13%).
- Of those, Bio-Formats fully or partially converts 64 (100%).

Supported fields

These fields are fully supported by the Bio-Formats MIAS format reader:

- Channel : Color²⁶⁶⁸
- Channel : ID²⁶⁶⁹
- Channel : Name²⁶⁷⁰
- Channel : SamplesPerPixel²⁶⁷¹
- Ellipse : ID²⁶⁷²
- Ellipse : RadiusX²⁶⁷³
- Ellipse : RadiusY²⁶⁷⁴
- Ellipse : Text²⁶⁷⁵
- Ellipse : TheT²⁶⁷⁶
- Ellipse : TheZ²⁶⁷⁷
- Ellipse : X²⁶⁷⁸
- Ellipse : Y²⁶⁷⁹
- Experiment : Description²⁶⁸⁰
- Experiment : ID²⁶⁸¹
- Experiment : Type²⁶⁸²

²⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁶⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

²⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

²⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

²⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

²⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

²⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

²⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

²⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Description

²⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

²⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

- Image : AcquisitionDate²⁶⁸³
- Image : ExperimentRef²⁶⁸⁴
- Image : ID²⁶⁸⁵
- Image : InstrumentRef²⁶⁸⁶
- Image : Name²⁶⁸⁷
- Image : ROIRef²⁶⁸⁸
- Instrument : ID²⁶⁸⁹
- Mask : FillColor²⁶⁹⁰
- Mask : Height²⁶⁹¹
- Mask : ID²⁶⁹²
- Mask : StrokeColor²⁶⁹³
- Mask : Width²⁶⁹⁴
- Mask : X²⁶⁹⁵
- Mask : Y²⁶⁹⁶
- Objective : ID²⁶⁹⁷
- Objective : Model²⁶⁹⁸
- Objective : NominalMagnification²⁶⁹⁹
- Pixels : BigEndian²⁷⁰⁰
- Pixels : DimensionOrder²⁷⁰¹
- Pixels : ID²⁷⁰²
- Pixels : Interleaved²⁷⁰³
- Pixels : PhysicalSizeX²⁷⁰⁴
- Pixels : PhysicalSizeY²⁷⁰⁵
- Pixels : SignificantBits²⁷⁰⁶
- Pixels : SizeC²⁷⁰⁷
- Pixels : SizeT²⁷⁰⁸

²⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimentRef_ID

²⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor

²⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Height

²⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

²⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width

²⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X

²⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y

²⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁷⁰⁹
- Pixels : SizeY²⁷¹⁰
- Pixels : SizeZ²⁷¹¹
- Pixels : Type²⁷¹²
- Plane : ExposureTime²⁷¹³
- Plane : TheC²⁷¹⁴
- Plane : TheT²⁷¹⁵
- Plane : TheZ²⁷¹⁶
- Plate : ColumnNamingConvention²⁷¹⁷
- Plate : ExternalIdentifier²⁷¹⁸
- Plate : ID²⁷¹⁹
- Plate : Name²⁷²⁰
- Plate : RowNamingConvention²⁷²¹
- PlateAcquisition : ID²⁷²²
- PlateAcquisition : MaximumFieldCount²⁷²³
- PlateAcquisition : WellSampleRef²⁷²⁴
- ROI : ID²⁷²⁵
- Well : Column²⁷²⁶
- Well : ID²⁷²⁷
- Well : Row²⁷²⁸
- WellSample : ID²⁷²⁹
- WellSample : ImageRef²⁷³⁰
- WellSample : Index²⁷³¹

Total supported: 64

Total unknown or missing: 411

²⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

²⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

²⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

²⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

²⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

²⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

²⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

²⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

²⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

²⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

²⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

²⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

²⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

²⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

19.2.74 MicromanagerReader

This page lists supported metadata fields for the Bio-Formats Micro-Manager format reader.

These fields are from the [OME data model](#)²⁷³². 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 475 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 Micro-Manager format reader:

- Channel : ID²⁷³³
- Channel : Name²⁷³⁴
- Channel : SamplesPerPixel²⁷³⁵
- Detector : ID²⁷³⁶
- Detector : Manufacturer²⁷³⁷
- Detector : Model²⁷³⁸
- Detector : SerialNumber²⁷³⁹
- Detector : Type²⁷⁴⁰
- DetectorSettings : Binning²⁷⁴¹
- DetectorSettings : Gain²⁷⁴²
- DetectorSettings : ID²⁷⁴³
- DetectorSettings : Voltage²⁷⁴⁴
- Image : AcquisitionDate²⁷⁴⁵
- Image : Description²⁷⁴⁶
- Image : ID²⁷⁴⁷
- Image : InstrumentRef²⁷⁴⁸
- Image : Name²⁷⁴⁹
- ImagingEnvironment : Temperature²⁷⁵⁰

²⁷³²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

²⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

- Instrument : ID²⁷⁵¹
- Pixels : BigEndian²⁷⁵²
- Pixels : DimensionOrder²⁷⁵³
- Pixels : ID²⁷⁵⁴
- Pixels : Interleaved²⁷⁵⁵
- Pixels : PhysicalSizeX²⁷⁵⁶
- Pixels : PhysicalSizeY²⁷⁵⁷
- Pixels : PhysicalSizeZ²⁷⁵⁸
- Pixels : SignificantBits²⁷⁵⁹
- Pixels : SizeC²⁷⁶⁰
- Pixels : SizeT²⁷⁶¹
- Pixels : SizeX²⁷⁶²
- Pixels : SizeY²⁷⁶³
- Pixels : SizeZ²⁷⁶⁴
- Pixels : Type²⁷⁶⁵
- Plane : DeltaT²⁷⁶⁶
- Plane : ExposureTime²⁷⁶⁷
- Plane : TheC²⁷⁶⁸
- Plane : TheT²⁷⁶⁹
- Plane : TheZ²⁷⁷⁰

Total supported: 38

Total unknown or missing: 437

19.2.75 MINCReader

This page lists supported metadata fields for the Bio-Formats MINC MRI format reader.

These fields are from the OME data model²⁷⁷¹. 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 475 fields documented in the *metadata summary table*:

- ²⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ²⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ²⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ²⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ²⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ²⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ²⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ²⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ²⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ²⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ²⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ²⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ²⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ²⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ²⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ²⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ²⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ²⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ²⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ²⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ²⁷⁷¹<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 MINC MRI format reader:

- Channel : ID²⁷⁷²
- Channel : SamplesPerPixel²⁷⁷³
- Image : AcquisitionDate²⁷⁷⁴
- Image : Description²⁷⁷⁵
- Image : ID²⁷⁷⁶
- Image : Name²⁷⁷⁷
- Pixels : BigEndian²⁷⁷⁸
- Pixels : DimensionOrder²⁷⁷⁹
- Pixels : ID²⁷⁸⁰
- Pixels : Interleaved²⁷⁸¹
- Pixels : PhysicalSizeX²⁷⁸²
- Pixels : PhysicalSizeY²⁷⁸³
- Pixels : PhysicalSizeZ²⁷⁸⁴
- Pixels : SignificantBits²⁷⁸⁵
- Pixels : SizeC²⁷⁸⁶
- Pixels : SizeT²⁷⁸⁷
- Pixels : SizeX²⁷⁸⁸
- Pixels : SizeY²⁷⁸⁹
- Pixels : SizeZ²⁷⁹⁰
- Pixels : Type²⁷⁹¹
- Plane : TheC²⁷⁹²
- Plane : TheT²⁷⁹³
- Plane : TheZ²⁷⁹⁴

²⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

Total supported: 23

Total unknown or missing: 452

19.2.76 MRWReader

This page lists supported metadata fields for the Bio-Formats Minolta MRW format reader.

These fields are from the [OME data model](#)²⁷⁹⁵. 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 475 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 Minolta MRW format reader:

- Channel : ID²⁷⁹⁶
- Channel : SamplesPerPixel²⁷⁹⁷
- Image : AcquisitionDate²⁷⁹⁸
- Image : ID²⁷⁹⁹
- Image : Name²⁸⁰⁰
- Pixels : BigEndian²⁸⁰¹
- Pixels : DimensionOrder²⁸⁰²
- Pixels : ID²⁸⁰³
- Pixels : Interleaved²⁸⁰⁴
- Pixels : SignificantBits²⁸⁰⁵
- Pixels : SizeC²⁸⁰⁶
- Pixels : SizeT²⁸⁰⁷
- Pixels : SizeX²⁸⁰⁸
- Pixels : SizeY²⁸⁰⁹
- Pixels : SizeZ²⁸¹⁰
- Pixels : Type²⁸¹¹
- Plane : TheC²⁸¹²

²⁷⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT²⁸¹³
- Plane : TheZ²⁸¹⁴

Total supported: 19

Total unknown or missing: 456

19.2.77 MNGReader

This page lists supported metadata fields for the Bio-Formats Multiple Network Graphics format reader.

These fields are from the [OME data model](#)²⁸¹⁵. 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 475 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 Multiple Network Graphics format reader:

- Channel : ID²⁸¹⁶
- Channel : SamplesPerPixel²⁸¹⁷
- Image : AcquisitionDate²⁸¹⁸
- Image : ID²⁸¹⁹
- Image : Name²⁸²⁰
- Pixels : BigEndian²⁸²¹
- Pixels : DimensionOrder²⁸²²
- Pixels : ID²⁸²³
- Pixels : Interleaved²⁸²⁴
- Pixels : SignificantBits²⁸²⁵
- Pixels : SizeC²⁸²⁶
- Pixels : SizeT²⁸²⁷
- Pixels : SizeX²⁸²⁸
- Pixels : SizeY²⁸²⁹
- Pixels : SizeZ²⁸³⁰

²⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type²⁸³¹
- Plane : TheC²⁸³²
- Plane : TheT²⁸³³
- Plane : TheZ²⁸³⁴

Total supported: 19

Total unknown or missing: 456

19.2.78 MolecularImagingReader

This page lists supported metadata fields for the Bio-Formats Molecular Imaging format reader.

These fields are from the [OME data model](#)²⁸³⁵. 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 475 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 Molecular Imaging format reader:

- Channel : ID²⁸³⁶
- Channel : SamplesPerPixel²⁸³⁷
- Image : AcquisitionDate²⁸³⁸
- Image : ID²⁸³⁹
- Image : Name²⁸⁴⁰
- Pixels : BigEndian²⁸⁴¹
- Pixels : DimensionOrder²⁸⁴²
- Pixels : ID²⁸⁴³
- Pixels : Interleaved²⁸⁴⁴
- Pixels : PhysicalSizeX²⁸⁴⁵
- Pixels : PhysicalSizeY²⁸⁴⁶
- Pixels : SignificantBits²⁸⁴⁷
- Pixels : SizeC²⁸⁴⁸

²⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²⁸⁴⁹
- Pixels : SizeX²⁸⁵⁰
- Pixels : SizeY²⁸⁵¹
- Pixels : SizeZ²⁸⁵²
- Pixels : Type²⁸⁵³
- Plane : TheC²⁸⁵⁴
- Plane : TheT²⁸⁵⁵
- Plane : TheZ²⁸⁵⁶

Total supported: 21

Total unknown or missing: 454

19.2.79 MRCReader

This page lists supported metadata fields for the Bio-Formats Medical Research Council format reader.

These fields are from the [OME data model](#)²⁸⁵⁷. 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 475 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 Medical Research Council format reader:

- Channel : ID²⁸⁵⁸
- Channel : SamplesPerPixel²⁸⁵⁹
- Image : AcquisitionDate²⁸⁶⁰
- Image : ID²⁸⁶¹
- Image : Name²⁸⁶²
- Pixels : BigEndian²⁸⁶³
- Pixels : DimensionOrder²⁸⁶⁴
- Pixels : ID²⁸⁶⁵
- Pixels : Interleaved²⁸⁶⁶

²⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸⁵⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX²⁸⁶⁷
- Pixels : PhysicalSizeY²⁸⁶⁸
- Pixels : PhysicalSizeZ²⁸⁶⁹
- Pixels : SignificantBits²⁸⁷⁰
- Pixels : SizeC²⁸⁷¹
- Pixels : SizeT²⁸⁷²
- Pixels : SizeX²⁸⁷³
- Pixels : SizeY²⁸⁷⁴
- Pixels : SizeZ²⁸⁷⁵
- Pixels : Type²⁸⁷⁶
- Plane : TheC²⁸⁷⁷
- Plane : TheT²⁸⁷⁸
- Plane : TheZ²⁸⁷⁹

Total supported: 22

Total unknown or missing: 453

19.2.80 NikonReader

This page lists supported metadata fields for the Bio-Formats Nikon NEF format reader.

These fields are from the [OME data model](#)²⁸⁸⁰. 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 475 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 Nikon NEF format reader:

- Channel : ID²⁸⁸¹
- Channel : SamplesPerPixel²⁸⁸²
- Image : AcquisitionDate²⁸⁸³
- Image : ID²⁸⁸⁴

²⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name²⁸⁸⁵
- Pixels : BigEndian²⁸⁸⁶
- Pixels : DimensionOrder²⁸⁸⁷
- Pixels : ID²⁸⁸⁸
- Pixels : Interleaved²⁸⁸⁹
- Pixels : SignificantBits²⁸⁹⁰
- Pixels : SizeC²⁸⁹¹
- Pixels : SizeT²⁸⁹²
- Pixels : SizeX²⁸⁹³
- Pixels : SizeY²⁸⁹⁴
- Pixels : SizeZ²⁸⁹⁵
- Pixels : Type²⁸⁹⁶
- Plane : TheC²⁸⁹⁷
- Plane : TheT²⁸⁹⁸
- Plane : TheZ²⁸⁹⁹

Total supported: 19

Total unknown or missing: 456

19.2.81 NiftiReader

This page lists supported metadata fields for the Bio-Formats NIFTI format reader.

