



Bio-Formats Documentation

Release 5.0.2

The Open Microscopy Environment

May 27, 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	25
5	Using Bio-Formats with ImageJ and Fiji	26
5.1	ImageJ overview	26
5.2	Fiji overview	27
5.3	Bio-Formats features in ImageJ and Fiji	27
5.4	Installing Bio-Formats in ImageJ	28
5.5	Using Bio-Formats to load images into ImageJ	30
5.6	Managing memory in ImageJ/Fiji using Bio-Formats	33
6	Command line tools	37
6.1	Command line tools introduction	37
6.2	Displaying images and metadata	38
6.3	Converting a file to different format	39
6.4	Validating XML in an OME-TIFF	40
6.5	Editing XML in an OME-TIFF	41
7	OMERO	42
8	Image server applications	43
8.1	BISQUE	43
8.2	OME Server	43
9	Libraries and scripting applications	46
9.1	FARSIGHT	46
9.2	i3dcore	46
9.3	ImgLib	46
9.4	ITK	47
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	53
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 Generating test images	59
13 Bio-Formats as a Java library	61
13.1 API documentation	61
13.2 Examples	62
14 Interfacing from non-Java code	72
14.1 Interfacing with Bio-Formats from non-Java code	72
14.2 Bio-Formats C++ bindings	72
14.3 Build instructions for C++ bindings	72
14.4 Building C++ bindings in Windows	74
14.5 Building C++ bindings in Mac OS X	75
14.6 Building C++ bindings in Linux	76
15 Writing new Bio-Formats file format readers	77
15.1 Bio-Formats file format reader guide	77
16 Contributing to Bio-Formats	81
16.1 Developing Bio-Formats	81
16.2 Testing individual commits (internal developers)	82
16.3 Public test data	83
16.4 Bio-Formats service and dependency infrastructure	86
16.5 Code generation with xsd-fu	88
IV Formats	92
17 Dataset Structure Table	94
17.1 Flex Support	97
18 Supported Formats	98
18.1 3i SlideBook	103
18.2 Andor Bio-Imaging Division (ABD) TIFF	104
18.3 AIM	104
18.4 Alicona 3D	105
18.5 Amersham Biosciences Gel	106
18.6 Amira Mesh	106
18.7 Analyze 7.5	107
18.8 Animated PNG	108
18.9 Aperio AFI	109
18.10 Aperio SVS TIFF	109

18.11 Applied Precision CellWorX	110
18.12 AVI (Audio Video Interleave)	111
18.13 Axon Raw Format	112
18.14 BD Pathway	112
18.15 Becker & Hickl SPCImage	113
18.16 Bio-Rad Gel	114
18.17 Bio-Rad PIC	114
18.18 Bio-Rad SCN	115
18.19 Bitplane Imaris	116
18.20 Bruker MRI	117
18.21 Burleigh	117
18.22 Canon DNG	118
18.23 Cellomics	119
18.24 cellSens VSI	119
18.25 CellVoyager	120
18.26 DeltaVision	120
18.27 DICOM	121
18.28 ECAT7	123
18.29 EPS (Encapsulated PostScript)	123
18.30 Evotec/PerkinElmer Opera Flex	124
18.31 FEI	125
18.32 FEI TIFF	125
18.33 FITS (Flexible Image Transport System)	126
18.34 Gatan Digital Micrograph	127
18.35 Gatan Digital Micrograph 2	127
18.36 GIF (Graphics Interchange Format)	128
18.37 Hamamatsu Aquacosmos NAF	129
18.38 Hamamatsu HIS	130
18.39 Hamamatsu ndpi	130
18.40 Hamamatsu VMS	131
18.41 Hitachi S-4800	132
18.42 ICS (Image Cytometry Standard)	132
18.43 Imacon	133
18.44 ImagePro Sequence	134
18.45 ImagePro Workspace	135
18.46 IMAGIC	135
18.47 IMOD	136
18.48 Improvion Openlab LIFF	137
18.49 Improvion Openlab Raw	138
18.50 Improvion TIFF	138
18.51 Imspector OBF	139
18.52 InCell 1000	140
18.53 InCell 3000	141
18.54 INR	141
18.55 Inveon	142
18.56 IPLab	142
18.57 IPLab-Mac	143
18.58 JEOL	144
18.59 JPEG	145
18.60 JPEG 2000	145
18.61 JPK	146
18.62 JPX	147
18.63 Khoros VIFF (Visualization Image File Format) Bitmap	147
18.64 Kodak BIP	148
18.65 Lambert Instruments FLIM	149
18.66 LaVision Imspector	150
18.67 Leica LCS LEI	150
18.68 Leica LAS AF LIF (Leica Image File Format)	151
18.69 Leica SCN	152
18.70 LEO	153
18.71 Li-Cor L2D	153

18.72 LIM (Laboratory Imaging/Nikon)	154
18.73 MetaMorph 7.5 TIFF	155
18.74 MetaMorph Stack (STK)	155
18.75 MIAS (Maia Scientific)	156
18.76 Micro-Manager	157
18.77 MINC MRI	157
18.78 Minolta MRW	158
18.79 MNG (Multiple-image Network Graphics)	159
18.80 Molecular Imaging	160
18.81 MRC (Medical Research Council)	160
18.82 NEF (Nikon Electronic Format)	161
18.83 NIFTI	162
18.84 Nikon Elements TIFF	163
18.85 Nikon EZ-C1 TIFF	163
18.86 Nikon NIS-Elements ND2	164
18.87 NRRD (Nearly Raw Raster Data)	165
18.88 Olympus CellR/APL	165
18.89 Olympus FluoView FV1000	166
18.90 Olympus FluoView TIFF	167
18.91 Olympus ScanR	168
18.92 Olympus SIS TIFF	168
18.93 OME-TIFF	169
18.94 OME-XML	170
18.95 Oxford Instruments	171
18.96 PCORAW	171
18.97 PCX (PC Paintbrush)	172
18.98 Perkin Elmer Densitometer	173
18.99 PerkinElmer Operetta	173
18.100PerkinElmer UltraView	174
18.101PGM (Portable Gray Map)	175
18.102Adobe Photoshop PSD	175
18.103Photoshop TIFF	176
18.104PICT (Macintosh Picture)	177
18.105PNG (Portable Network Graphics)	177
18.106Prairie Technologies TIFF	178
18.107Quesant	179
18.108QuickTime Movie	179
18.109RHK	181
18.110SBIG	182
18.111Seiko	182
18.112SimplePCI & HImage	183
18.113SimplePCI & HImage TIFF	184
18.114SM Camera	184
18.115SPIDER	185
18.116Targa	186
18.117Text	186
18.118TIFF (Tagged Image File Format)	187
18.119TillPhotonics TillVision	188
18.120Topometrix	188
18.121Trestle	189
18.122UBM	190
18.123Unisoku	190
18.124Varian FDF	191
18.125VG SAM	192
18.126VisiTech XYS	192
18.127Volocity	193
18.128Volocity Library Clipping	194
18.129WA-TOP	194
18.130Windows Bitmap	195
18.131Woolz	196
18.132Zeiss AxioVision TIFF	196

18.133	Zeiss AxioVision ZVI (Zeiss Vision Image)	197
18.134	Zeiss CZI	198
18.135	Zeiss LSM (Laser Scanning Microscope) 510/710	199
19	Summary of supported metadata fields	201
19.1	Format readers	201
19.2	Metadata fields	204
Index		424
Index		425

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/>

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 5.0.2 (2014 May 28)

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

4.1.2 5.0.1 (2014 Apr 7)

- Added image pyramid support for CellSens .vsi data
- **Several bug fixes, including:**
 - Woolz import into OMERO
 - Celloomics 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)

4.1.3 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

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

- 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*

4.1.4 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

4.1.5 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

4.1.6 4.4.10 (2014 Jan 15)

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

4.1.7 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

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

4.1.8 4.4.8 (2013 May 2)

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

4.1.9 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.