These fields are from the [OME data model](#)²⁹⁰⁰. 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 475 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 NIFTI format reader:

- Channel : ID²⁹⁰¹
- Channel : SamplesPerPixel²⁹⁰²

²⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁹⁰⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate²⁹⁰³
- Image : Description²⁹⁰⁴
- Image : ID²⁹⁰⁵
- Image : Name²⁹⁰⁶
- Pixels : BigEndian²⁹⁰⁷
- Pixels : DimensionOrder²⁹⁰⁸
- Pixels : ID²⁹⁰⁹
- Pixels : Interleaved²⁹¹⁰
- Pixels : PhysicalSizeX²⁹¹¹
- Pixels : PhysicalSizeY²⁹¹²
- Pixels : PhysicalSizeZ²⁹¹³
- Pixels : SignificantBits²⁹¹⁴
- Pixels : SizeC²⁹¹⁵
- Pixels : SizeT²⁹¹⁶
- Pixels : SizeX²⁹¹⁷
- Pixels : SizeY²⁹¹⁸
- Pixels : SizeZ²⁹¹⁹
- Pixels : TimeIncrement²⁹²⁰
- Pixels : Type²⁹²¹
- Plane : TheC²⁹²²
- Plane : TheT²⁹²³
- Plane : TheZ²⁹²⁴

Total supported: 24

Total unknown or missing: 451

19.2.82 NikonElementsTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon Elements TIFF format reader.

These fields are from the [OME data model](#)²⁹²⁵. Bio-Formats standardizes each format's original metadata to and from the OME

²⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁹²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

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 475 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 Elements TIFF format reader:

- Channel : AcquisitionMode²⁹²⁶
- Channel : EmissionWavelength²⁹²⁷
- Channel : ExcitationWavelength²⁹²⁸
- Channel : ID²⁹²⁹
- Channel : Name²⁹³⁰
- Channel : PinholeSize²⁹³¹
- Channel : SamplesPerPixel²⁹³²
- Detector : ID²⁹³³
- Detector : Model²⁹³⁴
- Detector : Type²⁹³⁵
- DetectorSettings : Binning²⁹³⁶
- DetectorSettings : Gain²⁹³⁷
- DetectorSettings : ID²⁹³⁸
- DetectorSettings : ReadOutRate²⁹³⁹
- DetectorSettings : Voltage²⁹⁴⁰
- Image : AcquisitionDate²⁹⁴¹
- Image : ID²⁹⁴²
- Image : InstrumentRef²⁹⁴³
- Image : Name²⁹⁴⁴
- ImagingEnvironment : Temperature²⁹⁴⁵
- Instrument : ID²⁹⁴⁶

²⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

²⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

²⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

- Objective : CalibratedMagnification²⁹⁴⁷
- Objective : Correction²⁹⁴⁸
- Objective : ID²⁹⁴⁹
- Objective : Immersion²⁹⁵⁰
- Objective : LensNA²⁹⁵¹
- Objective : Model²⁹⁵²
- ObjectiveSettings : ID²⁹⁵³
- ObjectiveSettings : RefractiveIndex²⁹⁵⁴
- Pixels : BigEndian²⁹⁵⁵
- Pixels : DimensionOrder²⁹⁵⁶
- Pixels : ID²⁹⁵⁷
- Pixels : Interleaved²⁹⁵⁸
- Pixels : PhysicalSizeX²⁹⁵⁹
- Pixels : PhysicalSizeY²⁹⁶⁰
- Pixels : PhysicalSizeZ²⁹⁶¹
- Pixels : SignificantBits²⁹⁶²
- Pixels : SizeC²⁹⁶³
- Pixels : SizeT²⁹⁶⁴
- Pixels : SizeX²⁹⁶⁵
- Pixels : SizeY²⁹⁶⁶
- Pixels : SizeZ²⁹⁶⁷
- Pixels : Type²⁹⁶⁸
- Plane : ExposureTime²⁹⁶⁹
- Plane : PositionX²⁹⁷⁰
- Plane : PositionY²⁹⁷¹
- Plane : PositionZ²⁹⁷²

²⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

²⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC²⁹⁷³
- Plane : TheT²⁹⁷⁴
- Plane : TheZ²⁹⁷⁵

Total supported: 50

Total unknown or missing: 425

19.2.83 NikonTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon TIFF format reader.

These fields are from the [OME data model](#)²⁹⁷⁶. 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 475 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%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon TIFF format reader:

- Channel : EmissionWavelength²⁹⁷⁷
- Channel : ExcitationWavelength²⁹⁷⁸
- Channel : ID²⁹⁷⁹
- Channel : PinholeSize²⁹⁸⁰
- Channel : SamplesPerPixel²⁹⁸¹
- Detector : Gain²⁹⁸²
- Detector : ID²⁹⁸³
- Detector : Type²⁹⁸⁴
- Dichroic : ID²⁹⁸⁵
- Dichroic : Model²⁹⁸⁶
- Filter : ID²⁹⁸⁷
- Filter : Model²⁹⁸⁸
- Image : AcquisitionDate²⁹⁸⁹
- Image : Description²⁹⁹⁰

²⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

²⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

²⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

- Image : ID²⁹⁹¹
- Image : InstrumentRef²⁹⁹²
- Image : Name²⁹⁹³
- Instrument : ID²⁹⁹⁴
- Laser : ID²⁹⁹⁵
- Laser : LaserMedium²⁹⁹⁶
- Laser : Model²⁹⁹⁷
- Laser : Type²⁹⁹⁸
- Laser : Wavelength²⁹⁹⁹
- Objective : Correction³⁰⁰⁰
- Objective : ID³⁰⁰¹
- Objective : Immersion³⁰⁰²
- Objective : LensNA³⁰⁰³
- Objective : NominalMagnification³⁰⁰⁴
- Objective : WorkingDistance³⁰⁰⁵
- ObjectiveSettings : ID³⁰⁰⁶
- Pixels : BigEndian³⁰⁰⁷
- Pixels : DimensionOrder³⁰⁰⁸
- Pixels : ID³⁰⁰⁹
- Pixels : Interleaved³⁰¹⁰
- Pixels : PhysicalSizeX³⁰¹¹
- Pixels : PhysicalSizeY³⁰¹²
- Pixels : PhysicalSizeZ³⁰¹³
- Pixels : SignificantBits³⁰¹⁴
- Pixels : SizeC³⁰¹⁵
- Pixels : SizeT³⁰¹⁶

²⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

³⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

³⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁰¹⁷
- Pixels : SizeY³⁰¹⁸
- Pixels : SizeZ³⁰¹⁹
- Pixels : Type³⁰²⁰
- Plane : TheC³⁰²¹
- Plane : TheT³⁰²²
- Plane : TheZ³⁰²³

Total supported: 47

Total unknown or missing: 428

19.2.84 NativeND2Reader

This page lists supported metadata fields for the Bio-Formats Nikon ND2 format reader.

These fields are from the [OME data model](#)³⁰²⁴. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 52 of them (10%).
- Of those, Bio-Formats fully or partially converts 52 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon ND2 format reader:

- Channel : AcquisitionMode³⁰²⁵
- Channel : Color³⁰²⁶
- Channel : EmissionWavelength³⁰²⁷
- Channel : ExcitationWavelength³⁰²⁸
- Channel : ID³⁰²⁹
- Channel : Name³⁰³⁰
- Channel : PinholeSize³⁰³¹
- Channel : SamplesPerPixel³⁰³²
- Detector : ID³⁰³³
- Detector : Model³⁰³⁴

³⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁰²⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

³⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

³⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

³⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

³⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Detector : Type³⁰³⁵
- DetectorSettings : Binning³⁰³⁶
- DetectorSettings : Gain³⁰³⁷
- DetectorSettings : ID³⁰³⁸
- DetectorSettings : ReadOutRate³⁰³⁹
- DetectorSettings : Voltage³⁰⁴⁰
- Image : AcquisitionDate³⁰⁴¹
- Image : ID³⁰⁴²
- Image : InstrumentRef³⁰⁴³
- Image : Name³⁰⁴⁴
- ImagingEnvironment : Temperature³⁰⁴⁵
- Instrument : ID³⁰⁴⁶
- Objective : CalibratedMagnification³⁰⁴⁷
- Objective : Correction³⁰⁴⁸
- Objective : ID³⁰⁴⁹
- Objective : Immersion³⁰⁵⁰
- Objective : LensNA³⁰⁵¹
- Objective : Model³⁰⁵²
- ObjectiveSettings : ID³⁰⁵³
- ObjectiveSettings : RefractiveIndex³⁰⁵⁴
- Pixels : BigEndian³⁰⁵⁵
- Pixels : DimensionOrder³⁰⁵⁶
- Pixels : ID³⁰⁵⁷
- Pixels : Interleaved³⁰⁵⁸
- Pixels : PhysicalSizeX³⁰⁵⁹
- Pixels : PhysicalSizeY³⁰⁶⁰

³⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

³⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

³⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

³⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : PhysicalSizeZ³⁰⁶¹
- Pixels : SignificantBits³⁰⁶²
- Pixels : SizeC³⁰⁶³
- Pixels : SizeT³⁰⁶⁴
- Pixels : SizeX³⁰⁶⁵
- Pixels : SizeY³⁰⁶⁶
- Pixels : SizeZ³⁰⁶⁷
- Pixels : Type³⁰⁶⁸
- Plane : DeltaT³⁰⁶⁹
- Plane : ExposureTime³⁰⁷⁰
- Plane : PositionX³⁰⁷¹
- Plane : PositionY³⁰⁷²
- Plane : PositionZ³⁰⁷³
- Plane : TheC³⁰⁷⁴
- Plane : TheT³⁰⁷⁵
- Plane : TheZ³⁰⁷⁶

Total supported: 52

Total unknown or missing: 423

19.2.85 NRRDReader

This page lists supported metadata fields for the Bio-Formats NRRD format reader.

These fields are from the [OME data model](#)³⁰⁷⁷. 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 475 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 NRRD format reader:

- Channel : ID³⁰⁷⁸

³⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁰⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel³⁰⁷⁹
- Image : AcquisitionDate³⁰⁸⁰
- Image : ID³⁰⁸¹
- Image : Name³⁰⁸²
- Pixels : BigEndian³⁰⁸³
- Pixels : DimensionOrder³⁰⁸⁴
- Pixels : ID³⁰⁸⁵
- Pixels : Interleaved³⁰⁸⁶
- Pixels : PhysicalSizeX³⁰⁸⁷
- Pixels : PhysicalSizeY³⁰⁸⁸
- Pixels : PhysicalSizeZ³⁰⁸⁹
- Pixels : SignificantBits³⁰⁹⁰
- Pixels : SizeC³⁰⁹¹
- Pixels : SizeT³⁰⁹²
- Pixels : SizeX³⁰⁹³
- Pixels : SizeY³⁰⁹⁴
- Pixels : SizeZ³⁰⁹⁵
- Pixels : Type³⁰⁹⁶
- Plane : TheC³⁰⁹⁷
- Plane : TheT³⁰⁹⁸
- Plane : TheZ³⁰⁹⁹

Total supported: 22

Total unknown or missing: 453

19.2.86 APLReader

This page lists supported metadata fields for the Bio-Formats Olympus APL format reader.

These fields are from the [OME data model](#)³¹⁰⁰. 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.

³⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³¹⁰⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 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 Olympus APL format reader:

- Channel : ID³¹⁰¹
- Channel : SamplesPerPixel³¹⁰²
- Image : AcquisitionDate³¹⁰³
- Image : ID³¹⁰⁴
- Image : Name³¹⁰⁵
- Pixels : BigEndian³¹⁰⁶
- Pixels : DimensionOrder³¹⁰⁷
- Pixels : ID³¹⁰⁸
- Pixels : Interleaved³¹⁰⁹
- Pixels : PhysicalSizeX³¹¹⁰
- Pixels : PhysicalSizeY³¹¹¹
- Pixels : SignificantBits³¹¹²
- Pixels : SizeC³¹¹³
- Pixels : SizeT³¹¹⁴
- Pixels : SizeX³¹¹⁵
- Pixels : SizeY³¹¹⁶
- Pixels : SizeZ³¹¹⁷
- Pixels : Type³¹¹⁸
- Plane : TheC³¹¹⁹
- Plane : TheT³¹²⁰
- Plane : TheZ³¹²¹

Total supported: 21

Total unknown or missing: 454

³¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.87 FV1000Reader

This page lists supported metadata fields for the Bio-Formats Olympus FV1000 format reader.

These fields are from the [OME data model](#)³¹²². 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 113 of them (23%).
- Of those, Bio-Formats fully or partially converts 113 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus FV1000 format reader:

- Channel : EmissionWavelength³¹²³
- Channel : ExcitationWavelength³¹²⁴
- Channel : ID³¹²⁵
- Channel : IlluminationType³¹²⁶
- Channel : LightSourceSettingsID³¹²⁷
- Channel : LightSourceSettingsWavelength³¹²⁸
- Channel : Name³¹²⁹
- Channel : SamplesPerPixel³¹³⁰
- Detector : Gain³¹³¹
- Detector : ID³¹³²
- Detector : Type³¹³³
- Detector : Voltage³¹³⁴
- DetectorSettings : ID³¹³⁵
- Dichroic : ID³¹³⁶
- Dichroic : Model³¹³⁷
- Ellipse : FontSize³¹³⁸
- Ellipse : ID³¹³⁹
- Ellipse : RadiusX³¹⁴⁰
- Ellipse : RadiusY³¹⁴¹

³¹²²<http://www.openmicroscopy.org/site/support/ome-model/>

³¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

³¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

³¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

³¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength

³¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

³¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Voltage

³¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

³¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

³¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

- Ellipse : StrokeWidth³¹⁴²
- Ellipse : TheT³¹⁴³
- Ellipse : TheZ³¹⁴⁴
- Ellipse : Transform³¹⁴⁵
- Ellipse : X³¹⁴⁶
- Ellipse : Y³¹⁴⁷
- Filter : ID³¹⁴⁸
- Filter : Model³¹⁴⁹
- Image : AcquisitionDate³¹⁵⁰
- Image : ID³¹⁵¹
- Image : InstrumentRef³¹⁵²
- Image : Name³¹⁵³
- Image : ROIRef³¹⁵⁴
- Instrument : ID³¹⁵⁵
- Laser : ID³¹⁵⁶
- Laser : LaserMedium³¹⁵⁷
- Laser : Type³¹⁵⁸
- Laser : Wavelength³¹⁵⁹
- LightPath : DichroicRef³¹⁶⁰
- LightPath : EmissionFilterRef³¹⁶¹
- Line : FontSize³¹⁶²
- Line : ID³¹⁶³
- Line : StrokeWidth³¹⁶⁴
- Line : TheT³¹⁶⁵
- Line : TheZ³¹⁶⁶
- Line : Transform³¹⁶⁷

³¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

³¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

³¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

³¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

³¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

³¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

³¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

³¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

³¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

³¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

³¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

- Line : X1³¹⁶⁸
- Line : X2³¹⁶⁹
- Line : Y1³¹⁷⁰
- Line : Y2³¹⁷¹
- Objective : Correction³¹⁷²
- Objective : ID³¹⁷³
- Objective : Immersion³¹⁷⁴
- Objective : LensNA³¹⁷⁵
- Objective : Model³¹⁷⁶
- Objective : NominalMagnification³¹⁷⁷
- Objective : WorkingDistance³¹⁷⁸
- ObjectiveSettings : ID³¹⁷⁹
- Pixels : BigEndian³¹⁸⁰
- Pixels : DimensionOrder³¹⁸¹
- Pixels : ID³¹⁸²
- Pixels : Interleaved³¹⁸³
- Pixels : PhysicalSizeX³¹⁸⁴
- Pixels : PhysicalSizeY³¹⁸⁵
- Pixels : PhysicalSizeZ³¹⁸⁶
- Pixels : SignificantBits³¹⁸⁷
- Pixels : SizeC³¹⁸⁸
- Pixels : SizeT³¹⁸⁹
- Pixels : SizeX³¹⁹⁰
- Pixels : SizeY³¹⁹¹
- Pixels : SizeZ³¹⁹²
- Pixels : TimeIncrement³¹⁹³

³¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

³¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

³¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

³¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

³¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

³¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

- Pixels : Type³¹⁹⁴
- Plane : DeltaT³¹⁹⁵
- Plane : PositionX³¹⁹⁶
- Plane : PositionY³¹⁹⁷
- Plane : PositionZ³¹⁹⁸
- Plane : TheC³¹⁹⁹
- Plane : TheT³²⁰⁰
- Plane : TheZ³²⁰¹
- Point : FontSize³²⁰²
- Point : ID³²⁰³
- Point : StrokeWidth³²⁰⁴
- Point : TheT³²⁰⁵
- Point : TheZ³²⁰⁶
- Point : X³²⁰⁷
- Point : Y³²⁰⁸
- Polygon : FontSize³²⁰⁹
- Polygon : ID³²¹⁰
- Polygon : Points³²¹¹
- Polygon : StrokeWidth³²¹²
- Polygon : TheT³²¹³
- Polygon : TheZ³²¹⁴
- Polygon : Transform³²¹⁵
- Polyline : FontSize³²¹⁶
- Polyline : ID³²¹⁷
- Polyline : Points³²¹⁸
- Polyline : StrokeWidth³²¹⁹

³¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_X

³²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_Y

³²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

³²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

³²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

- Polyline : TheT³²²⁰
- Polyline : TheZ³²²¹
- Polyline : Transform³²²²
- ROI : ID³²²³
- Rectangle : FontSize³²²⁴
- Rectangle : Height³²²⁵
- Rectangle : ID³²²⁶
- Rectangle : StrokeWidth³²²⁷
- Rectangle : TheT³²²⁸
- Rectangle : TheZ³²²⁹
- Rectangle : Transform³²³⁰
- Rectangle : Width³²³¹
- Rectangle : X³²³²
- Rectangle : Y³²³³
- TransmittanceRange : CutIn³²³⁴
- TransmittanceRange : CutOut³²³⁵

Total supported: 113

Total unknown or missing: 362

19.2.88 FluoviewReader

This page lists supported metadata fields for the Bio-Formats Olympus Fluoview/ABD TIFF format reader.

These fields are from the OME data model³²³⁶. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 49 of them (10%).
- Of those, Bio-Formats fully or partially converts 49 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus Fluoview/ABD TIFF format reader:

- Channel : ID³²³⁷

³²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

³²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

³²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

³²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

³²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

³²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

³²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

³²³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : Name³²³⁸
- Channel : SamplesPerPixel³²³⁹
- Detector : ID³²⁴⁰
- Detector : Manufacturer³²⁴¹
- Detector : Model³²⁴²
- Detector : Type³²⁴³
- DetectorSettings : Gain³²⁴⁴
- DetectorSettings : ID³²⁴⁵
- DetectorSettings : Offset³²⁴⁶
- DetectorSettings : ReadOutRate³²⁴⁷
- DetectorSettings : Voltage³²⁴⁸
- Image : AcquisitionDate³²⁴⁹
- Image : Description³²⁵⁰
- Image : ID³²⁵¹
- Image : InstrumentRef³²⁵²
- Image : Name³²⁵³
- ImagingEnvironment : Temperature³²⁵⁴
- Instrument : ID³²⁵⁵
- Objective : CalibratedMagnification³²⁵⁶
- Objective : Correction³²⁵⁷
- Objective : ID³²⁵⁸
- Objective : Immersion³²⁵⁹
- Objective : LensNA³²⁶⁰
- Objective : Model³²⁶¹
- ObjectiveSettings : ID³²⁶²
- Pixels : BigEndian³²⁶³

³²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

³²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

³²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

³²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

³²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

³²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder³²⁶⁴
- Pixels : ID³²⁶⁵
- Pixels : Interleaved³²⁶⁶
- Pixels : PhysicalSizeX³²⁶⁷
- Pixels : PhysicalSizeY³²⁶⁸
- Pixels : PhysicalSizeZ³²⁶⁹
- Pixels : SignificantBits³²⁷⁰
- Pixels : SizeC³²⁷¹
- Pixels : SizeT³²⁷²
- Pixels : SizeX³²⁷³
- Pixels : SizeY³²⁷⁴
- Pixels : SizeZ³²⁷⁵
- Pixels : TimeIncrement³²⁷⁶
- Pixels : Type³²⁷⁷
- Plane : DeltaT³²⁷⁸
- Plane : ExposureTime³²⁷⁹
- Plane : PositionX³²⁸⁰
- Plane : PositionY³²⁸¹
- Plane : PositionZ³²⁸²
- Plane : TheC³²⁸³
- Plane : TheT³²⁸⁴
- Plane : TheZ³²⁸⁵

Total supported: 49

Total unknown or missing: 426

19.2.89 ScanRReader

This page lists supported metadata fields for the Bio-Formats Olympus ScanR format reader.

These fields are from the [OME data model](#)³²⁸⁶. Bio-Formats standardizes each format's original metadata to and from the OME

- ³²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ³²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ³²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ³²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement
- ³²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ³²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ³²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ³²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ³²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ
- ³²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ³²⁸⁶<http://www.openmicroscopy.org/site/support/ome-model/>

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 475 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 Olympus ScanR format reader:

- Channel : ID³²⁸⁷
- Channel : Name³²⁸⁸
- Channel : SamplesPerPixel³²⁸⁹
- Image : AcquisitionDate³²⁹⁰
- Image : ID³²⁹¹
- Image : Name³²⁹²
- Pixels : BigEndian³²⁹³
- Pixels : DimensionOrder³²⁹⁴
- Pixels : ID³²⁹⁵
- Pixels : Interleaved³²⁹⁶
- Pixels : PhysicalSizeX³²⁹⁷
- Pixels : PhysicalSizeY³²⁹⁸
- Pixels : SignificantBits³²⁹⁹
- Pixels : SizeC³³⁰⁰
- Pixels : SizeT³³⁰¹
- Pixels : SizeX³³⁰²
- Pixels : SizeY³³⁰³
- Pixels : SizeZ³³⁰⁴
- Pixels : Type³³⁰⁵
- Plane : DeltaT³³⁰⁶
- Plane : ExposureTime³³⁰⁷

³²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

- Plane : PositionX³³⁰⁸
- Plane : PositionY³³⁰⁹
- Plane : TheC³³¹⁰
- Plane : TheT³³¹¹
- Plane : TheZ³³¹²
- Plate : ColumnNamingConvention³³¹³
- Plate : Columns³³¹⁴
- Plate : ID³³¹⁵
- Plate : Name³³¹⁶
- Plate : RowNamingConvention³³¹⁷
- Plate : Rows³³¹⁸
- PlateAcquisition : ID³³¹⁹
- PlateAcquisition : MaximumFieldCount³³²⁰
- PlateAcquisition : WellSampleRef³³²¹
- Well : Column³³²²
- Well : ID³³²³
- Well : Row³³²⁴
- WellSample : ID³³²⁵
- WellSample : ImageRef³³²⁶
- WellSample : Index³³²⁷
- WellSample : PositionX³³²⁸
- WellSample : PositionY³³²⁹

Total supported: 43

Total unknown or missing: 432

19.2.90 SISReader

This page lists supported metadata fields for the Bio-Formats Olympus SIS TIFF format reader.

These fields are from the [OME data model](#)³³³⁰. Bio-Formats standardizes each format's original metadata to and from the OME

- ³³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ³³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ³³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ³³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention
- ³³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns
- ³³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID
- ³³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name
- ³³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention
- ³³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows
- ³³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID
- ³³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount
- ³³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID
- ³³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column
- ³³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID
- ³³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row
- ³³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID
- ³³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID
- ³³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index
- ³³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX
- ³³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY
- ³³³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

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 475 fields documented in the *metadata summary table*:

- The file format itself supports 33 of them (6%).
- Of those, Bio-Formats fully or partially converts 33 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Olympus SIS TIFF format reader:

- Channel : ID³³³¹
- Channel : Name³³³²
- Channel : SamplesPerPixel³³³³
- Detector : ID³³³⁴
- Detector : Model³³³⁵
- Detector : Type³³³⁶
- DetectorSettings : ID³³³⁷
- Image : AcquisitionDate³³³⁸
- Image : ID³³³⁹
- Image : InstrumentRef³³⁴⁰
- Image : Name³³⁴¹
- Instrument : ID³³⁴²
- Objective : Correction³³⁴³
- Objective : ID³³⁴⁴
- Objective : Immersion³³⁴⁵
- Objective : NominalMagnification³³⁴⁶
- ObjectiveSettings : ID³³⁴⁷
- Pixels : BigEndian³³⁴⁸
- Pixels : DimensionOrder³³⁴⁹
- Pixels : ID³³⁵⁰
- Pixels : Interleaved³³⁵¹

³³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX³³⁵²
- Pixels : PhysicalSizeY³³⁵³
- Pixels : SignificantBits³³⁵⁴
- Pixels : SizeC³³⁵⁵
- Pixels : SizeT³³⁵⁶
- Pixels : SizeX³³⁵⁷
- Pixels : SizeY³³⁵⁸
- Pixels : SizeZ³³⁵⁹
- Pixels : Type³³⁶⁰
- Plane : TheC³³⁶¹
- Plane : TheT³³⁶²
- Plane : TheZ³³⁶³

Total supported: 33

Total unknown or missing: 442

19.2.91 OMETiffReader

This page lists supported metadata fields for the Bio-Formats OME-TIFF format reader.

These fields are from the [OME data model](#)³³⁶⁴. 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 475 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 OME-TIFF format reader:

- Channel : ID³³⁶⁵
- Channel : SamplesPerPixel³³⁶⁶
- Image : AcquisitionDate³³⁶⁷
- Image : ID³³⁶⁸
- Image : Name³³⁶⁹

³³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁶⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³³⁷⁰
- Pixels : DimensionOrder³³⁷¹
- Pixels : ID³³⁷²
- Pixels : Interleaved³³⁷³
- Pixels : SignificantBits³³⁷⁴
- Pixels : SizeC³³⁷⁵
- Pixels : SizeT³³⁷⁶
- Pixels : SizeX³³⁷⁷
- Pixels : SizeY³³⁷⁸
- Pixels : SizeZ³³⁷⁹
- Pixels : Type³³⁸⁰
- Plane : TheC³³⁸¹
- Plane : TheT³³⁸²
- Plane : TheZ³³⁸³

Total supported: 19

Total unknown or missing: 456

19.2.92 OMEXMLReader

This page lists supported metadata fields for the Bio-Formats OME-XML format reader.

These fields are from the [OME data model](#)³³⁸⁴. 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 475 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 OME-XML format reader:

- Channel : ID³³⁸⁵
- Channel : SamplesPerPixel³³⁸⁶
- Image : AcquisitionDate³³⁸⁷

³³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID³³⁸⁸
- Image : Name³³⁸⁹
- Pixels : BigEndian³³⁹⁰
- Pixels : DimensionOrder³³⁹¹
- Pixels : ID³³⁹²
- Pixels : Interleaved³³⁹³
- Pixels : SignificantBits³³⁹⁴
- Pixels : SizeC³³⁹⁵
- Pixels : SizeT³³⁹⁶
- Pixels : SizeX³³⁹⁷
- Pixels : SizeY³³⁹⁸
- Pixels : SizeZ³³⁹⁹
- Pixels : Type³⁴⁰⁰
- Plane : TheC³⁴⁰¹
- Plane : TheT³⁴⁰²
- Plane : TheZ³⁴⁰³

Total supported: 19

Total unknown or missing: 456

19.2.93 OxfordInstrumentsReader

This page lists supported metadata fields for the Bio-Formats Oxford Instruments format reader.

These fields are from the [OME data model](#)³⁴⁰⁴. 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 475 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 Oxford Instruments format reader:

- Channel : ID³⁴⁰⁵

³³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴⁰⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel³⁴⁰⁶
- Image : AcquisitionDate³⁴⁰⁷
- Image : Description³⁴⁰⁸
- Image : ID³⁴⁰⁹
- Image : Name³⁴¹⁰
- Pixels : BigEndian³⁴¹¹
- Pixels : DimensionOrder³⁴¹²
- Pixels : ID³⁴¹³
- Pixels : Interleaved³⁴¹⁴
- Pixels : PhysicalSizeX³⁴¹⁵
- Pixels : PhysicalSizeY³⁴¹⁶
- Pixels : SignificantBits³⁴¹⁷
- Pixels : SizeC³⁴¹⁸
- Pixels : SizeT³⁴¹⁹
- Pixels : SizeX³⁴²⁰
- Pixels : SizeY³⁴²¹
- Pixels : SizeZ³⁴²²
- Pixels : Type³⁴²³
- Plane : TheC³⁴²⁴
- Plane : TheT³⁴²⁵
- Plane : TheZ³⁴²⁶

Total supported: 22

Total unknown or missing: 453

19.2.94 PCORAWReader

This page lists supported metadata fields for the Bio-Formats PCO-RAW format reader.

These fields are from the [OME data model](#)³⁴²⁷. 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.

³⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 fields documented in the *metadata summary table*:

- The file format itself supports 26 of them (5%).
- Of those, Bio-Formats fully or partially converts 26 (100%).

Supported fields**These fields are fully supported by the Bio-Formats PCO-RAW format reader:**

- Channel : ID³⁴²⁸
- Channel : SamplesPerPixel³⁴²⁹
- Detector : ID³⁴³⁰
- Detector : SerialNumber³⁴³¹
- DetectorSettings : Binning³⁴³²
- DetectorSettings : ID³⁴³³
- Image : AcquisitionDate³⁴³⁴
- Image : Description³⁴³⁵
- Image : ID³⁴³⁶
- Image : Name³⁴³⁷
- Instrument : ID³⁴³⁸
- Pixels : BigEndian³⁴³⁹
- Pixels : DimensionOrder³⁴⁴⁰
- Pixels : ID³⁴⁴¹
- Pixels : Interleaved³⁴⁴²
- Pixels : SignificantBits³⁴⁴³
- Pixels : SizeC³⁴⁴⁴
- Pixels : SizeT³⁴⁴⁵
- Pixels : SizeX³⁴⁴⁶
- Pixels : SizeY³⁴⁴⁷
- Pixels : SizeZ³⁴⁴⁸
- Pixels : Type³⁴⁴⁹

³⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID³⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel³⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID³⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber³⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning³⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID³⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate³⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description³⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID³⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name³⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID³⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian³⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder³⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID³⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved³⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits³⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC³⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT³⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX³⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY³⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ³⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : ExposureTime³⁴⁵⁰
- Plane : TheC³⁴⁵¹
- Plane : TheT³⁴⁵²
- Plane : TheZ³⁴⁵³

Total supported: 26

Total unknown or missing: 449

19.2.95 PCXReader

This page lists supported metadata fields for the Bio-Formats PCX format reader.

These fields are from the [OME data model](#)³⁴⁵⁴. 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 475 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 PCX format reader:

- Channel : ID³⁴⁵⁵
- Channel : SamplesPerPixel³⁴⁵⁶
- Image : AcquisitionDate³⁴⁵⁷
- Image : ID³⁴⁵⁸
- Image : Name³⁴⁵⁹
- Pixels : BigEndian³⁴⁶⁰
- Pixels : DimensionOrder³⁴⁶¹
- Pixels : ID³⁴⁶²
- Pixels : Interleaved³⁴⁶³
- Pixels : SignificantBits³⁴⁶⁴
- Pixels : SizeC³⁴⁶⁵
- Pixels : SizeT³⁴⁶⁶
- Pixels : SizeX³⁴⁶⁷

³⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY³⁴⁶⁸
- Pixels : SizeZ³⁴⁶⁹
- Pixels : Type³⁴⁷⁰
- Plane : TheC³⁴⁷¹
- Plane : TheT³⁴⁷²
- Plane : TheZ³⁴⁷³

Total supported: 19

Total unknown or missing: 456

19.2.96 PDSReader

This page lists supported metadata fields for the Bio-Formats Perkin Elmer Densitometer format reader.