4.1.10 4.4.6 (2013 February 11)

- Many bug fixes
- Further documentation improvements

4.1.11 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

4.1.12 4.4.4 (2012 September 24)

- Many bug fixes

4.1.13 4.4.2 (2012 August 22)

- Security fix for OMERO plugins for ImageJ

4.1.14 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

4.1.15 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

4.1.16 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

4.1.17 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

4.1.18 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

4.1.19 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

4.1.20 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

4.1.21 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

4.1.22 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

4.1.23 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

4.1.24 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

4.1.25 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

4.1.26 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

4.1.27 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

4.1.28 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

4.1.29 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

4.1.30 2008 Feb 12

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

4.1.31 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

4.1.32 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

4.1.33 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

4.1.34 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

4.1.35 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

4.1.36 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

4.1.37 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

4.1.38 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

4.1.39 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

4.1.40 2007 July 16

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

4.1.41 2007 July 2

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

4.1.42 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

4.1.43 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

4.1.44 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

4.1.45 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

4.1.46 2007 Mar 16

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

4.1.47 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

4.1.48 2007 Feb 28

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

4.1.49 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

4.1.50 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

4.1.51 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

4.1.52 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

4.1.53 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

4.1.54 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

4.1.55 2006 Oct 31

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

4.1.56 2006 Oct 30

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

4.1.57 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

4.1.58 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

4.1.59 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

4.1.60 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

4.1.61 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/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/>

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/v5.0.2/components/bio-formats-plugins/utils/macros/basicMetadata.txt>

⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/planeTimings.txt>

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/recursiveTiffConvert.txt>

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/bfOpenAsHyperstack.txt>

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/zvi2HyperStack.txt>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/dvSplitTimePoints.txt>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/macros/batchTiffConvert.txt>

¹⁵https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utils/Read_Image.java

¹⁶https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/>

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.

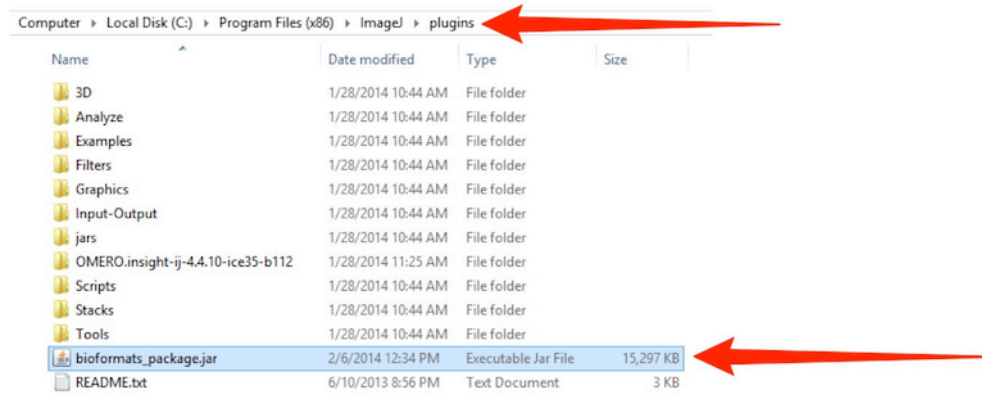
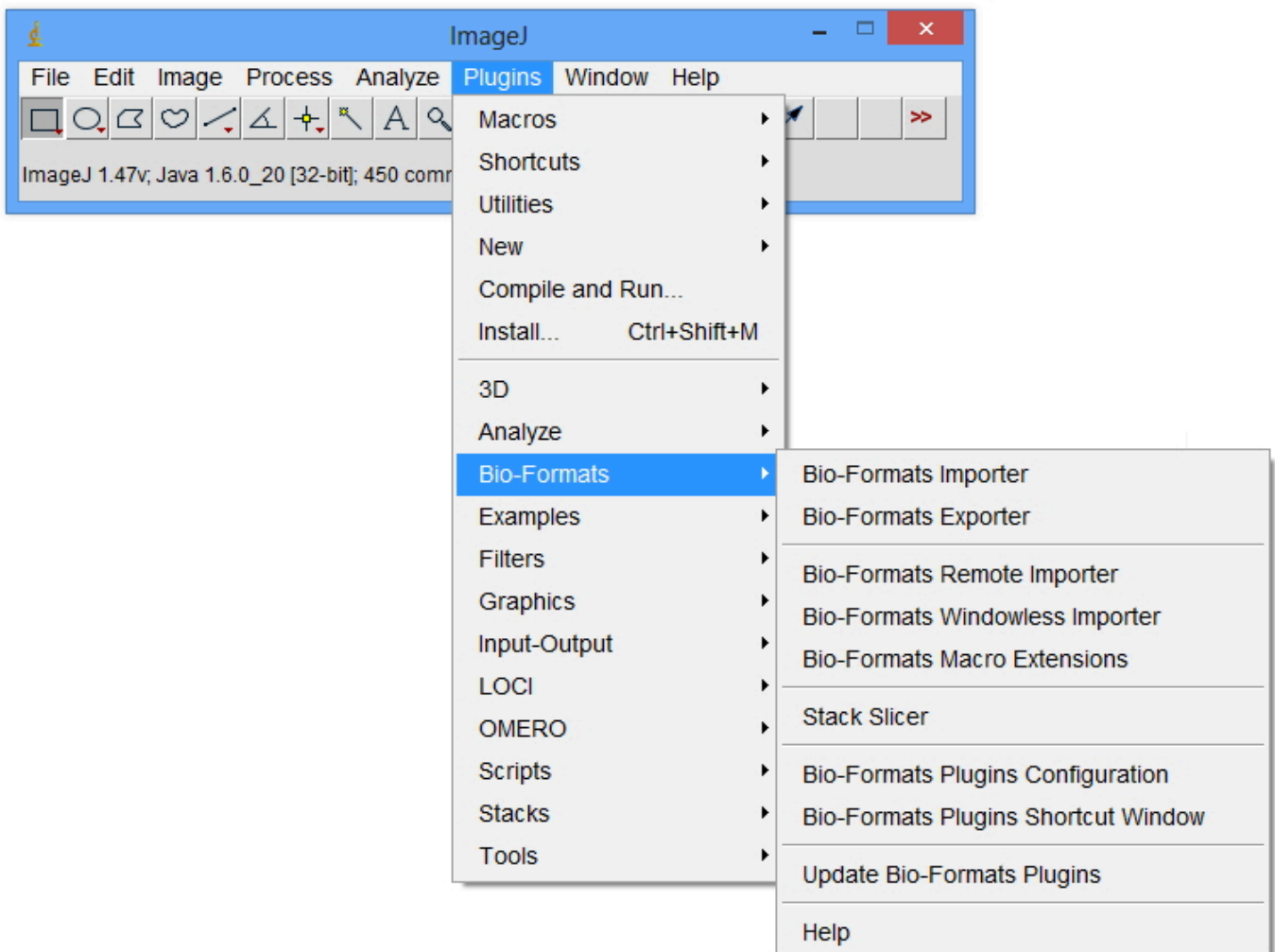