These fields are from the [OME data model](#)³⁴⁷⁴. 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 475 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 Perkin Elmer Densitometer format reader:

- Channel : ID³⁴⁷⁵
- Channel : SamplesPerPixel³⁴⁷⁶
- Image : AcquisitionDate³⁴⁷⁷
- Image : ID³⁴⁷⁸
- Image : Name³⁴⁷⁹
- Pixels : BigEndian³⁴⁸⁰
- Pixels : DimensionOrder³⁴⁸¹
- Pixels : ID³⁴⁸²
- Pixels : Interleaved³⁴⁸³
- Pixels : PhysicalSizeX³⁴⁸⁴
- Pixels : PhysicalSizeY³⁴⁸⁵

³⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴⁷⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SignificantBits³⁴⁸⁶
- Pixels : SizeC³⁴⁸⁷
- Pixels : SizeT³⁴⁸⁸
- Pixels : SizeX³⁴⁸⁹
- Pixels : SizeY³⁴⁹⁰
- Pixels : SizeZ³⁴⁹¹
- Pixels : Type³⁴⁹²
- Plane : PositionX³⁴⁹³
- Plane : PositionY³⁴⁹⁴
- Plane : TheC³⁴⁹⁵
- Plane : TheT³⁴⁹⁶
- Plane : TheZ³⁴⁹⁷

Total supported: 23

Total unknown or missing: 452

19.2.97 OperettaReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer Operetta format reader.

These fields are from the OME data model³⁴⁹⁸. 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 475 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 PerkinElmer Operetta format reader:

- Channel : ID³⁴⁹⁹
- Channel : Name³⁵⁰⁰
- Channel : SamplesPerPixel³⁵⁰¹
- Experimenter : ID³⁵⁰²
- Experimenter : LastName³⁵⁰³

³⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴⁹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

³⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

- Image : AcquisitionDate³⁵⁰⁴
- Image : ExperimenterRef³⁵⁰⁵
- Image : ID³⁵⁰⁶
- Image : Name³⁵⁰⁷
- Pixels : BigEndian³⁵⁰⁸
- Pixels : DimensionOrder³⁵⁰⁹
- Pixels : ID³⁵¹⁰
- Pixels : Interleaved³⁵¹¹
- Pixels : PhysicalSizeX³⁵¹²
- Pixels : PhysicalSizeY³⁵¹³
- Pixels : SignificantBits³⁵¹⁴
- Pixels : SizeC³⁵¹⁵
- Pixels : SizeT³⁵¹⁶
- Pixels : SizeX³⁵¹⁷
- Pixels : SizeY³⁵¹⁸
- Pixels : SizeZ³⁵¹⁹
- Pixels : Type³⁵²⁰
- Plane : PositionX³⁵²¹
- Plane : PositionY³⁵²²
- Plane : PositionZ³⁵²³
- Plane : TheC³⁵²⁴
- Plane : TheT³⁵²⁵
- Plane : TheZ³⁵²⁶
- Plate : Columns³⁵²⁷
- Plate : Description³⁵²⁸
- Plate : ExternalIdentifier³⁵²⁹

³⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

³⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns

³⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Description

³⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

- Plate : ID³⁵³⁰
- Plate : Name³⁵³¹
- Plate : Rows³⁵³²
- PlateAcquisition : ID³⁵³³
- PlateAcquisition : MaximumFieldCount³⁵³⁴
- PlateAcquisition : WellSampleRef³⁵³⁵
- Well : Column³⁵³⁶
- Well : ID³⁵³⁷
- Well : Row³⁵³⁸
- WellSample : ID³⁵³⁹
- WellSample : ImageRef³⁵⁴⁰
- WellSample : Index³⁵⁴¹

Total supported: 43

Total unknown or missing: 432

19.2.98 PerkinElmerReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer format reader.

These fields are from the OME data model³⁵⁴². 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 475 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 PerkinElmer format reader:

- Channel : EmissionWavelength³⁵⁴³
- Channel : ExcitationWavelength³⁵⁴⁴
- Channel : ID³⁵⁴⁵
- Channel : SamplesPerPixel³⁵⁴⁶
- Image : AcquisitionDate³⁵⁴⁷

³⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

³⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

³⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows

³⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

³⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

³⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

³⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

³⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

³⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

³⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

³⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

³⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

³⁵⁴²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

³⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID³⁵⁴⁸
- Image : InstrumentRef³⁵⁴⁹
- Image : Name³⁵⁵⁰
- Instrument : ID³⁵⁵¹
- Pixels : BigEndian³⁵⁵²
- Pixels : DimensionOrder³⁵⁵³
- Pixels : ID³⁵⁵⁴
- Pixels : Interleaved³⁵⁵⁵
- Pixels : PhysicalSizeX³⁵⁵⁶
- Pixels : PhysicalSizeY³⁵⁵⁷
- Pixels : SignificantBits³⁵⁵⁸
- Pixels : SizeC³⁵⁵⁹
- Pixels : SizeT³⁵⁶⁰
- Pixels : SizeX³⁵⁶¹
- Pixels : SizeY³⁵⁶²
- Pixels : SizeZ³⁵⁶³
- Pixels : Type³⁵⁶⁴
- Plane : DeltaT³⁵⁶⁵
- Plane : ExposureTime³⁵⁶⁶
- Plane : PositionX³⁵⁶⁷
- Plane : PositionY³⁵⁶⁸
- Plane : PositionZ³⁵⁶⁹
- Plane : TheC³⁵⁷⁰
- Plane : TheT³⁵⁷¹
- Plane : TheZ³⁵⁷²

Total supported: 30

Total unknown or missing: 445

- ³⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ³⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID
- ³⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ³⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ³⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ³⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ³⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ³⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ³⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ³⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ³⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ³⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ
- ³⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.99 PGMReader

This page lists supported metadata fields for the Bio-Formats Portable Gray Map format reader.

These fields are from the [OME data model](#)³⁵⁷³. 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 475 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 Portable Gray Map format reader:

- Channel : ID³⁵⁷⁴
- Channel : SamplesPerPixel³⁵⁷⁵
- Image : AcquisitionDate³⁵⁷⁶
- Image : ID³⁵⁷⁷
- Image : Name³⁵⁷⁸
- Pixels : BigEndian³⁵⁷⁹
- Pixels : DimensionOrder³⁵⁸⁰
- Pixels : ID³⁵⁸¹
- Pixels : Interleaved³⁵⁸²
- Pixels : SignificantBits³⁵⁸³
- Pixels : SizeC³⁵⁸⁴
- Pixels : SizeT³⁵⁸⁵
- Pixels : SizeX³⁵⁸⁶
- Pixels : SizeY³⁵⁸⁷
- Pixels : SizeZ³⁵⁸⁸
- Pixels : Type³⁵⁸⁹
- Plane : TheC³⁵⁹⁰
- Plane : TheT³⁵⁹¹

³⁵⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁵⁹²

Total supported: 19

Total unknown or missing: 456

19.2.100 PSDReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop 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 475 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 Adobe Photoshop format reader:

- Channel : ID³⁵⁹⁴
- Channel : SamplesPerPixel³⁵⁹⁵
- Image : AcquisitionDate³⁵⁹⁶
- Image : ID³⁵⁹⁷
- Image : Name³⁵⁹⁸
- Pixels : BigEndian³⁵⁹⁹
- Pixels : DimensionOrder³⁶⁰⁰
- Pixels : ID³⁶⁰¹
- Pixels : Interleaved³⁶⁰²
- Pixels : SignificantBits³⁶⁰³
- Pixels : SizeC³⁶⁰⁴
- Pixels : SizeT³⁶⁰⁵
- Pixels : SizeX³⁶⁰⁶
- Pixels : SizeY³⁶⁰⁷
- Pixels : SizeZ³⁶⁰⁸
- Pixels : Type³⁶⁰⁹

³⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁵⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁶¹⁰
- Plane : TheT³⁶¹¹
- Plane : TheZ³⁶¹²

Total supported: 19

Total unknown or missing: 456

19.2.101 PhotoshopTiffReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop TIFF format reader.

These fields are from the [OME data model](#)³⁶¹³. 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 475 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 Adobe Photoshop TIFF format reader:

- Channel : ID³⁶¹⁴
- Channel : SamplesPerPixel³⁶¹⁵
- Image : AcquisitionDate³⁶¹⁶
- Image : ID³⁶¹⁷
- Image : Name³⁶¹⁸
- Pixels : BigEndian³⁶¹⁹
- Pixels : DimensionOrder³⁶²⁰
- Pixels : ID³⁶²¹
- Pixels : Interleaved³⁶²²
- Pixels : SignificantBits³⁶²³
- Pixels : SizeC³⁶²⁴
- Pixels : SizeT³⁶²⁵
- Pixels : SizeX³⁶²⁶
- Pixels : SizeY³⁶²⁷

³⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶¹³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ³⁶²⁸
- Pixels : Type³⁶²⁹
- Plane : TheC³⁶³⁰
- Plane : TheT³⁶³¹
- Plane : TheZ³⁶³²

Total supported: 19

Total unknown or missing: 456

19.2.102 PQBinReader

This page lists supported metadata fields for the Bio-Formats PicoQuant Bin format reader.

These fields are from the [OME data model](#)³⁶³³. 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 475 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 PicoQuant Bin format reader:

- Channel : ID³⁶³⁴
- Channel : SamplesPerPixel³⁶³⁵
- Image : AcquisitionDate³⁶³⁶
- Image : ID³⁶³⁷
- Image : Name³⁶³⁸
- Pixels : BigEndian³⁶³⁹
- Pixels : DimensionOrder³⁶⁴⁰
- Pixels : ID³⁶⁴¹
- Pixels : Interleaved³⁶⁴²
- Pixels : PhysicalSizeX³⁶⁴³
- Pixels : PhysicalSizeY³⁶⁴⁴
- Pixels : SignificantBits³⁶⁴⁵

³⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶³³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC³⁶⁴⁶
- Pixels : SizeT³⁶⁴⁷
- Pixels : SizeX³⁶⁴⁸
- Pixels : SizeY³⁶⁴⁹
- Pixels : SizeZ³⁶⁵⁰
- Pixels : Type³⁶⁵¹
- Plane : TheC³⁶⁵²
- Plane : TheT³⁶⁵³
- Plane : TheZ³⁶⁵⁴

Total supported: 21

Total unknown or missing: 454

19.2.103 PictReader

This page lists supported metadata fields for the Bio-Formats PICT format reader.

These fields are from the [OME data model](#)³⁶⁵⁵. 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 475 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 PICT format reader:

- Channel : ID³⁶⁵⁶
- Channel : SamplesPerPixel³⁶⁵⁷
- Image : AcquisitionDate³⁶⁵⁸
- Image : ID³⁶⁵⁹
- Image : Name³⁶⁶⁰
- Pixels : BigEndian³⁶⁶¹
- Pixels : DimensionOrder³⁶⁶²
- Pixels : ID³⁶⁶³

³⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶⁵⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁶⁶⁴
- Pixels : SignificantBits³⁶⁶⁵
- Pixels : SizeC³⁶⁶⁶
- Pixels : SizeT³⁶⁶⁷
- Pixels : SizeX³⁶⁶⁸
- Pixels : SizeY³⁶⁶⁹
- Pixels : SizeZ³⁶⁷⁰
- Pixels : Type³⁶⁷¹
- Plane : TheC³⁶⁷²
- Plane : TheT³⁶⁷³
- Plane : TheZ³⁶⁷⁴

Total supported: 19

Total unknown or missing: 456

19.2.104 APNGReader

This page lists supported metadata fields for the Bio-Formats Animated PNG format reader.

These fields are from the [OME data model](#)³⁶⁷⁵. 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 475 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 Animated PNG format reader:

- Channel : ID³⁶⁷⁶
- Channel : SamplesPerPixel³⁶⁷⁷
- Image : AcquisitionDate³⁶⁷⁸
- Image : ID³⁶⁷⁹
- Image : Name³⁶⁸⁰
- Pixels : BigEndian³⁶⁸¹

³⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶⁷⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder³⁶⁸²
- Pixels : ID³⁶⁸³
- Pixels : Interleaved³⁶⁸⁴
- Pixels : SignificantBits³⁶⁸⁵
- Pixels : SizeC³⁶⁸⁶
- Pixels : SizeT³⁶⁸⁷
- Pixels : SizeX³⁶⁸⁸
- Pixels : SizeY³⁶⁸⁹
- Pixels : SizeZ³⁶⁹⁰
- Pixels : Type³⁶⁹¹
- Plane : TheC³⁶⁹²
- Plane : TheT³⁶⁹³
- Plane : TheZ³⁶⁹⁴

Total supported: 19

Total unknown or missing: 456

19.2.105 PrairieReader

This page lists supported metadata fields for the Bio-Formats Prairie TIFF format reader.

These fields are from the [OME data model](#)³⁶⁹⁵. 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 475 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 Prairie TIFF format reader:

- Channel : ID³⁶⁹⁶
- Channel : Name³⁶⁹⁷
- Channel : SamplesPerPixel³⁶⁹⁸
- Detector : ID³⁶⁹⁹

³⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

- Detector : Type³⁷⁰⁰
- Detector : Zoom³⁷⁰¹
- DetectorSettings : Gain³⁷⁰²
- DetectorSettings : ID³⁷⁰³
- DetectorSettings : Offset³⁷⁰⁴
- Image : AcquisitionDate³⁷⁰⁵
- Image : ID³⁷⁰⁶
- Image : InstrumentRef³⁷⁰⁷
- Image : Name³⁷⁰⁸
- Instrument : ID³⁷⁰⁹
- Laser : ID³⁷¹⁰
- Laser : Power³⁷¹¹
- Microscope : Model³⁷¹²
- Objective : Correction³⁷¹³
- Objective : ID³⁷¹⁴
- Objective : Immersion³⁷¹⁵
- Objective : LensNA³⁷¹⁶
- Objective : Manufacturer³⁷¹⁷
- Objective : NominalMagnification³⁷¹⁸
- ObjectiveSettings : ID³⁷¹⁹
- Pixels : BigEndian³⁷²⁰
- Pixels : DimensionOrder³⁷²¹
- Pixels : ID³⁷²²
- Pixels : Interleaved³⁷²³
- Pixels : PhysicalSizeX³⁷²⁴
- Pixels : PhysicalSizeY³⁷²⁵

³⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

³⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

³⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

³⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

³⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SignificantBits³⁷²⁶
- Pixels : SizeC³⁷²⁷
- Pixels : SizeT³⁷²⁸
- Pixels : SizeX³⁷²⁹
- Pixels : SizeY³⁷³⁰
- Pixels : SizeZ³⁷³¹
- Pixels : TimeIncrement³⁷³²
- Pixels : Type³⁷³³
- Plane : DeltaT³⁷³⁴
- Plane : PositionX³⁷³⁵
- Plane : PositionY³⁷³⁶
- Plane : PositionZ³⁷³⁷
- Plane : TheC³⁷³⁸
- Plane : TheT³⁷³⁹
- Plane : TheZ³⁷⁴⁰

Total supported: 45

Total unknown or missing: 430

19.2.106 QuesantReader

This page lists supported metadata fields for the Bio-Formats Quesant AFM format reader.

These fields are from the OME data model³⁷⁴¹. 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 475 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 Quesant AFM format reader:

- Channel : ID³⁷⁴²
- Channel : SamplesPerPixel³⁷⁴³

³⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁷⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³⁷⁴⁴
- Image : Description³⁷⁴⁵
- Image : ID³⁷⁴⁶
- Image : Name³⁷⁴⁷
- Pixels : BigEndian³⁷⁴⁸
- Pixels : DimensionOrder³⁷⁴⁹
- Pixels : ID³⁷⁵⁰
- Pixels : Interleaved³⁷⁵¹
- Pixels : PhysicalSizeX³⁷⁵²
- Pixels : PhysicalSizeY³⁷⁵³
- Pixels : SignificantBits³⁷⁵⁴
- Pixels : SizeC³⁷⁵⁵
- Pixels : SizeT³⁷⁵⁶
- Pixels : SizeX³⁷⁵⁷
- Pixels : SizeY³⁷⁵⁸
- Pixels : SizeZ³⁷⁵⁹
- Pixels : Type³⁷⁶⁰
- Plane : TheC³⁷⁶¹
- Plane : TheT³⁷⁶²
- Plane : TheZ³⁷⁶³

Total supported: 22

Total unknown or missing: 453

19.2.107 NativeQTReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the OME data model³⁷⁶⁴. 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 475 fields documented in the *metadata summary table*:

- ³⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ³⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description
- ³⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ³⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ³⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ³⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ³⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ³⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ³⁷⁶⁴<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 QuickTime format reader:

- Channel : ID³⁷⁶⁵
- Channel : SamplesPerPixel³⁷⁶⁶
- Image : AcquisitionDate³⁷⁶⁷
- Image : ID³⁷⁶⁸
- Image : Name³⁷⁶⁹
- Pixels : BigEndian³⁷⁷⁰
- Pixels : DimensionOrder³⁷⁷¹
- Pixels : ID³⁷⁷²
- Pixels : Interleaved³⁷⁷³
- Pixels : SignificantBits³⁷⁷⁴
- Pixels : SizeC³⁷⁷⁵
- Pixels : SizeT³⁷⁷⁶
- Pixels : SizeX³⁷⁷⁷
- Pixels : SizeY³⁷⁷⁸
- Pixels : SizeZ³⁷⁷⁹
- Pixels : Type³⁷⁸⁰
- Plane : TheC³⁷⁸¹
- Plane : TheT³⁷⁸²
- Plane : TheZ³⁷⁸³

Total supported: 19

Total unknown or missing: 456

- ³⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ³⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ³⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ³⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ³⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ³⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ³⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.108 RHKReader

This page lists supported metadata fields for the Bio-Formats RHK Technologies format reader.

These fields are from the [OME data model](#)³⁷⁸⁴. 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 475 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 RHK Technologies format reader:

- Channel : ID³⁷⁸⁵
- Channel : SamplesPerPixel³⁷⁸⁶
- Image : AcquisitionDate³⁷⁸⁷
- Image : Description³⁷⁸⁸
- Image : ID³⁷⁸⁹
- Image : Name³⁷⁹⁰
- Pixels : BigEndian³⁷⁹¹
- Pixels : DimensionOrder³⁷⁹²
- Pixels : ID³⁷⁹³
- Pixels : Interleaved³⁷⁹⁴
- Pixels : PhysicalSizeX³⁷⁹⁵
- Pixels : PhysicalSizeY³⁷⁹⁶
- Pixels : SignificantBits³⁷⁹⁷
- Pixels : SizeC³⁷⁹⁸
- Pixels : SizeT³⁷⁹⁹
- Pixels : SizeX³⁸⁰⁰
- Pixels : SizeY³⁸⁰¹
- Pixels : SizeZ³⁸⁰²
- Pixels : Type³⁸⁰³

³⁷⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁸⁰⁴
- Plane : TheT³⁸⁰⁵
- Plane : TheZ³⁸⁰⁶

Total supported: 22

Total unknown or missing: 453

19.2.109 SBIGReader

This page lists supported metadata fields for the Bio-Formats SBIG format reader.

These fields are from the [OME data model](#)³⁸⁰⁷. 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 475 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 SBIG format reader:

- Channel : ID³⁸⁰⁸
- Channel : SamplesPerPixel³⁸⁰⁹
- Image : AcquisitionDate³⁸¹⁰
- Image : Description³⁸¹¹
- Image : ID³⁸¹²
- Image : Name³⁸¹³
- Pixels : BigEndian³⁸¹⁴
- Pixels : DimensionOrder³⁸¹⁵
- Pixels : ID³⁸¹⁶
- Pixels : Interleaved³⁸¹⁷
- Pixels : PhysicalSizeX³⁸¹⁸
- Pixels : PhysicalSizeY³⁸¹⁹
- Pixels : SignificantBits³⁸²⁰
- Pixels : SizeC³⁸²¹

³⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT³⁸²²
- Pixels : SizeX³⁸²³
- Pixels : SizeY³⁸²⁴
- Pixels : SizeZ³⁸²⁵
- Pixels : Type³⁸²⁶
- Plane : TheC³⁸²⁷
- Plane : TheT³⁸²⁸
- Plane : TheZ³⁸²⁹

Total supported: 22

Total unknown or missing: 453

19.2.110 SeikoReader

This page lists supported metadata fields for the Bio-Formats Seiko format reader.

These fields are from the [OME data model](#)³⁸³⁰. 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 475 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 Seiko format reader:

- Channel : ID³⁸³¹
- Channel : SamplesPerPixel³⁸³²
- Image : AcquisitionDate³⁸³³
- Image : Description³⁸³⁴
- Image : ID³⁸³⁵
- Image : Name³⁸³⁶
- Pixels : BigEndian³⁸³⁷
- Pixels : DimensionOrder³⁸³⁸
- Pixels : ID³⁸³⁹

³⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁸⁴⁰
- Pixels : PhysicalSizeX³⁸⁴¹
- Pixels : PhysicalSizeY³⁸⁴²
- Pixels : SignificantBits³⁸⁴³
- Pixels : SizeC³⁸⁴⁴
- Pixels : SizeT³⁸⁴⁵
- Pixels : SizeX³⁸⁴⁶
- Pixels : SizeY³⁸⁴⁷
- Pixels : SizeZ³⁸⁴⁸
- Pixels : Type³⁸⁴⁹
- Plane : TheC³⁸⁵⁰
- Plane : TheT³⁸⁵¹
- Plane : TheZ³⁸⁵²

Total supported: 22

Total unknown or missing: 453

19.2.111 PCIRReader

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

These fields are from the [OME data model](#)³⁸⁵³. 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 475 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 Compix Simple-PCI format reader:

- Channel : ID³⁸⁵⁴
- Channel : SamplesPerPixel³⁸⁵⁵
- Detector : ID³⁸⁵⁶
- Detector : Type³⁸⁵⁷

³⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

- DetectorSettings : Binning³⁸⁵⁸
- DetectorSettings : ID³⁸⁵⁹
- Image : AcquisitionDate³⁸⁶⁰
- Image : ID³⁸⁶¹
- Image : InstrumentRef³⁸⁶²
- Image : Name³⁸⁶³
- Instrument : ID³⁸⁶⁴
- Pixels : BigEndian³⁸⁶⁵
- Pixels : DimensionOrder³⁸⁶⁶
- Pixels : ID³⁸⁶⁷
- Pixels : Interleaved³⁸⁶⁸
- Pixels : PhysicalSizeX³⁸⁶⁹
- Pixels : PhysicalSizeY³⁸⁷⁰
- Pixels : SignificantBits³⁸⁷¹
- Pixels : SizeC³⁸⁷²
- Pixels : SizeT³⁸⁷³
- Pixels : SizeX³⁸⁷⁴
- Pixels : SizeY³⁸⁷⁵
- Pixels : SizeZ³⁸⁷⁶
- Pixels : TimeIncrement³⁸⁷⁷
- Pixels : Type³⁸⁷⁸
- Plane : DeltaT³⁸⁷⁹
- Plane : TheC³⁸⁸⁰
- Plane : TheT³⁸⁸¹
- Plane : TheZ³⁸⁸²

Total supported: 29

Total unknown or missing: 446

³⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.112 SimplePCITiffReader

This page lists supported metadata fields for the Bio-Formats SimplePCI TIFF format reader.

These fields are from the [OME data model](#)³⁸⁸³. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 33 of them (6%).
- Of those, Bio-Formats fully or partially converts 33 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SimplePCI TIFF format reader:

- Channel : ID³⁸⁸⁴
- Channel : SamplesPerPixel³⁸⁸⁵
- Detector : ID³⁸⁸⁶
- Detector : Model³⁸⁸⁷
- Detector : Type³⁸⁸⁸
- DetectorSettings : Binning³⁸⁸⁹
- DetectorSettings : ID³⁸⁹⁰
- Image : AcquisitionDate³⁸⁹¹
- Image : Description³⁸⁹²
- Image : ID³⁸⁹³
- Image : InstrumentRef³⁸⁹⁴
- Image : Name³⁸⁹⁵
- Instrument : ID³⁸⁹⁶
- Objective : ID³⁸⁹⁷
- Objective : Immersion³⁸⁹⁸
- Objective : NominalMagnification³⁸⁹⁹
- Pixels : BigEndian³⁹⁰⁰
- Pixels : DimensionOrder³⁹⁰¹

³⁸⁸³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID³⁹⁰²
- Pixels : Interleaved³⁹⁰³
- Pixels : PhysicalSizeX³⁹⁰⁴
- Pixels : PhysicalSizeY³⁹⁰⁵
- Pixels : SignificantBits³⁹⁰⁶
- Pixels : SizeC³⁹⁰⁷
- Pixels : SizeT³⁹⁰⁸
- Pixels : SizeX³⁹⁰⁹
- Pixels : SizeY³⁹¹⁰
- Pixels : SizeZ³⁹¹¹
- Pixels : Type³⁹¹²
- Plane : ExposureTime³⁹¹³
- Plane : TheC³⁹¹⁴
- Plane : TheT³⁹¹⁵
- Plane : TheZ³⁹¹⁶

Total supported: 33

Total unknown or missing: 442

19.2.113 SMCameraReader

This page lists supported metadata fields for the Bio-Formats SM Camera format reader.

These fields are from the [OME data model](#)³⁹¹⁷. 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 475 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 SM Camera format reader:

- Channel : ID³⁹¹⁸
- Channel : SamplesPerPixel³⁹¹⁹

³⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹¹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³⁹²⁰
- Image : ID³⁹²¹
- Image : Name³⁹²²
- Pixels : BigEndian³⁹²³
- Pixels : DimensionOrder³⁹²⁴
- Pixels : ID³⁹²⁵
- Pixels : Interleaved³⁹²⁶
- Pixels : SignificantBits³⁹²⁷
- Pixels : SizeC³⁹²⁸
- Pixels : SizeT³⁹²⁹
- Pixels : SizeX³⁹³⁰
- Pixels : SizeY³⁹³¹
- Pixels : SizeZ³⁹³²
- Pixels : Type³⁹³³
- Plane : TheC³⁹³⁴
- Plane : TheT³⁹³⁵
- Plane : TheZ³⁹³⁶

Total supported: 19

Total unknown or missing: 456

19.2.114 SpiderReader

This page lists supported metadata fields for the Bio-Formats SPIDER format reader.

These fields are from the [OME data model](#)³⁹³⁷. 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 475 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%).

³⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹³⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats SPIDER format reader:

- Channel : ID³⁹³⁸
- Channel : SamplesPerPixel³⁹³⁹
- Image : AcquisitionDate³⁹⁴⁰
- Image : ID³⁹⁴¹
- Image : Name³⁹⁴²
- Pixels : BigEndian³⁹⁴³
- Pixels : DimensionOrder³⁹⁴⁴
- Pixels : ID³⁹⁴⁵
- Pixels : Interleaved³⁹⁴⁶
- Pixels : PhysicalSizeX³⁹⁴⁷
- Pixels : PhysicalSizeY³⁹⁴⁸
- Pixels : SignificantBits³⁹⁴⁹
- Pixels : SizeC³⁹⁵⁰
- Pixels : SizeT³⁹⁵¹
- Pixels : SizeX³⁹⁵²
- Pixels : SizeY³⁹⁵³
- Pixels : SizeZ³⁹⁵⁴
- Pixels : Type³⁹⁵⁵
- Plane : TheC³⁹⁵⁶
- Plane : TheT³⁹⁵⁷
- Plane : TheZ³⁹⁵⁸

Total supported: 21

Total unknown or missing: 454

-
- ³⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
 - ³⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
 - ³⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
 - ³⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
 - ³⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
 - ³⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
 - ³⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
 - ³⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
 - ³⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
 - ³⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ³⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ³⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
 - ³⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
 - ³⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
 - ³⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
 - ³⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
 - ³⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
 - ³⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
 - ³⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
 - ³⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
 - ³⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.115 TargaReader

This page lists supported metadata fields for the Bio-Formats Truevision Targa format reader.

These fields are from the [OME data model](#)³⁹⁵⁹. 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 475 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 Truevision Targa format reader:

- Channel : ID³⁹⁶⁰
- Channel : SamplesPerPixel³⁹⁶¹
- Image : AcquisitionDate³⁹⁶²
- Image : Description³⁹⁶³
- Image : ID³⁹⁶⁴
- Image : Name³⁹⁶⁵
- Pixels : BigEndian³⁹⁶⁶
- Pixels : DimensionOrder³⁹⁶⁷
- Pixels : ID³⁹⁶⁸
- Pixels : Interleaved³⁹⁶⁹
- Pixels : SignificantBits³⁹⁷⁰
- Pixels : SizeC³⁹⁷¹
- Pixels : SizeT³⁹⁷²
- Pixels : SizeX³⁹⁷³
- Pixels : SizeY³⁹⁷⁴
- Pixels : SizeZ³⁹⁷⁵
- Pixels : Type³⁹⁷⁶
- Plane : TheC³⁹⁷⁷

³⁹⁵⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT³⁹⁷⁸
- Plane : TheZ³⁹⁷⁹

Total supported: 20

Total unknown or missing: 455

19.2.116 TextReader

This page lists supported metadata fields for the Bio-Formats Text format reader.

These fields are from the [OME data model](#)³⁹⁸⁰. 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 475 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 Text format reader:

- Channel : ID³⁹⁸¹
- Channel : SamplesPerPixel³⁹⁸²
- Image : AcquisitionDate³⁹⁸³
- Image : ID³⁹⁸⁴
- Image : Name³⁹⁸⁵
- Pixels : BigEndian³⁹⁸⁶
- Pixels : DimensionOrder³⁹⁸⁷
- Pixels : ID³⁹⁸⁸
- Pixels : Interleaved³⁹⁸⁹
- Pixels : SignificantBits³⁹⁹⁰
- Pixels : SizeC³⁹⁹¹
- Pixels : SizeT³⁹⁹²
- Pixels : SizeX³⁹⁹³
- Pixels : SizeY³⁹⁹⁴
- Pixels : SizeZ³⁹⁹⁵

³⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³⁹⁹⁶
- Plane : TheC³⁹⁹⁷
- Plane : TheT³⁹⁹⁸
- Plane : TheZ³⁹⁹⁹

Total supported: 19

Total unknown or missing: 456

19.2.117 TiffReader

This page lists supported metadata fields for the Bio-Formats Tagged Image File Format format reader.

These fields are from the [OME data model](#)⁴⁰⁰⁰. 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 475 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 Tagged Image File Format format reader:

- Channel : ID⁴⁰⁰¹
- Channel : SamplesPerPixel⁴⁰⁰²
- Image : AcquisitionDate⁴⁰⁰³
- Image : Description⁴⁰⁰⁴
- Image : ID⁴⁰⁰⁵
- Image : Name⁴⁰⁰⁶
- Pixels : BigEndian⁴⁰⁰⁷
- Pixels : DimensionOrder⁴⁰⁰⁸
- Pixels : ID⁴⁰⁰⁹
- Pixels : Interleaved⁴⁰¹⁰
- Pixels : PhysicalSizeZ⁴⁰¹¹
- Pixels : SignificantBits⁴⁰¹²
- Pixels : SizeC⁴⁰¹³

³⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁰⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT⁴⁰¹⁴
- Pixels : SizeX⁴⁰¹⁵
- Pixels : SizeY⁴⁰¹⁶
- Pixels : SizeZ⁴⁰¹⁷
- Pixels : TimeIncrement⁴⁰¹⁸
- Pixels : Type⁴⁰¹⁹
- Plane : TheC⁴⁰²⁰
- Plane : TheT⁴⁰²¹
- Plane : TheZ⁴⁰²²

Total supported: 22

Total unknown or missing: 453

19.2.118 TillVisionReader

This page lists supported metadata fields for the Bio-Formats TillVision format reader.