Figure 5.1: Plugin Directory for ImageJ: Where in ImageJ's file structure you should place the file once you downloaded it.

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/>

You are now ready to start using Bio-Formats.

5.5 Using Bio-Formats to load images into ImageJ

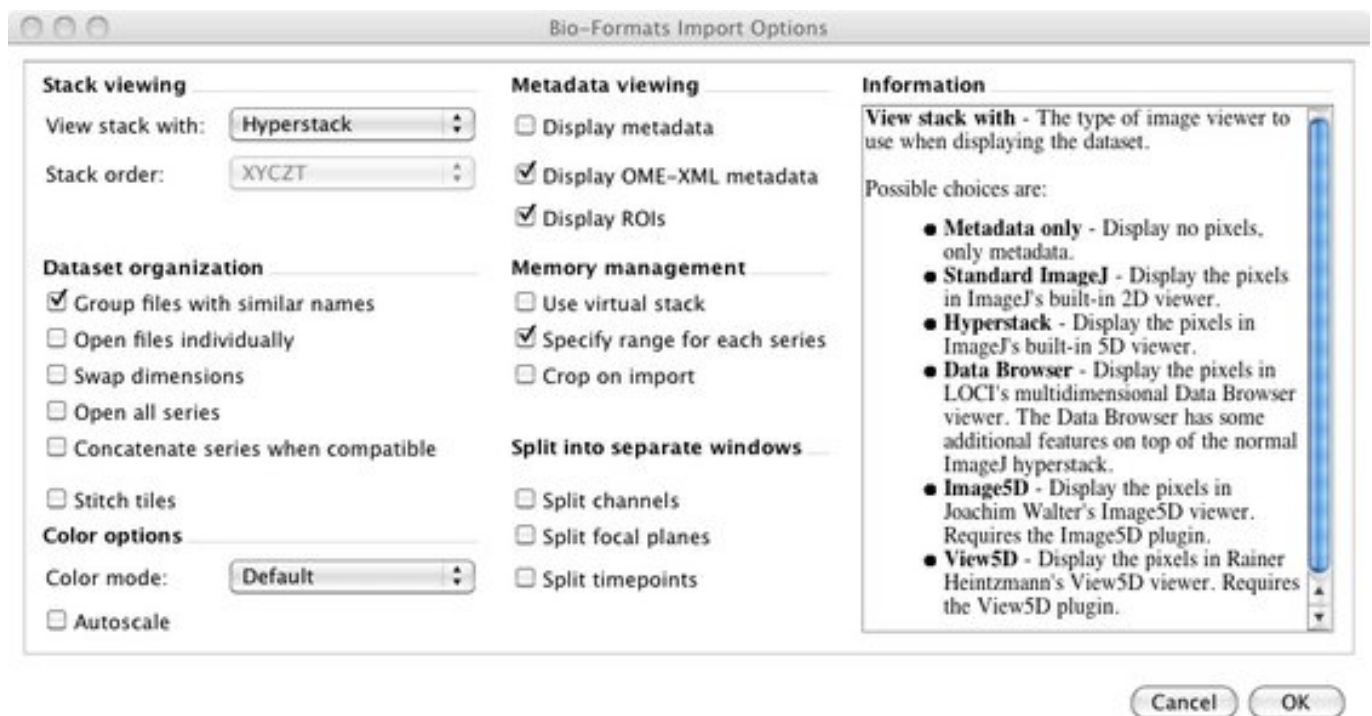
This section will explain how to use Bio-Formats to import files into ImageJ and how to use the settings on the Bio-Formats Import Options screen.

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”.

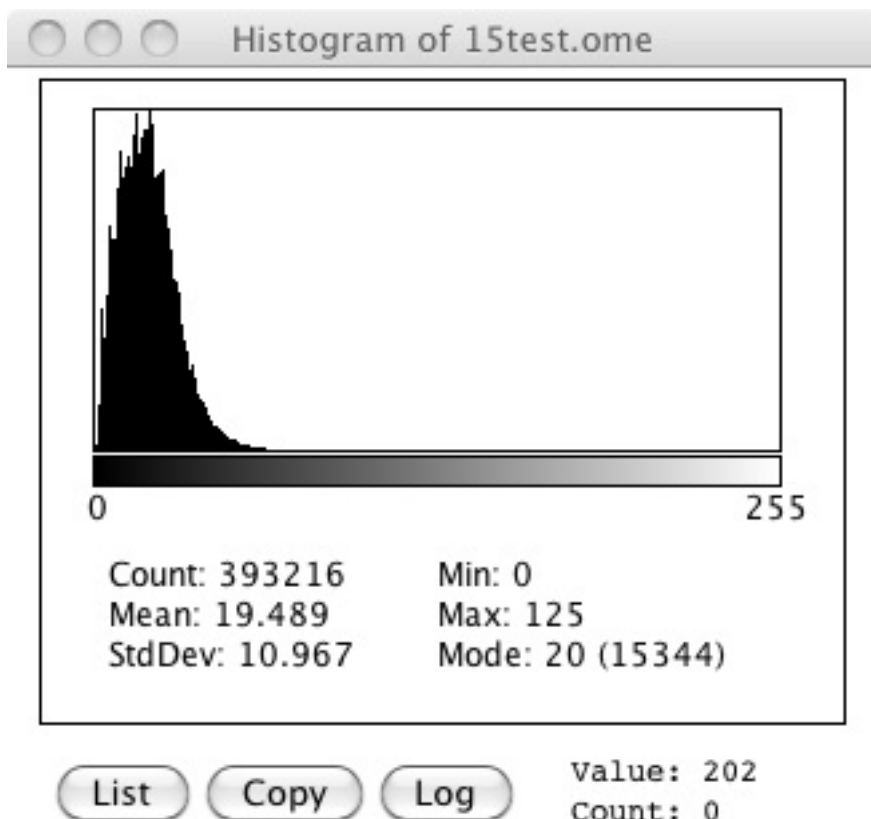
It can also accept a [Java regular expression](#)²⁸.

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:

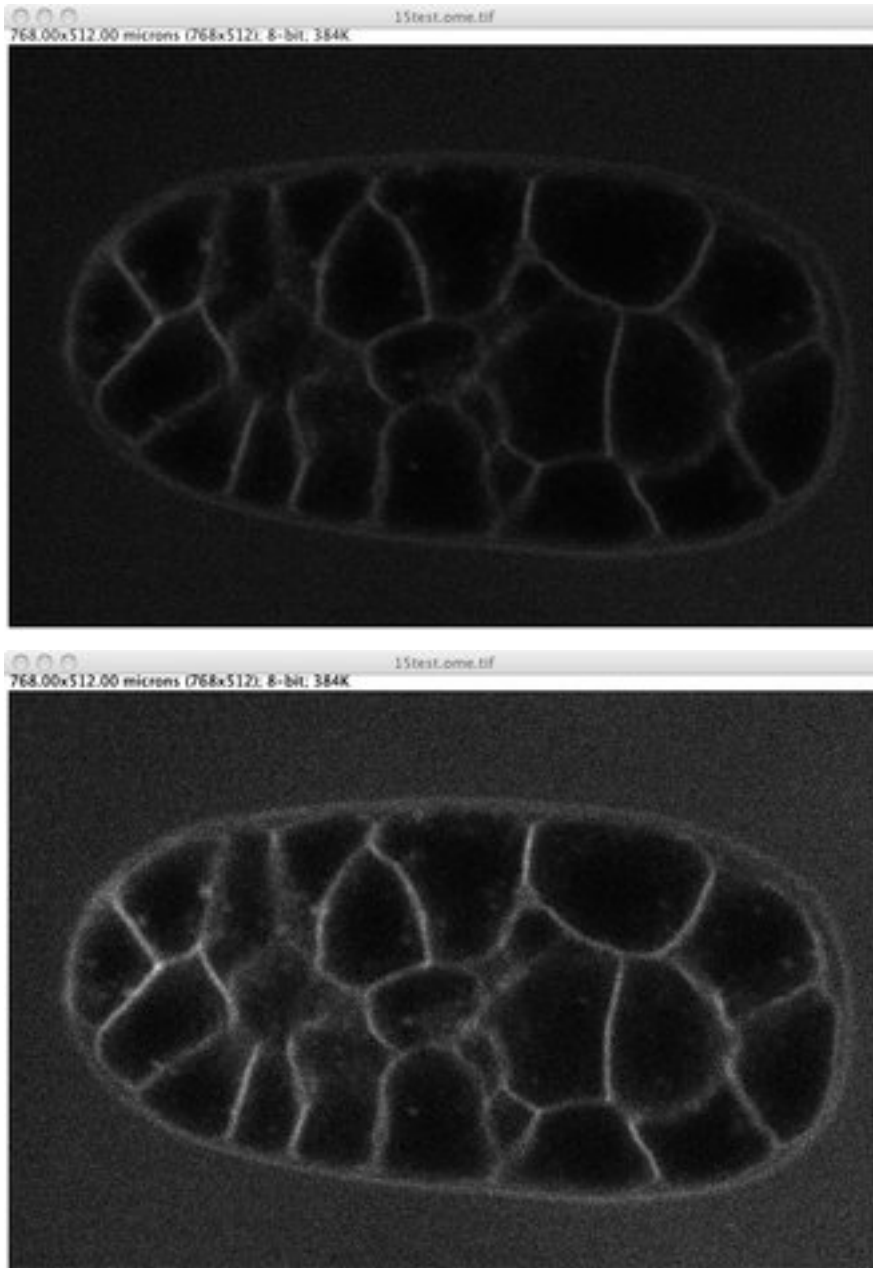


Notice that the histogram heavily skews right. Even though there are 256 possible values, only 0 through 125 are being used.

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:

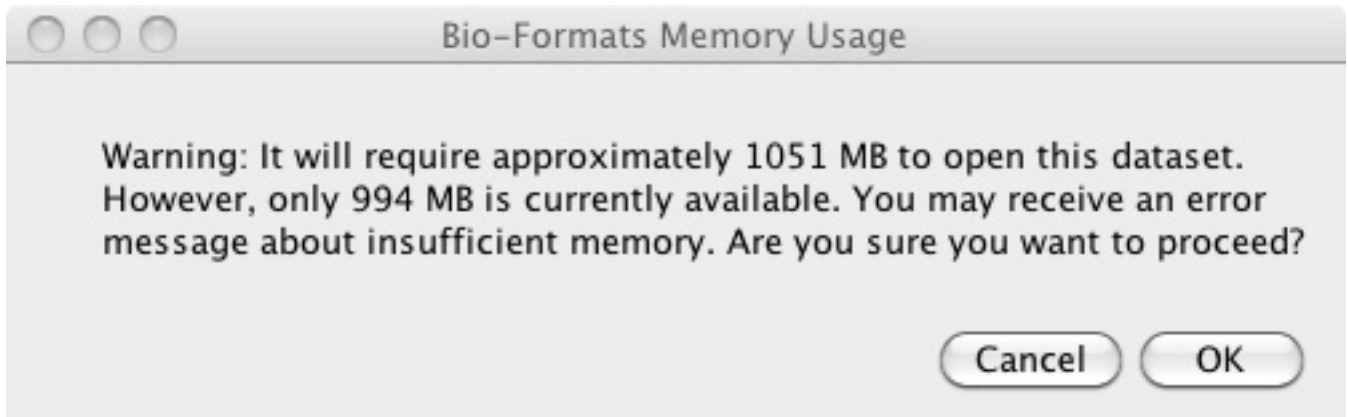


Autoscale readjusts the image based on the highest value in the entire data set. This means if the highest value in your dataset is close to maximum display value, Autoscale's adjusting may be undetectable to the eye.

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:

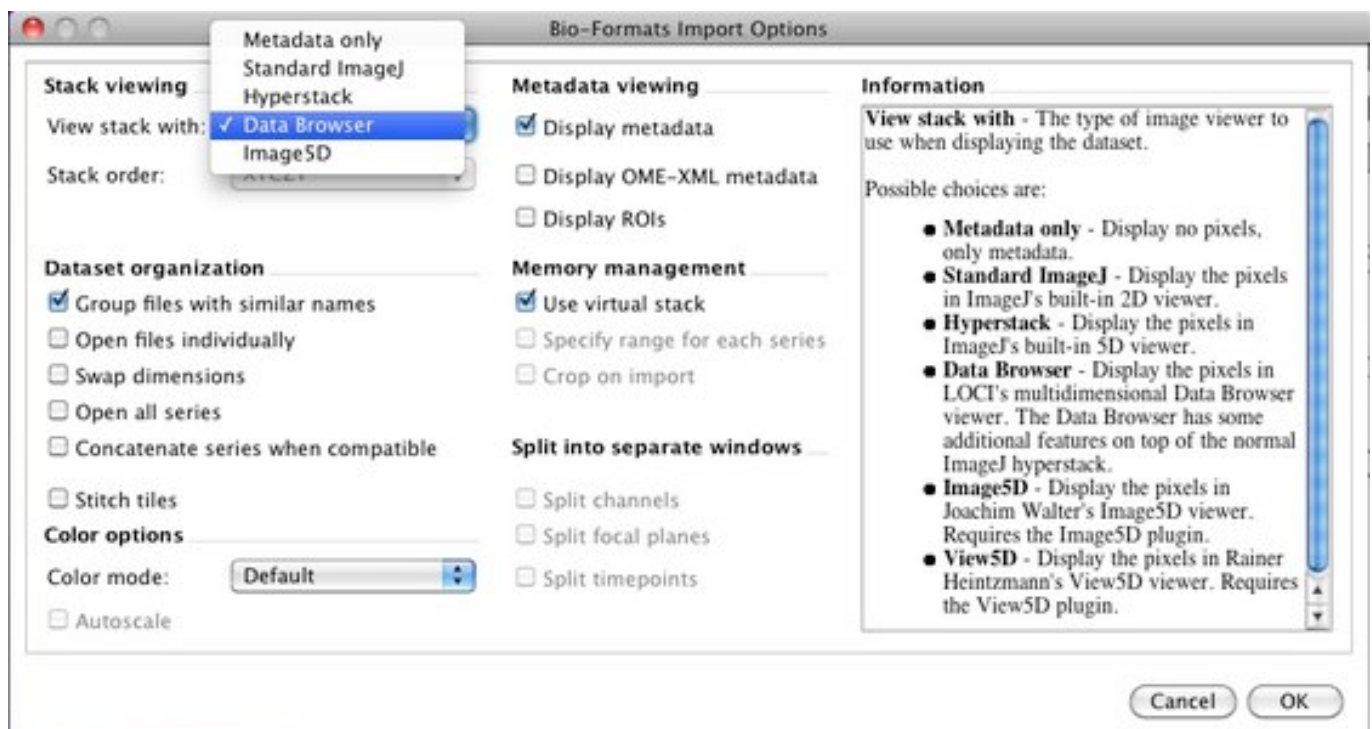
- View your stack with Data Browser
- Crop the view area
- Open only a subset of images
- Use Virtual Stack
- Increase ImageJ/Fiji's memory.

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.