These fields are from the [OME data model](#)⁴⁰²³. 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 475 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 TillVision format reader:

- Channel : ID⁴⁰²⁴
- Channel : SamplesPerPixel⁴⁰²⁵
- Experiment : ID⁴⁰²⁶
- Experiment : Type⁴⁰²⁷
- Image : AcquisitionDate⁴⁰²⁸
- Image : ID⁴⁰²⁹
- Image : Name⁴⁰³⁰
- Pixels : BigEndian⁴⁰³¹

⁴⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

⁴⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰²³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

⁴⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

⁴⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁴⁰³²
- Pixels : ID⁴⁰³³
- Pixels : Interleaved⁴⁰³⁴
- Pixels : SignificantBits⁴⁰³⁵
- Pixels : SizeC⁴⁰³⁶
- Pixels : SizeT⁴⁰³⁷
- Pixels : SizeX⁴⁰³⁸
- Pixels : SizeY⁴⁰³⁹
- Pixels : SizeZ⁴⁰⁴⁰
- Pixels : Type⁴⁰⁴¹
- Plane : ExposureTime⁴⁰⁴²
- Plane : TheC⁴⁰⁴³
- Plane : TheT⁴⁰⁴⁴
- Plane : TheZ⁴⁰⁴⁵

Total supported: 22

Total unknown or missing: 453

19.2.119 TopometrixReader

This page lists supported metadata fields for the Bio-Formats TopoMetrix format reader.

These fields are from the OME data model⁴⁰⁴⁶. 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 475 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 TopoMetrix format reader:

- Channel : ID⁴⁰⁴⁷
- Channel : SamplesPerPixel⁴⁰⁴⁸
- Image : AcquisitionDate⁴⁰⁴⁹

⁴⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁴⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁴⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description⁴⁰⁵⁰
- Image : ID⁴⁰⁵¹
- Image : Name⁴⁰⁵²
- Pixels : BigEndian⁴⁰⁵³
- Pixels : DimensionOrder⁴⁰⁵⁴
- Pixels : ID⁴⁰⁵⁵
- Pixels : Interleaved⁴⁰⁵⁶
- Pixels : PhysicalSizeX⁴⁰⁵⁷
- Pixels : PhysicalSizeY⁴⁰⁵⁸
- Pixels : SignificantBits⁴⁰⁵⁹
- Pixels : SizeC⁴⁰⁶⁰
- Pixels : SizeT⁴⁰⁶¹
- Pixels : SizeX⁴⁰⁶²
- Pixels : SizeY⁴⁰⁶³
- Pixels : SizeZ⁴⁰⁶⁴
- Pixels : Type⁴⁰⁶⁵
- Plane : TheC⁴⁰⁶⁶
- Plane : TheT⁴⁰⁶⁷
- Plane : TheZ⁴⁰⁶⁸

Total supported: 22

Total unknown or missing: 453

19.2.120 TrestleReader

This page lists supported metadata fields for the Bio-Formats Trestle format reader.

These fields are from the [OME data model](#)⁴⁰⁶⁹. 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 475 fields documented in the *metadata summary table*:

- The file format itself supports 26 of them (5%).
- Of those, Bio-Formats fully or partially converts 26 (100%).

⁴⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Trestle format reader:

- Channel : ID⁴⁰⁷⁰
- Channel : SamplesPerPixel⁴⁰⁷¹
- Image : AcquisitionDate⁴⁰⁷²
- Image : ID⁴⁰⁷³
- Image : Name⁴⁰⁷⁴
- Image : ROIRef⁴⁰⁷⁵
- Mask : Height⁴⁰⁷⁶
- Mask : ID⁴⁰⁷⁷
- Mask : Width⁴⁰⁷⁸
- Mask : X⁴⁰⁷⁹
- Mask : Y⁴⁰⁸⁰
- Pixels : BigEndian⁴⁰⁸¹
- Pixels : DimensionOrder⁴⁰⁸²
- Pixels : ID⁴⁰⁸³
- Pixels : Interleaved⁴⁰⁸⁴
- Pixels : SignificantBits⁴⁰⁸⁵
- Pixels : SizeC⁴⁰⁸⁶
- Pixels : SizeT⁴⁰⁸⁷
- Pixels : SizeX⁴⁰⁸⁸
- Pixels : SizeY⁴⁰⁸⁹
- Pixels : SizeZ⁴⁰⁹⁰
- Pixels : Type⁴⁰⁹¹
- Plane : TheC⁴⁰⁹²
- Plane : TheT⁴⁰⁹³

⁴⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁴⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Height

⁴⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width

⁴⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X

⁴⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y

⁴⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁴⁰⁹⁴
- ROI : ID⁴⁰⁹⁵

Total supported: 26

Total unknown or missing: 449

19.2.121 UBMReader

This page lists supported metadata fields for the Bio-Formats UBM format reader.

These fields are from the [OME data model](#)⁴⁰⁹⁶. 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 475 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 UBM format reader:

- Channel : ID⁴⁰⁹⁷
- Channel : SamplesPerPixel⁴⁰⁹⁸
- Image : AcquisitionDate⁴⁰⁹⁹
- Image : ID⁴¹⁰⁰
- Image : Name⁴¹⁰¹
- Pixels : BigEndian⁴¹⁰²
- Pixels : DimensionOrder⁴¹⁰³
- Pixels : ID⁴¹⁰⁴
- Pixels : Interleaved⁴¹⁰⁵
- Pixels : SignificantBits⁴¹⁰⁶
- Pixels : SizeC⁴¹⁰⁷
- Pixels : SizeT⁴¹⁰⁸
- Pixels : SizeX⁴¹⁰⁹
- Pixels : SizeY⁴¹¹⁰
- Pixels : SizeZ⁴¹¹¹

⁴⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁴⁰⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type⁴¹¹²
- Plane : TheC⁴¹¹³
- Plane : TheT⁴¹¹⁴
- Plane : TheZ⁴¹¹⁵

Total supported: 19

Total unknown or missing: 456

19.2.122 UnisokuReader

This page lists supported metadata fields for the Bio-Formats Unisoku STM format reader.

These fields are from the [OME data model](#)⁴¹¹⁶. 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 475 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 Unisoku STM format reader:

- Channel : ID⁴¹¹⁷
- Channel : SamplesPerPixel⁴¹¹⁸
- Image : AcquisitionDate⁴¹¹⁹
- Image : Description⁴¹²⁰
- Image : ID⁴¹²¹
- Image : Name⁴¹²²
- Pixels : BigEndian⁴¹²³
- Pixels : DimensionOrder⁴¹²⁴
- Pixels : ID⁴¹²⁵
- Pixels : Interleaved⁴¹²⁶
- Pixels : PhysicalSizeX⁴¹²⁷
- Pixels : PhysicalSizeY⁴¹²⁸
- Pixels : SignificantBits⁴¹²⁹

⁴¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁴¹³⁰
- Pixels : SizeT⁴¹³¹
- Pixels : SizeX⁴¹³²
- Pixels : SizeY⁴¹³³
- Pixels : SizeZ⁴¹³⁴
- Pixels : Type⁴¹³⁵
- Plane : TheC⁴¹³⁶
- Plane : TheT⁴¹³⁷
- Plane : TheZ⁴¹³⁸

Total supported: 22

Total unknown or missing: 453

19.2.123 VarianFDFReader

This page lists supported metadata fields for the Bio-Formats Varian FDF format reader.

These fields are from the [OME data model](#)⁴¹³⁹. 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 475 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 Varian FDF format reader:

- Channel : ID⁴¹⁴⁰
- Channel : SamplesPerPixel⁴¹⁴¹
- Image : AcquisitionDate⁴¹⁴²
- Image : ID⁴¹⁴³
- Image : Name⁴¹⁴⁴
- Pixels : BigEndian⁴¹⁴⁵
- Pixels : DimensionOrder⁴¹⁴⁶
- Pixels : ID⁴¹⁴⁷

⁴¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹³⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁴¹⁴⁸
- Pixels : PhysicalSizeX⁴¹⁴⁹
- Pixels : PhysicalSizeY⁴¹⁵⁰
- Pixels : PhysicalSizeZ⁴¹⁵¹
- Pixels : SignificantBits⁴¹⁵²
- Pixels : SizeC⁴¹⁵³
- Pixels : SizeT⁴¹⁵⁴
- Pixels : SizeX⁴¹⁵⁵
- Pixels : SizeY⁴¹⁵⁶
- Pixels : SizeZ⁴¹⁵⁷
- Pixels : Type⁴¹⁵⁸
- Plane : PositionX⁴¹⁵⁹
- Plane : PositionY⁴¹⁶⁰
- Plane : PositionZ⁴¹⁶¹
- Plane : TheC⁴¹⁶²
- Plane : TheT⁴¹⁶³
- Plane : TheZ⁴¹⁶⁴

Total supported: 25

Total unknown or missing: 450

19.2.124 VGSAMReader

This page lists supported metadata fields for the Bio-Formats VG SAM format reader.

These fields are from the [OME data model](#)⁴¹⁶⁵. 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 475 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%).

⁴¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹⁶⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats VG SAM format reader:

- Channel : ID⁴¹⁶⁶
- Channel : SamplesPerPixel⁴¹⁶⁷
- Image : AcquisitionDate⁴¹⁶⁸
- Image : ID⁴¹⁶⁹
- Image : Name⁴¹⁷⁰
- Pixels : BigEndian⁴¹⁷¹
- Pixels : DimensionOrder⁴¹⁷²
- Pixels : ID⁴¹⁷³
- Pixels : Interleaved⁴¹⁷⁴
- Pixels : SignificantBits⁴¹⁷⁵
- Pixels : SizeC⁴¹⁷⁶
- Pixels : SizeT⁴¹⁷⁷
- Pixels : SizeX⁴¹⁷⁸
- Pixels : SizeY⁴¹⁷⁹
- Pixels : SizeZ⁴¹⁸⁰
- Pixels : Type⁴¹⁸¹
- Plane : TheC⁴¹⁸²
- Plane : TheT⁴¹⁸³
- Plane : TheZ⁴¹⁸⁴

Total supported: 19

Total unknown or missing: 456

19.2.125 VisitechReader

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

These fields are from the [OME data model](#)⁴¹⁸⁵. 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.

⁴¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
⁴¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
⁴¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
⁴¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
⁴¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
⁴¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
⁴¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
⁴¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
⁴¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
⁴¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
⁴¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
⁴¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
⁴¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
⁴¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
⁴¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
⁴¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
⁴¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
⁴¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
⁴¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
⁴¹⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 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 Visitech XYS format reader:**

- Channel : ID⁴¹⁸⁶
- Channel : SamplesPerPixel⁴¹⁸⁷
- Image : AcquisitionDate⁴¹⁸⁸
- Image : ID⁴¹⁸⁹
- Image : Name⁴¹⁹⁰
- Pixels : BigEndian⁴¹⁹¹
- Pixels : DimensionOrder⁴¹⁹²
- Pixels : ID⁴¹⁹³
- Pixels : Interleaved⁴¹⁹⁴
- Pixels : SignificantBits⁴¹⁹⁵
- Pixels : SizeC⁴¹⁹⁶
- Pixels : SizeT⁴¹⁹⁷
- Pixels : SizeX⁴¹⁹⁸
- Pixels : SizeY⁴¹⁹⁹
- Pixels : SizeZ⁴²⁰⁰
- Pixels : Type⁴²⁰¹
- Plane : TheC⁴²⁰²
- Plane : TheT⁴²⁰³
- Plane : TheZ⁴²⁰⁴

Total supported: 19**Total unknown or missing: 456**

⁴¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.126 VelocityClippingReader

This page lists supported metadata fields for the Bio-Formats Velocity Library Clipping format reader.

These fields are from the [OME data model](#)⁴²⁰⁵. 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 475 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 Velocity Library Clipping format reader:

- Channel : ID⁴²⁰⁶
- Channel : SamplesPerPixel⁴²⁰⁷
- Image : AcquisitionDate⁴²⁰⁸
- Image : ID⁴²⁰⁹
- Image : Name⁴²¹⁰
- Pixels : BigEndian⁴²¹¹
- Pixels : DimensionOrder⁴²¹²
- Pixels : ID⁴²¹³
- Pixels : Interleaved⁴²¹⁴
- Pixels : SignificantBits⁴²¹⁵
- Pixels : SizeC⁴²¹⁶
- Pixels : SizeT⁴²¹⁷
- Pixels : SizeX⁴²¹⁸
- Pixels : SizeY⁴²¹⁹
- Pixels : SizeZ⁴²²⁰
- Pixels : Type⁴²²¹
- Plane : TheC⁴²²²
- Plane : TheT⁴²²³

⁴²⁰⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁴²²⁴

Total supported: 19

Total unknown or missing: 456

19.2.127 VelocityReader

This page lists supported metadata fields for the Bio-Formats Velocity Library format reader.

These fields are from the [OME data model](#)⁴²²⁵. 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 475 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 Velocity Library format reader:

- Channel : ID⁴²²⁶
- Channel : Name⁴²²⁷
- Channel : SamplesPerPixel⁴²²⁸
- Detector : ID⁴²²⁹
- Detector : Model⁴²³⁰
- DetectorSettings : ID⁴²³¹
- Image : AcquisitionDate⁴²³²
- Image : Description⁴²³³
- Image : ID⁴²³⁴
- Image : InstrumentRef⁴²³⁵
- Image : Name⁴²³⁶
- Instrument : ID⁴²³⁷
- Objective : Correction⁴²³⁸
- Objective : ID⁴²³⁹
- Objective : Immersion⁴²⁴⁰
- Objective : NominalMagnification⁴²⁴¹

⁴²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴²²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

- ObjectiveSettings : ID⁴²⁴²
- Pixels : BigEndian⁴²⁴³
- Pixels : DimensionOrder⁴²⁴⁴
- Pixels : ID⁴²⁴⁵
- Pixels : Interleaved⁴²⁴⁶
- Pixels : PhysicalSizeX⁴²⁴⁷
- Pixels : PhysicalSizeY⁴²⁴⁸
- Pixels : PhysicalSizeZ⁴²⁴⁹
- Pixels : SignificantBits⁴²⁵⁰
- Pixels : SizeC⁴²⁵¹
- Pixels : SizeT⁴²⁵²
- Pixels : SizeX⁴²⁵³
- Pixels : SizeY⁴²⁵⁴
- Pixels : SizeZ⁴²⁵⁵
- Pixels : Type⁴²⁵⁶
- Plane : DeltaT⁴²⁵⁷
- Plane : PositionX⁴²⁵⁸
- Plane : PositionY⁴²⁵⁹
- Plane : PositionZ⁴²⁶⁰
- Plane : TheC⁴²⁶¹
- Plane : TheT⁴²⁶²
- Plane : TheZ⁴²⁶³

Total supported: 38

Total unknown or missing: 437

19.2.128 WATOPReader

This page lists supported metadata fields for the Bio-Formats WA Technology TOP format reader.

- ⁴²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID
- ⁴²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ⁴²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ⁴²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ⁴²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ⁴²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁴²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁴²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ⁴²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ⁴²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ⁴²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ⁴²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ⁴²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ⁴²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ⁴²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ⁴²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ⁴²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ⁴²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ⁴²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ
- ⁴²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ⁴²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ⁴²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](http://www.openmicroscopy.org/site/support/ome-model/)⁴²⁶⁴. 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 475 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 WA Technology TOP format reader:

- Channel : ID⁴²⁶⁵
- Channel : SamplesPerPixel⁴²⁶⁶
- Image : AcquisitionDate⁴²⁶⁷
- Image : Description⁴²⁶⁸
- Image : ID⁴²⁶⁹
- Image : Name⁴²⁷⁰
- Pixels : BigEndian⁴²⁷¹
- Pixels : DimensionOrder⁴²⁷²
- Pixels : ID⁴²⁷³
- Pixels : Interleaved⁴²⁷⁴
- Pixels : PhysicalSizeX⁴²⁷⁵
- Pixels : PhysicalSizeY⁴²⁷⁶
- Pixels : SignificantBits⁴²⁷⁷
- Pixels : SizeC⁴²⁷⁸
- Pixels : SizeT⁴²⁷⁹
- Pixels : SizeX⁴²⁸⁰
- Pixels : SizeY⁴²⁸¹
- Pixels : SizeZ⁴²⁸²
- Pixels : Type⁴²⁸³
- Plane : TheC⁴²⁸⁴

⁴²⁶⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁴²⁸⁵
- Plane : TheZ⁴²⁸⁶

Total supported: 22

Total unknown or missing: 453

19.2.129 BMPReader

This page lists supported metadata fields for the Bio-Formats Windows Bitmap format reader.