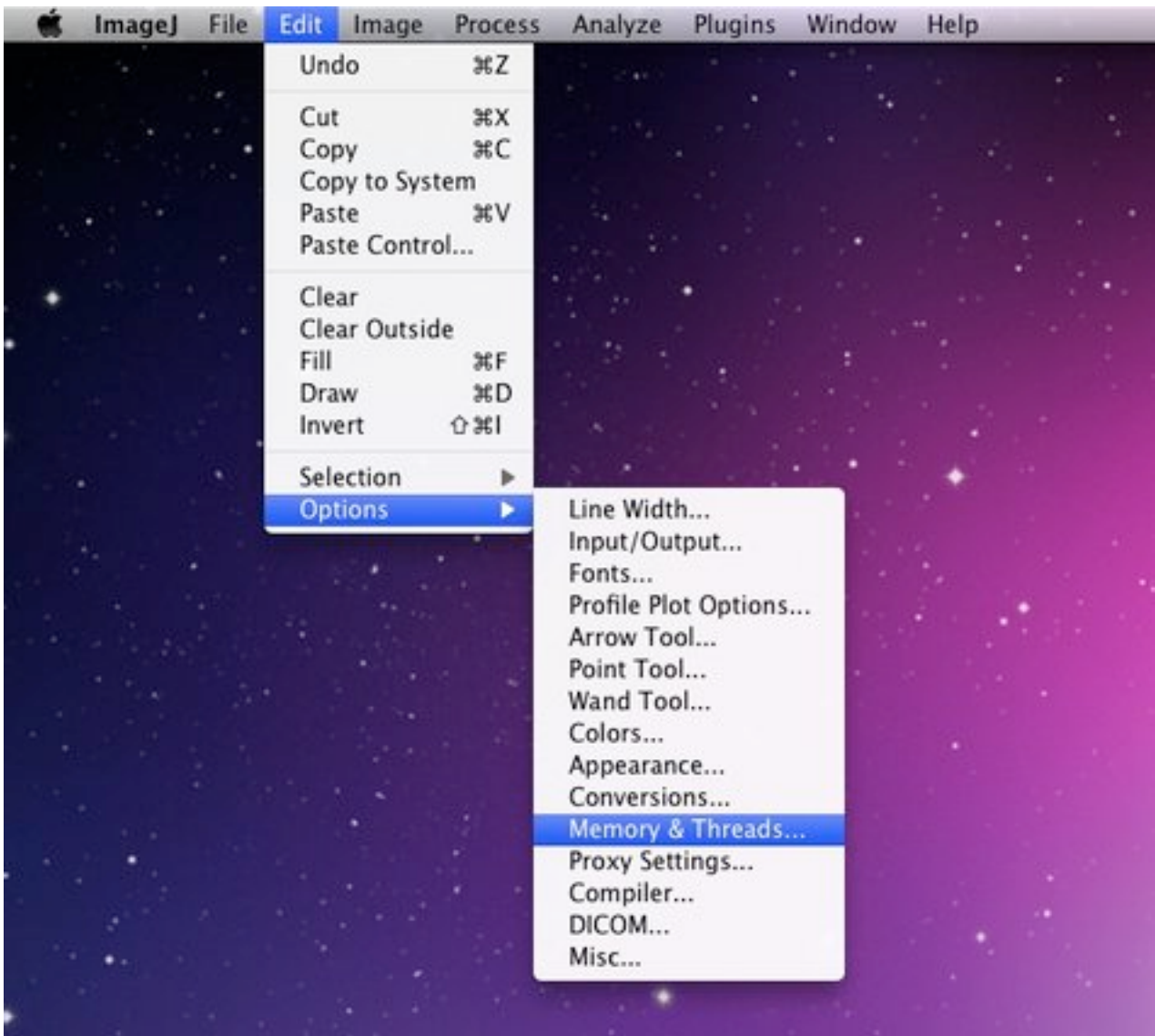
5.6.4 Use Virtual Stack

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/artifacts/bftools.zip>

6.1.3 Using the tools directly from source

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

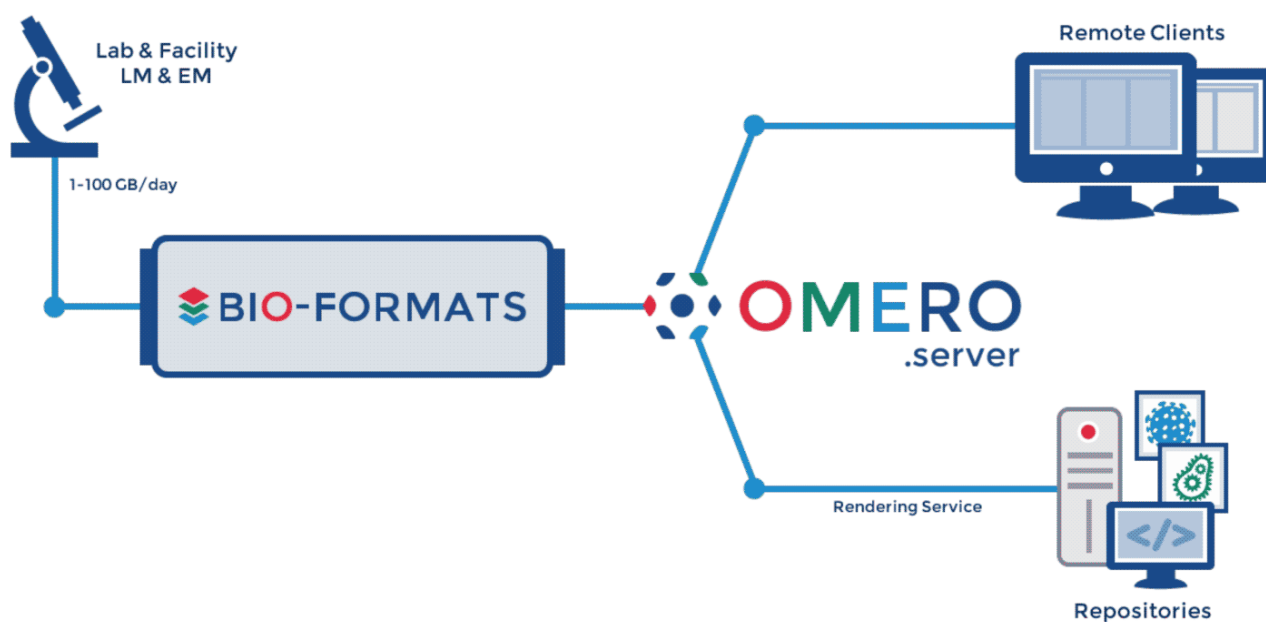
```
tiffcomment sample.ome.tif
```

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/>

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 SCIFIO¹⁵ 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 for ITK `imageIO` base that uses `Bio-Formats`¹⁹ 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.

9.4.1 Prerequisites

You should have `CMake`²⁰ installed, to allow the configuration of ITK builds. If you want the latest ITK development build, you will need `Git`²¹ as well.

9.4.2 Installation

Simply download ITK from the [Kitware software page](#)²². Using `CMake`, set the following configuration flag:

```
Module_SCIFIO = ON
```

Note: This flag is only visible in “advanced” mode within `CMake`

If you would like to use the utility classes included with the SCIFIO `imageIO`, also set the flag:

```
BUILD_TESTING = ON
```

Then build ITK as normal. It will automatically download and build the latest SCIFIO `imageIO` plugin.

9.4.3 Usage

Applications using the installed ITK should automatically defer to the SCIFIO `ImageIO`, and thus Bio-Formats, when reading or saving images not natively supported by ITK.

To use the SCIFIO test utility, run:

```
SCIFIOTestDriver
```

¹⁵<http://scif.io/>

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

¹⁷<http://itk.org/>

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

¹⁹<http://farsight-toolkit.org/wiki/Bio-Formats>

²⁰<http://www.cmake.org/>

²¹<http://git-scm.com/>

²²<http://www.itk.org/ITK/resources/software.html>

from your `${ITK_BUILD}/bin` directory. This program has four separate applications that can be directly invoked using the syntax:

```
SCIFIOTestDriver [Program to run] [Program arguments]
```

The programs are as follows:

itkSCIFIOImageInfoTest Displays basic information to verify the SCIFIO imageIO works, using .fake images.

itkSCIFIOImageIOTest Reads an input image, and writes it out as a specified type

itkRGBSCIFIOImageTest Same as itkSCIFIOImageIOTest but for RGB²³ types

itkVectorImageSCIFIOImageIOTest Same as itkSCIFIOImageIOTest but for VectorImage²⁴ type

For example, to convert a .czi image to a .tif, you would use:

```
SCIFIOTestDriver itkSCIFIOImageIOTest in.czi out.tif
```

9.4.4 Troubleshooting

Please send any issues, suggestions or requests to the [insight users mailing list](#)²⁵.

9.5 Qu for MATLAB

Qu for MATLAB²⁶ 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](#)²⁷

9.6 Subimager

Subimager²⁸, 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](#)²⁹ to facilitate integration with their [CellProfiler](#)³⁰ image analysis application.

²³http://www.itk.org/Doxygen/html/classitk_1_1IRGBPixel.html

²⁴http://www.itk.org/Doxygen/html/classitk_1_1VectorImage.html

²⁵<http://www.itk.org/ITK/help/mailling.html>

²⁶http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55

²⁷http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55&limitstart=3

²⁸<https://github.com/CellProfiler/subimager>

²⁹<http://www.broadinstitute.org/>

³⁰<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/>

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/v5.0.2/components/formats-gpl/matlab>

10.3.1 Installation

Download the MATLAB toolbox from the Bio-Formats [downloads page](#)⁹. Unzip `bformatlab.zip` and add the unzipped `bformatlab` 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 `bformatlab` 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/>

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

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/artifacts/bioformats_package.jar

¹⁴<http://downloads.openmicroscopy.org/latest/bio-formats5/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 Institute*⁵'s *Imaging Platform*⁶—is free open-source software designed to enable biologists without training in computer vision or programming to quantitatively measure phenotypes from thousands of images automatically. CellProfiler uses Bio-Formats to read images from disk, as well as write movies.

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.

See also:

Comstat2 - a modern 3D image analysis environment for biofilms⁹

11.4 Endrov

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

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`¹³ and putting it into the `libs` folder of the EV distribution, overwriting the old file.

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

11.5 FocalPoint

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

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-Formats¹⁷ 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.

⁸<http://www.comstat.dk/>

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

¹⁰<https://github.com/mahogny/Endrov>

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

¹²<http://www.ki.se/>

¹³<http://downloads.openmicroscopy.org/latest/bio-formats5/artifacts/formats-gpl.jar>

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

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

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

¹⁷<http://downloads.openmicroscopy.org/latest/bio-formats5/>

11.6 Graphic Converter

Graphic Converter¹⁸ 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.

11.7 Icy

Icy¹⁹ 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 imago²⁰ is an advanced desktop image management package that enables scientists to easily store, manage, search, and analyze 5D biological images and their analysis results. imago integrates flexible annotation and metadata management with advanced image analysis tools.

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

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

11.9 Iqm

Iqm²² 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

Macnification²³ is a Mac OS X application for organizing, editing, analyzing and annotating microscopic images, designed for ease of use. It is being developed by **Orbicule**²⁴.