These fields are from the [OME data model](#)⁴²⁸⁷. 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 475 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 Windows Bitmap format reader:

- Channel : ID⁴²⁸⁸
- Channel : SamplesPerPixel⁴²⁸⁹
- Image : AcquisitionDate⁴²⁹⁰
- Image : ID⁴²⁹¹
- Image : Name⁴²⁹²
- Pixels : BigEndian⁴²⁹³
- Pixels : DimensionOrder⁴²⁹⁴
- Pixels : ID⁴²⁹⁵
- Pixels : Interleaved⁴²⁹⁶
- Pixels : PhysicalSizeX⁴²⁹⁷
- Pixels : PhysicalSizeY⁴²⁹⁸
- Pixels : SignificantBits⁴²⁹⁹
- Pixels : SizeC⁴³⁰⁰
- Pixels : SizeT⁴³⁰¹
- Pixels : SizeX⁴³⁰²

⁴²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴²⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY⁴³⁰³
- Pixels : SizeZ⁴³⁰⁴
- Pixels : Type⁴³⁰⁵
- Plane : TheC⁴³⁰⁶
- Plane : TheT⁴³⁰⁷
- Plane : TheZ⁴³⁰⁸

Total supported: 21

Total unknown or missing: 454

19.2.130 WizReader

This page lists supported metadata fields for the Bio-Formats Woolz format reader.

These fields are from the [OME data model](#)⁴³⁰⁹. 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 475 fields documented in the [metadata summary table](#):

- The file format itself supports 26 of them (5%).
- Of those, Bio-Formats fully or partially converts 26 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Woolz format reader:

- Channel : ID⁴³¹⁰
- Channel : SamplesPerPixel⁴³¹¹
- Image : AcquisitionDate⁴³¹²
- Image : ID⁴³¹³
- Image : Name⁴³¹⁴
- Pixels : BigEndian⁴³¹⁵
- Pixels : DimensionOrder⁴³¹⁶
- Pixels : ID⁴³¹⁷
- Pixels : Interleaved⁴³¹⁸
- Pixels : PhysicalSizeX⁴³¹⁹
- Pixels : PhysicalSizeY⁴³²⁰

⁴³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴³⁰⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : PhysicalSizeZ⁴³²¹
- Pixels : SignificantBits⁴³²²
- Pixels : SizeC⁴³²³
- Pixels : SizeT⁴³²⁴
- Pixels : SizeX⁴³²⁵
- Pixels : SizeY⁴³²⁶
- Pixels : SizeZ⁴³²⁷
- Pixels : Type⁴³²⁸
- Plane : TheC⁴³²⁹
- Plane : TheT⁴³³⁰
- Plane : TheZ⁴³³¹
- StageLabel : Name⁴³³²
- StageLabel : X⁴³³³
- StageLabel : Y⁴³³⁴
- StageLabel : Z⁴³³⁵

Total supported: 26

Total unknown or missing: 449

19.2.131 ZeissTIFFReader

This page lists supported metadata fields for the Bio-Formats Zeiss AxioVision TIFF format reader.

These fields are from the OME data model⁴³³⁶. 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 475 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 Zeiss AxioVision TIFF format reader:

- Channel : ID⁴³³⁷
- Channel : SamplesPerPixel⁴³³⁸

⁴³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name

⁴³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_X

⁴³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Y

⁴³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z

⁴³³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁴³³⁹
- Image : ID⁴³⁴⁰
- Image : Name⁴³⁴¹
- Pixels : BigEndian⁴³⁴²
- Pixels : DimensionOrder⁴³⁴³
- Pixels : ID⁴³⁴⁴
- Pixels : Interleaved⁴³⁴⁵
- Pixels : SignificantBits⁴³⁴⁶
- Pixels : SizeC⁴³⁴⁷
- Pixels : SizeT⁴³⁴⁸
- Pixels : SizeX⁴³⁴⁹
- Pixels : SizeY⁴³⁵⁰
- Pixels : SizeZ⁴³⁵¹
- Pixels : Type⁴³⁵²
- Plane : TheC⁴³⁵³
- Plane : TheT⁴³⁵⁴
- Plane : TheZ⁴³⁵⁵

Total supported: 19

Total unknown or missing: 456

19.2.132 ZeissZVIReader

This page lists supported metadata fields for the Bio-Formats Zeiss Vision Image (ZVI) format reader.

These fields are from the [OME data model](#)⁴³⁵⁶. 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 475 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%).

⁴³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴³⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Zeiss Vision Image (ZVI) format reader:

- Channel : ID⁴³⁵⁷
- Channel : SamplesPerPixel⁴³⁵⁸
- Image : AcquisitionDate⁴³⁵⁹
- Image : ID⁴³⁶⁰
- Image : Name⁴³⁶¹
- Pixels : BigEndian⁴³⁶²
- Pixels : DimensionOrder⁴³⁶³
- Pixels : ID⁴³⁶⁴
- Pixels : Interleaved⁴³⁶⁵
- Pixels : SignificantBits⁴³⁶⁶
- Pixels : SizeC⁴³⁶⁷
- Pixels : SizeT⁴³⁶⁸
- Pixels : SizeX⁴³⁶⁹
- Pixels : SizeY⁴³⁷⁰
- Pixels : SizeZ⁴³⁷¹
- Pixels : Type⁴³⁷²
- Plane : TheC⁴³⁷³
- Plane : TheT⁴³⁷⁴
- Plane : TheZ⁴³⁷⁵

Total supported: 19

Total unknown or missing: 456

19.2.133 ZeissCZIReader

This page lists supported metadata fields for the Bio-Formats Zeiss CZI format reader.

These fields are from the OME data model⁴³⁷⁶. 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.

⁴³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
⁴³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
⁴³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
⁴³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
⁴³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
⁴³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
⁴³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
⁴³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
⁴³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
⁴³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
⁴³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
⁴³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
⁴³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
⁴³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
⁴³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
⁴³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
⁴³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
⁴³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
⁴³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
⁴³⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 475 fields documented in the *metadata summary table*:

- The file format itself supports 158 of them (33%).
- Of those, Bio-Formats fully or partially converts 158 (100%).

Supported fields**These fields are fully supported by the Bio-Formats Zeiss CZI format reader:**

- Arc : LotNumber⁴³⁷⁷
- Arc : Manufacturer⁴³⁷⁸
- Arc : Model⁴³⁷⁹
- Arc : Power⁴³⁸⁰
- Arc : SerialNumber⁴³⁸¹
- Channel : AcquisitionMode⁴³⁸²
- Channel : Color⁴³⁸³
- Channel : EmissionWavelength⁴³⁸⁴
- Channel : ExcitationWavelength⁴³⁸⁵
- Channel : FilterSetRef⁴³⁸⁶
- Channel : Fluor⁴³⁸⁷
- Channel : ID⁴³⁸⁸
- Channel : IlluminationType⁴³⁸⁹
- Channel : Name⁴³⁹⁰
- Channel : PinholeSize⁴³⁹¹
- Channel : SamplesPerPixel⁴³⁹²
- Detector : AmplificationGain⁴³⁹³
- Detector : Gain⁴³⁹⁴
- Detector : ID⁴³⁹⁵
- Detector : LotNumber⁴³⁹⁶
- Detector : Manufacturer⁴³⁹⁷
- Detector : Model⁴³⁹⁸

⁴³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

⁴³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁴³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁴³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁴³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSetRef_ID

⁴³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Fluor

⁴³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

⁴³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

⁴³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_AmplificationGain

⁴³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁴³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Detector : Offset⁴³⁹⁹
- Detector : SerialNumber⁴⁴⁰⁰
- Detector : Type⁴⁴⁰¹
- Detector : Zoom⁴⁴⁰²
- DetectorSettings : Binning⁴⁴⁰³
- DetectorSettings : Gain⁴⁴⁰⁴
- DetectorSettings : ID⁴⁴⁰⁵
- Dichroic : ID⁴⁴⁰⁶
- Dichroic : LotNumber⁴⁴⁰⁷
- Dichroic : Manufacturer⁴⁴⁰⁸
- Dichroic : Model⁴⁴⁰⁹
- Dichroic : SerialNumber⁴⁴¹⁰
- Ellipse : ID⁴⁴¹¹
- Ellipse : RadiusX⁴⁴¹²
- Ellipse : RadiusY⁴⁴¹³
- Ellipse : Text⁴⁴¹⁴
- Ellipse : X⁴⁴¹⁵
- Ellipse : Y⁴⁴¹⁶
- Experimenter : Email⁴⁴¹⁷
- Experimenter : FirstName⁴⁴¹⁸
- Experimenter : ID⁴⁴¹⁹
- Experimenter : Institution⁴⁴²⁰
- Experimenter : LastName⁴⁴²¹
- Experimenter : MiddleName⁴⁴²²
- Experimenter : UserName⁴⁴²³
- Filament : LotNumber⁴⁴²⁴

⁴³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

⁴⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁴⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

⁴⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁴⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁴⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

⁴⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

⁴⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

⁴⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

⁴⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

⁴⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Email

⁴⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

⁴⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁴⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

⁴⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

⁴⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_MiddleName

⁴⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

⁴⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

- Filament : Manufacturer⁴⁴²⁵
- Filament : Model⁴⁴²⁶
- Filament : Power⁴⁴²⁷
- Filament : SerialNumber⁴⁴²⁸
- Filter : FilterWheel⁴⁴²⁹
- Filter : ID⁴⁴³⁰
- Filter : LotNumber⁴⁴³¹
- Filter : Manufacturer⁴⁴³²
- Filter : Model⁴⁴³³
- Filter : SerialNumber⁴⁴³⁴
- Filter : Type⁴⁴³⁵
- FilterSet : DichroicRef⁴⁴³⁶
- FilterSet : EmissionFilterRef⁴⁴³⁷
- FilterSet : ExcitationFilterRef⁴⁴³⁸
- FilterSet : ID⁴⁴³⁹
- FilterSet : LotNumber⁴⁴⁴⁰
- FilterSet : Manufacturer⁴⁴⁴¹
- FilterSet : Model⁴⁴⁴²
- FilterSet : SerialNumber⁴⁴⁴³
- Image : AcquisitionDate⁴⁴⁴⁴
- Image : Description⁴⁴⁴⁵
- Image : ExperimenterRef⁴⁴⁴⁶
- Image : ID⁴⁴⁴⁷
- Image : InstrumentRef⁴⁴⁴⁸
- Image : Name⁴⁴⁴⁹
- Image : ROIRef⁴⁴⁵⁰

⁴⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_FilterWheel

⁴⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

⁴⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_Type

⁴⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

⁴⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSet_ID

⁴⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

⁴⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

- ImagingEnvironment : AirPressure⁴⁴⁵¹
- ImagingEnvironment : CO2Percent⁴⁴⁵²
- ImagingEnvironment : Humidity⁴⁴⁵³
- ImagingEnvironment : Temperature⁴⁴⁵⁴
- Instrument : ID⁴⁴⁵⁵
- Laser : LotNumber⁴⁴⁵⁶
- Laser : Manufacturer⁴⁴⁵⁷
- Laser : Model⁴⁴⁵⁸
- Laser : Power⁴⁴⁵⁹
- Laser : SerialNumber⁴⁴⁶⁰
- LightEmittingDiode : LotNumber⁴⁴⁶¹
- LightEmittingDiode : Manufacturer⁴⁴⁶²
- LightEmittingDiode : Model⁴⁴⁶³
- LightEmittingDiode : Power⁴⁴⁶⁴
- LightEmittingDiode : SerialNumber⁴⁴⁶⁵
- Line : ID⁴⁴⁶⁶
- Line : Text⁴⁴⁶⁷
- Line : X1⁴⁴⁶⁸
- Line : X2⁴⁴⁶⁹
- Line : Y1⁴⁴⁷⁰
- Line : Y2⁴⁴⁷¹
- Microscope : LotNumber⁴⁴⁷²
- Microscope : Manufacturer⁴⁴⁷³
- Microscope : Model⁴⁴⁷⁴
- Microscope : SerialNumber⁴⁴⁷⁵
- Microscope : Type⁴⁴⁷⁶

⁴⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_AirPressure

⁴⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_CO2Percent

⁴⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Humidity

⁴⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

⁴⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

⁴⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

⁴⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

⁴⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

⁴⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

- Objective : CalibratedMagnification⁴⁴⁷⁷
- Objective : Correction⁴⁴⁷⁸
- Objective : ID⁴⁴⁷⁹
- Objective : Immersion⁴⁴⁸⁰
- Objective : Iris⁴⁴⁸¹
- Objective : LensNA⁴⁴⁸²
- Objective : LotNumber⁴⁴⁸³
- Objective : Manufacturer⁴⁴⁸⁴
- Objective : Model⁴⁴⁸⁵
- Objective : NominalMagnification⁴⁴⁸⁶
- Objective : SerialNumber⁴⁴⁸⁷
- Objective : WorkingDistance⁴⁴⁸⁸
- ObjectiveSettings : CorrectionCollar⁴⁴⁸⁹
- ObjectiveSettings : ID⁴⁴⁹⁰
- ObjectiveSettings : Medium⁴⁴⁹¹
- ObjectiveSettings : RefractiveIndex⁴⁴⁹²
- Pixels : BigEndian⁴⁴⁹³
- Pixels : DimensionOrder⁴⁴⁹⁴
- Pixels : ID⁴⁴⁹⁵
- Pixels : Interleaved⁴⁴⁹⁶
- Pixels : PhysicalSizeX⁴⁴⁹⁷
- Pixels : PhysicalSizeY⁴⁴⁹⁸
- Pixels : PhysicalSizeZ⁴⁴⁹⁹
- Pixels : SignificantBits⁴⁵⁰⁰
- Pixels : SizeC⁴⁵⁰¹
- Pixels : SizeT⁴⁵⁰²

⁴⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

⁴⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Iris

⁴⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁴⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

⁴⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar

⁴⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_Medium

⁴⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

⁴⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁴⁵⁰³
- Pixels : SizeY⁴⁵⁰⁴
- Pixels : SizeZ⁴⁵⁰⁵
- Pixels : Type⁴⁵⁰⁶
- Plane : DeltaT⁴⁵⁰⁷
- Plane : ExposureTime⁴⁵⁰⁸
- Plane : PositionX⁴⁵⁰⁹
- Plane : PositionY⁴⁵¹⁰
- Plane : PositionZ⁴⁵¹¹
- Plane : TheC⁴⁵¹²
- Plane : TheT⁴⁵¹³
- Plane : TheZ⁴⁵¹⁴
- Polygon : ID⁴⁵¹⁵
- Polygon : Points⁴⁵¹⁶
- Polygon : Text⁴⁵¹⁷
- Polyline : ID⁴⁵¹⁸
- Polyline : Points⁴⁵¹⁹
- Polyline : Text⁴⁵²⁰
- ROI : Description⁴⁵²¹
- ROI : ID⁴⁵²²
- ROI : Name⁴⁵²³
- Rectangle : Height⁴⁵²⁴
- Rectangle : ID⁴⁵²⁵
- Rectangle : Text⁴⁵²⁶
- Rectangle : Width⁴⁵²⁷
- Rectangle : X⁴⁵²⁸