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

See also:

[Free trial download](#)²⁵

11.11 MIPAV

The **MIPAV**²⁶ (Medical Image Processing, Analysis, and Visualization) application—developed at the **Center for Information Technology**²⁷ at the **National Institutes of Health**²⁸—enables quantitative analysis and visualization of medical images of numerous

¹⁸<http://www.lemkesoft.com>

¹⁹<http://icy.bioimageanalysis.org/>

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

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

²²<http://code.google.com/p/iqm/>

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

²⁴<http://www.orbicule.com>

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

²⁶<http://mipav.cit.nih.gov/>

²⁷<http://cit.nih.gov/>

²⁸<http://nih.gov/>

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.

11.11.1 Installation

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

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

```
cd mipav/plugins
javac -cp $MIPAV:$MIPAV/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](#)³¹ for more information.

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

11.12 Vaa3D

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

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

11.13 VisBio

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

11.13.1 Installation

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

²⁹http://downloads.openmicroscopy.org/latest/bio-formats5/artifacts/bioformats_package.jar

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/utills/mipav/PlugInBioFormatsImporter.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/utills/mipav/readme.txt>

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

³³<http://vaa3d.org>

³⁴<http://penglab.janelia.org/>

³⁵<http://www.hhmi.org/janelia/>

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

³⁷<http://loci.wisc.edu/software/visbio>

11.13.2 Upgrading

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

11.14 XuvTools

[XuvTools](#)³⁹ is automated 3D stitching software for biomedical image data. As of release 1.8.0, XuvTools uses Bio-Formats to read image data.

³⁸<http://downloads.openmicroscopy.org/latest/bio-formats5/>

³⁹<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 on the *source code page*, rather than using an official release. It is also recommended that you have a copy of the *Javadocs*¹ nearby - the notes that follow will make more sense when you see the API.

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

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

12.1.2 Basic file reading

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

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

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

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

- image width (*getSizeX()*⁷)
- image height (*getSizeY()*⁸)
- number of series per file (*getSeriesCount()*⁹)
- total number of images per series (*getImageCount()*¹⁰)
- number of slices in the current series (*getSizeZ()*¹¹)
- number of timepoints in the current series (*getSizeT()*¹²)

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

² <https://github.com/openmicroscopy/bioformats/tree/v5.0.2/components/formats-gpl/utis>

³ <https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/IFormatReader.java>

⁴ <https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/ImageReader.java>

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

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

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

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

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

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

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

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

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

All file formats are guaranteed to accurately report core metadata.

Format-specific metadata refers to any other data specified in the file - this includes acquisition and hardware parameters, among other things. This data is stored internally in a **java.util.Hashtable**, and can be accessed in one of two ways: individual values can be retrieved by calling `getMetadataValue(String)`²⁰, which gets the value of the specified key. 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.

12.1.3 File reading extras

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

- There are a few “wrapper” readers (that implement `IFormatReader`) that take a reader in the constructor, and manipulate the results somehow, for convenience. Using them is similar to the `java.io.InputStream/OutputStream` model: just layer whichever functionality you need by nesting the wrappers.
 - `BufferedImageReader`²¹ extends `IFormatReader`, and allows pixel data to be returned as `BufferedImages` instead of raw byte arrays.
 - `FileStitcher`²² extends `IFormatReader`, and uses advanced pattern matching heuristics to group files that belong to the same dataset.
 - `ChannelSeparator`²³ extends `IFormatReader`, and makes sure that all planes are grayscale - RGB images are split into 3 separate grayscale images.
 - `ChannelMerger`²⁴ extends `IFormatReader`, and merges grayscale images to RGB if the number of channels is greater than 1.
 - `ChannelFiller`²⁵ extends `IFormatReader`, and converts indexed color images to RGB images.
 - `MinMaxCalculator`²⁶ extends `IFormatReader`, and provides an API for retrieving the minimum and maximum pixel values for each channel.
 - `DimensionSwapper`²⁷ extends `IFormatReader`, and provides an API for changing the dimension order of a file.
- `ImageTools`²⁸ and `loci.formats.gui.AWTImageTools`²⁹ provide a number of methods for manipulating `BufferedImages` and primitive type arrays. In particular, there are methods to split and merge channels in a `BufferedImage/array`, as well as converting to a specific data type (e.g. convert short data to byte data).

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

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

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

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

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

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

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

²⁰[http://downloads.openmicroscopy.org/latest/bio-formats5/api/loci/formats/IFormatReader.html#getMetadataValue\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5/api/loci/formats/IFormatReader.html#getMetadataValue(java.lang.String))

²¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/gui/BufferedImageReader.java>

²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/FileStitcher.java>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/ChannelSeparator.java>

²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/ChannelMerger.java>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/ChannelFiller.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/MinMaxCalculator.java>

²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/DimensionSwapper.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/ImageTools.java>

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/gui/AWTImageTools.java>

12.1.4 Writing files

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

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

The writer API (see [loci.formats.IFormatWriter](#)³⁰) 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](#)³¹ and *this guide to exporting to OME-TIFF files* for examples of how to write files.

12.1.5 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 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:

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/IFormatWriter.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

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`³² for `bfconvert`.

³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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 **SLF4J**² 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 library, OME fork	<code>ome-poi.jar</code> ¹³	Apache	For OLE-based formats (zvi, oib, ipw, cxd)
MDB Tools project ¹⁴ Java port, OME fork	<code>mdbtools-java.jar</code> ¹⁵	LGPL	For Olympus CellR and Zeiss LSM metadata (mdb)
JAI Image I/O Tools ¹⁶ pure Java implementation, OME fork	<code>jai_imageio.jar</code> ¹⁷	BSD	For JPEG2000-based formats (nd2, jp2)
NetCDF Java library ¹⁸	<code>netcdf-4.3.19.jar</code> ¹⁹	LGPL	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/artifacts/formats-gpl.jar>

²<http://slf4j.org/>

³<http://jakarta.apache.org/poi/>

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

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

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

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

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

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

¹⁰<http://downloads.openmicroscopy.org/latest/bio-formats5/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/artifacts/ome-poi.jar>

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

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

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

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

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

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

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

²¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/build.xml>

²²<https://github.com/openmicroscopy/bioformats/tree/v5.0.2/jar>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/v5.0.2/components/bio-formats-tools/src/loci/formats/tools/ImageInfo.java>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/utis/MinimumWriter.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/utis/PrintTimestamps.java>

²⁷https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utis/Simple_Read.java

²⁸https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utis/Read_Image.java

²⁹https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/bio-formats-plugins/utis/Mass_Importer.java

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/ant/toplevel.properties>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/build.xml#L240>

³²<http://downloads.openmicroscopy.org/latest/bio-formats5/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=Formats&col=id&col=summary&col=status&col=type&col=priority&col=milestone&col=component&order=priority>

[export&component=Bio-](#)

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

We populate that metadata as follows:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

int imageCount = sizeC * sizeZ * sizeT;

for (int image=0; image<imageCount; image++) {
```

```

        writer.saveBytes(image, pixelData[image]);
    }
}