⁴⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁴⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁴⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

⁴⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

⁴⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Description

⁴⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁴⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Name

⁴⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁴⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁴⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

- Rectangle : Y⁴⁵²⁹
- TransmittanceRange : CutIn⁴⁵³⁰
- TransmittanceRange : CutInTolerance⁴⁵³¹
- TransmittanceRange : CutOut⁴⁵³²
- TransmittanceRange : CutOutTolerance⁴⁵³³
- TransmittanceRange : Transmittance⁴⁵³⁴

Total supported: 158

Total unknown or missing: 317

19.2.134 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](#)⁴⁵³⁵. 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 475 fields documented in the [metadata summary table](#):

- The file format itself supports 101 of them (21%).
- Of those, Bio-Formats fully or partially converts 101 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Zeiss Laser-Scanning Microscopy format reader:

- Channel : Color⁴⁵³⁶
- Channel : ID⁴⁵³⁷
- Channel : Name⁴⁵³⁸
- Channel : PinholeSize⁴⁵³⁹
- Channel : SamplesPerPixel⁴⁵⁴⁰
- Detector : AmplificationGain⁴⁵⁴¹
- Detector : Gain⁴⁵⁴²
- Detector : ID⁴⁵⁴³
- Detector : Type⁴⁵⁴⁴
- Detector : Zoom⁴⁵⁴⁵
- DetectorSettings : Binning⁴⁵⁴⁶

⁴⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁴⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutInTolerance

⁴⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

⁴⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOutTolerance

⁴⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_Transmittance

⁴⁵³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁴⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

⁴⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_AmplificationGain

⁴⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁴⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁴⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

⁴⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

- [DetectorSettings](#) : ID⁴⁵⁴⁷
- [Dichroic](#) : ID⁴⁵⁴⁸
- [Dichroic](#) : Model⁴⁵⁴⁹
- [Ellipse](#) : FontSize⁴⁵⁵⁰
- [Ellipse](#) : ID⁴⁵⁵¹
- [Ellipse](#) : RadiusX⁴⁵⁵²
- [Ellipse](#) : RadiusY⁴⁵⁵³
- [Ellipse](#) : StrokeWidth⁴⁵⁵⁴
- [Ellipse](#) : Transform⁴⁵⁵⁵
- [Ellipse](#) : X⁴⁵⁵⁶
- [Ellipse](#) : Y⁴⁵⁵⁷
- [Experimenter](#) : ID⁴⁵⁵⁸
- [Experimenter](#) : UserName⁴⁵⁵⁹
- [Filter](#) : ID⁴⁵⁶⁰
- [Filter](#) : Model⁴⁵⁶¹
- [Filter](#) : Type⁴⁵⁶²
- [Image](#) : AcquisitionDate⁴⁵⁶³
- [Image](#) : Description⁴⁵⁶⁴
- [Image](#) : ID⁴⁵⁶⁵
- [Image](#) : InstrumentRef⁴⁵⁶⁶
- [Image](#) : Name⁴⁵⁶⁷
- [Image](#) : ROIRef⁴⁵⁶⁸
- [Instrument](#) : ID⁴⁵⁶⁹
- [Label](#) : FontSize⁴⁵⁷⁰
- [Label](#) : ID⁴⁵⁷¹
- [Label](#) : StrokeWidth⁴⁵⁷²

⁴⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

⁴⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

⁴⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

⁴⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

⁴⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

⁴⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

⁴⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁴⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

⁴⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

⁴⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_Type

⁴⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁴⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

- Label : Text⁴⁵⁷³
- Label : X⁴⁵⁷⁴
- Label : Y⁴⁵⁷⁵
- Laser : ID⁴⁵⁷⁶
- Laser : LaserMedium⁴⁵⁷⁷
- Laser : Model⁴⁵⁷⁸
- Laser : Type⁴⁵⁷⁹
- Laser : Wavelength⁴⁵⁸⁰
- LightPath : DichroicRef⁴⁵⁸¹
- LightPath : EmissionFilterRef⁴⁵⁸²
- Line : FontSize⁴⁵⁸³
- Line : ID⁴⁵⁸⁴
- Line : StrokeWidth⁴⁵⁸⁵
- Line : X1⁴⁵⁸⁶
- Line : X2⁴⁵⁸⁷
- Line : Y1⁴⁵⁸⁸
- Line : Y2⁴⁵⁸⁹
- Objective : Correction⁴⁵⁹⁰
- Objective : ID⁴⁵⁹¹
- Objective : Immersion⁴⁵⁹²
- Objective : Iris⁴⁵⁹³
- Objective : LensNA⁴⁵⁹⁴
- Objective : NominalMagnification⁴⁵⁹⁵
- ObjectiveSettings : ID⁴⁵⁹⁶
- Pixels : BigEndian⁴⁵⁹⁷
- Pixels : DimensionOrder⁴⁵⁹⁸

⁴⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_X

⁴⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_Y

⁴⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

⁴⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

⁴⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

⁴⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

⁴⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

⁴⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

⁴⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

⁴⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

⁴⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

⁴⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Iris

⁴⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁴⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID⁴⁵⁹⁹
- Pixels : Interleaved⁴⁶⁰⁰
- Pixels : PhysicalSizeX⁴⁶⁰¹
- Pixels : PhysicalSizeY⁴⁶⁰²
- Pixels : PhysicalSizeZ⁴⁶⁰³
- Pixels : SignificantBits⁴⁶⁰⁴
- Pixels : SizeC⁴⁶⁰⁵
- Pixels : SizeT⁴⁶⁰⁶
- Pixels : SizeX⁴⁶⁰⁷
- Pixels : SizeY⁴⁶⁰⁸
- Pixels : SizeZ⁴⁶⁰⁹
- Pixels : TimeIncrement⁴⁶¹⁰
- Pixels : Type⁴⁶¹¹
- Plane : DeltaT⁴⁶¹²
- Plane : PositionX⁴⁶¹³
- Plane : PositionY⁴⁶¹⁴
- Plane : PositionZ⁴⁶¹⁵
- Plane : TheC⁴⁶¹⁶
- Plane : TheT⁴⁶¹⁷
- Plane : TheZ⁴⁶¹⁸
- Polygon : FontSize⁴⁶¹⁹
- Polygon : ID⁴⁶²⁰
- Polygon : Points⁴⁶²¹
- Polygon : StrokeWidth⁴⁶²²
- Polyline : FontSize⁴⁶²³
- Polyline : ID⁴⁶²⁴

⁴⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

⁴⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁴⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

⁴⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

- Polyline : Points⁴⁶²⁵
- Polyline : StrokeWidth⁴⁶²⁶
- ROI : ID⁴⁶²⁷
- Rectangle : FontSize⁴⁶²⁸
- Rectangle : Height⁴⁶²⁹
- Rectangle : ID⁴⁶³⁰
- Rectangle : StrokeWidth⁴⁶³¹
- Rectangle : Width⁴⁶³²
- Rectangle : X⁴⁶³³
- Rectangle : Y⁴⁶³⁴
- TransmittanceRange : CutIn⁴⁶³⁵
- TransmittanceRange : CutOut⁴⁶³⁶

Total supported: 101

Total unknown or missing: 374

⁴⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

⁴⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁴⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁴⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁴⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

⁴⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁴⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

Symbols

.1sc, 113
.2, 173
.2fl, 188
.3, 173
.4, 173
.acff, 193
.afi, 108
.afm, 178
.aim, 103
.al3d, 104
.am, 105
.amiramesh, 105
.apl, 164
.arf, 111
.avi, 110
.bin, 176
.bip, 147
.bmp, 131, 194
.c01, 118
.cfg, 178
.cr2, 117
.crw, 117
.cxd, 182
.czi, 197
.dat, 143, 167, 190
.dcm, 121
.dicom, 121
.dm2, 127
.dm3, 126
.dti, 191
.dv, 120
.eps, 122
.epsi, 122
.exp, 111
.fdf, 190
.fff, 132
.ffr, 188
.fits, 125
.flex, 123
.fli, 148
.frm, 140
.gel, 105
.gif, 127
.grey, 105
.hdr, 106, 141, 161, 190
.hed, 134
.his, 129
.htd, 109
.html, 191
.hx, 105
.ics, 131
.ids, 131
.img, 106, 116, 124, 134, 143, 161
.ims, 115
.inr, 140
.ipl, 141
.ipm, 142
.ipw, 134
.jp2, 144
.jpg, 131, 144, 188
.jpk, 145
.jpx, 146
.l2d, 152
.labels, 105
.lei, 149
.lif, 150
.liff, 136
.lim, 153
.lsm, 198
.mdb, 198
.mea, 123
.mnc, 156
.mng, 158
.mod, 135
.mov, 179
.mrc, 159
.mrw, 157
.msr, 138, 148
.mtb, 164
.mvd2, 192
.naf, 128
.nd, 154
.nd2, 163
.ndpi, 129
.nef, 160
.nhdr, 163
.nrrd, 163
.obf, 138
.obsep, 164
.oib, 165
.oif, 165
.ome, 169
.ome.tiff, 168
.par, 143
.pcoraw, 170
.pcx, 171
.pds, 172

.pgm, 174
 .pic, 113
 .pict, 176
 .png, 107, 177
 .pnl, 109
 .pr3, 189
 .ps, 122
 .psd, 174
 .r3d, 120
 .raw, 113, 137, 163
 .rec, 170
 .res, 123
 .scn, 114, 151, 152
 .sdt, 112
 .seq, 133
 .sld, 102, 188
 .sm2, 180
 .sm3, 180
 .spi, 184
 .stk, 154, 184
 .stp, 158
 .svs, 108
 .sxm, 152
 .tfr, 188
 .tga, 185
 .tif, 103, 111, 119, 131, 137, 139, 149, 152, 155, 156, 160, 164, 166, 167, 173, 175, 178, 186, 188
 .tiff, 124, 154, 161, 162, 167, 172, 175, 183, 196
 .tnb, 164
 .top, 170
 .txt, 131, 156, 163, 186
 .v, 122
 .vms, 130
 .vsi, 118
 .vws, 187
 .wat, 194
 .wlz, 195
 .xdce, 139
 .xml, 113, 119, 156, 167, 172, 178, 196
 .xqd, 182
 .xqf, 182
 .xv, 146
 .xys, 191
 .zfp, 188
 .zfr, 188
 .zvi, 196
 3i SlideBook, 102

A

Adobe Photoshop PSD, 174
 AIM, 103
 Alicona 3D, 104
 Amersham Biosciences Gel, 105
 Amira Mesh, 105
 Analyze 7.5, 106
 Andor Bio-Imaging Division (ABD) TIFF, 103
 Animated PNG, 107
 Aperio AFI, 108
 Aperio SVS TIFF, 108
 Applied Precision CellWorX, 109
 AVI (Audio Video Interleave), 110

Axon Raw Format, 111

B

BD Pathway, 111
 Becker & Hickl SPCImage, 112
 BF_DEVEL, 39
 bfconvert, **38**
 Bio-Rad Gel, 113
 Bio-Rad PIC, 113
 Bio-Rad SCN, 114
 Bitplane Imaris, 115
 Bruker MRI, 116
 BSD, **102**
 Burleigh, 116

C

Canon DNG, 117
 Cellomics, 118
 cellSens VSI, 118
 CellVoyager, 119
 CLASSPATH, 62

D

DeltaVision, 120
 DICOM, 121

E

ECAT7, 122
 environment variable
 BF_DEVEL, 39
 CLASSPATH, 62
 PYTHONPATH, 60
 EPS (Encapsulated PostScript), 122
 Evotec/PerkinElmer Opera Flex, 123
 Export, **102**

F

FEI, 124
 FEI TIFF, 124
 FITS (Flexible Image Transport System), 125
 formatlist, **38**

G

Gatan Digital Micrograph, 126
 Gatan Digital Micrograph 2, 127
 GIF (Graphics Interchange Format), 127

H

Hamamatsu Aquacosmos NAF, 128
 Hamamatsu HIS, 129
 Hamamatsu ndpi, 129
 Hamamatsu VMS, 130
 Hitachi S-4800, 131

I

ICS (Image Cytometry Standard), 131
 ijview, **38**
 Imacon, 132
 ImagePro Sequence, 133
 ImagePro Workspace, 134

IMAGIC, 134
 IMOD, 135
 Improvion Openlab LIFF, 136
 Improvion Openlab Raw, 137
 Improvion TIFF, 137
 Inspector OBF, 138
 InCell 1000, 139
 InCell 3000, 140
 INR, 140
 Inveon, 141
 IPLab, 141
 IPLab-Mac, 142

J

JEOL, 143
 JPEG, 144
 JPEG 2000, 144
 JPK, 145
 JPX, 146

K

Khoros VIFF (Visualization Image File Format) Bitmap, 146
 Kodak BIP, 147

L

Lambert Instruments FLIM, 148
 LaVision Inspector, 148
 Leica LAS AF LIF (Leica Image File Format), 150
 Leica LCS LEI, 149
 Leica SCN, 151
 LEO, 152
 Li-Cor L2D, 152
 LIM (Laboratory Imaging/Nikon), 153

M

Metadata, **102**
 MetaMorph 7.5 TIFF, 154
 MetaMorph Stack (STK), 154
 MIAS (Maia Scientific), 155
 Micro-Manager, 156
 MINC MRI, 156
 Minolta MRW, 157
 MNG (Multiple-image Network Graphics), 158
 Molecular Imaging, 158
 MRC (Medical Research Council), 159

N

NEF (Nikon Electronic Format), 160
 NIFTI, 161
 Nikon Elements TIFF, 161
 Nikon EZ-C1 TIFF, 162
 Nikon NIS-Elements ND2, 163
 NRRD (Nearly Raw Raster Data), 163

O

Olympus CellIR/APL, 164
 Olympus FluoView FV1000, 165
 Olympus FluoView TIFF, 166
 Olympus ScanR, 167
 Olympus SIS TIFF, 167

OME-TIFF, 168
 OME-XML, 169
 Openness, **102**
 Oxford Instruments, 170

P

PCORAW, 170
 PCX (PC Paintbrush), 171
 Perkin Elmer Densitometer, 172
 PerkinElmer Operetta, 172
 PerkinElmer UltraView, 173
 PGM (Portable Gray Map), 174
 Photoshop TIFF, 175
 PicoQuant Bin, 176
 PICT (Macintosh Picture), 176
 Pixels, **102**
 PNG (Portable Network Graphics), 177
 Prairie Technologies TIFF, 178
 Presence, **102**
 PYTHONPATH, 60

Q

Quesant, 178
 QuickTime Movie, 179

R

Ratings legend and definitions, **101**
 RHK, 180

S

SBIG, 181
 Seiko, 182
 showinf, **38**
 SimplePCI & HCImage, 182
 SimplePCI & HCImage TIFF, 183
 SM Camera, 184
 SPIDER, 184

T

Targa, 185
 Text, 186
 TIFF (Tagged Image File Format), 186
 tiffcomment, **38**
 TillPhotonics TillVision, 187
 Topometrix, 188
 Trestle, 188

U

UBM, 189
 Unisoku, 190
 Utility, **102**

V

Varian FDF, 190
 VG SAM, 191
 VisiTech XYS, 191
 Volocity, 192
 Volocity Library Clipping, 193

W

WA-TOP, 194

Windows Bitmap, [194](#)

Woolz, [195](#)

X

xmlindent, [38](#)

xmlvalid, [38](#)

Z

Zeiss AxioVision TIFF, [196](#)

Zeiss AxioVision ZVI (Zeiss Vision Image), [196](#)

Zeiss CZI, [197](#)

Zeiss LSM (Laser Scanning Microscope) 510/710, [198](#)