```

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

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

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

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 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/v5.0.2/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/api/loci/formats/meta/MetadataRetrieve.html>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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');
```

For more information about the methods to store the metadata, see the `MetadataStore`⁴¹ Javadoc page.

13.2.5 Source code

If you are interested in the latest Bio-Formats source code from our `Git`⁴² repository, you can access it using the repository path:

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

You can also browse the [Bio-Formats source on GitHub](#)⁴³

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

Lastly, you can browse the [Bio-Formats Javadocs online](#)⁴⁴, or generate them yourself using the “`docs`” Ant target.

³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/matlab/bfGetReader.m>

³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/matlab/bfGetPlane.m>

⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/matlab/bfsave.m>

⁴¹<http://downloads.openmicroscopy.org/latest/bio-formats5/api/loci/formats/meta/MetadataStore.html>

⁴²<http://git-scm.com/>

⁴³<https://github.com/openmicroscopy/bioformats>

⁴⁴<http://downloads.openmicroscopy.org/latest/bio-formats5/api/>

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/v5.0.2/components/formats-bsd/cppwrap/showinf.cpp>

⁴https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/v5.0.2/components/formats-api/src/loci/formats/FormatReader.java>

² <https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/>

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

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

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

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

⁷ <https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

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

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/CoreMetadata.java>

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

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/FormatReader.java>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/CoreMetadata.java>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/RandomAccessInputStream.java>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/Location.java>

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

¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/FormatReader.java>

¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/v5.0.2/components/formats-common/src/loci/common/RandomAccessInputStream.java>

²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/Location.java>

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

²²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/DataTools.java>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/ImageTools.java>

²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/services/>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/codec/BaseCodec.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/codec/BitBuffer.java>

²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/codec/BitWriter.java>

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/readers.txt>

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/ImageReader.java>

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/readers.txt>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-api/src/loci/formats/ImageReader.java>

³²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/v5.0.2/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/v5.0.2/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/v5.0.2/components/formats-gpl/src/loci/formats/in/LIFReader.java)³⁶ and [InCellReader](https://github.com/openmicroscopy/bioformats/blob/v5.0.2/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/v5.0.2/components/test-suite/src/loci/tests/testng/FormatReaderTest.java>

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

³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LIFReader.java>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/InCellReader.java>

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

CONTRIBUTING TO BIO-FORMATS

16.1 Developing Bio-Formats

If you are interested in working on the Bio-Formats source code itself, you can load it into your favorite IDE, or develop with your favorite text editor.

The Bio-Formats code is divided into several projects. Core components are located in subfolders of the `components`¹ folder, with some components further classified into `components/forks`² or `components/stubs`³, depending on the nature of the project.

Each project has a corresponding Maven POM file, which can be used to work with the project in your favorite IDE, or from the command line, once you have cloned the source. Instructions for several popular options follow.

16.1.1 NetBeans

NetBeans comes with Maven support built in. To import the Bio-Formats source, perform the following steps:

1. Choose *File* → *Open Project* from the menu
2. Select the top-level folder of your Bio-Formats working copy
3. Expand the Modules folder and double-click desired project(s) to work with them

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

16.1.2 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.

16.1.3 Command line

If you prefer developing code with a text editor such as vim or emacs, you can use the Ant or Maven command line tools to compile Bio-Formats. The Bio-Formats source tree provides parallel build systems for both Ant and Maven, so you can use either one to build the code.

For a list of Ant targets, run:

```
ant -p
```

¹<https://github.com/openmicroscopy/bioformats/tree/v5.0.2/components/>

²<https://github.com/openmicroscopy/bioformats/tree/v5.0.2/components/forks/>

³<https://github.com/openmicroscopy/bioformats/tree/v5.0.2/components/stubs/>

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.

16.2 Testing individual commits (internal developers)

At the bottom of many commit messages in <https://github.com/openmicroscopy/bioformats>, you will find a few lines similar to this:

To test, please run:

```
ant -Dtestng.directory=$DATA/metamorph test-automated
```

This shows the command(s) necessary to run automated tests against the files likely to be affected by that commit. If you want to run these tests, you will need to do the following:

Clone `bioformats.git` and checkout the appropriate branch (by following the directions on the [Git usage⁴](#) 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:

compile:

test-automated:
  [testng] [Parser] Running:
  [testng]   Bio-Formats software test suite
  [testng]
```

⁴<http://www.openmicroscopy.org/site/support/contributing/using-git.html>

```
[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.

16.3 Public test data

Most of the data-driven tests would benefit from having a comprehensive set of public sample data (see also [#4086⁵](#)).

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 (*)
- TIFF (*)
- Khoros (<http://netghost.narod.ru/gff/sample/images/viff/index.htm>)
- MNG ([Download⁶](#)) (*)

⁵<http://trac.openmicroscopy.org.uk/ome/ticket/4086>

⁶http://sourceforge.net/projects/libmng/files/libmng-testsuites/Release-20030305/MNGsuite-20030305.zip/download?use_mirror=freefr&download=

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
- 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

16.4 Bio-Formats service and dependency infrastructure

16.4.1 Description

The Bio-Formats service infrastructure is an interface driven pattern for dealing with external and internal dependencies. The design goal was mainly to avoid the cumbersome usage of `ReflectedUniverse` where possible and to clearly define both service dependency and interface between components. This is generally referred to as [dependency injection](#)⁷, [dependency inversion](#)⁸ or [component based design](#)⁹.

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](#)¹⁰ 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 #463¹¹ and #464¹².

16.4.2 Writing a service

- **Interface** – The basic form of a service is an interface which inherits from `loci.common.services.Service`¹³. 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);

}
```

- **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`:

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

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

⁹http://en.wikipedia.org/wiki/Component-based_software_engineering

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

¹¹<http://trac.openmicroscopy.org.uk/ome/ticket/463>

¹²<http://trac.openmicroscopy.org.uk/ome/ticket/464>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/services/Service.java>

```

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`¹⁴ via the `services.properties`¹⁵ 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
...

```

16.4.3 Using a service

```

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

```

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/services/ServiceFactory.java>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-common/src/loci/common/services/Service.java>

16.5 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.

Requirements:

- Python¹⁶ 2.4+
- Genshi¹⁷ 0.5
- Complete checkout of the [Bio-Formats repository](#)¹⁸

Note: Genshi 0.5¹⁹ was released on June 9th 2008. You can either install from source or download a compatible .egg for your system on the [Genshi download page](#)²⁰.

16.5.1 Checking out the source

This will get the entire source tree. xsd-fu is in components/xsd-fu

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

16.5.2 Running the code generator

If you *do* have Genshi already installed, you can run xsd-fu script with no arguments to examine the syntax:

```
$ ./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>

If you *do not* have Genshi installed you can use a downloaded Python .egg for your platform as follows:

```
$ export PYTHONPATH=Genshi-0.5-py2.4-linux-i686.egg
$ ./xsd-fu -o ../../
Missing subcommand!
Usage: ./xsd-fu <subcommand> ...
```

¹⁶<http://python.org>

¹⁷<http://genshi.edgewall.org>

¹⁸<https://github.com/openmicroscopy/bioformats>

¹⁹<http://genshi.edgewall.org/milestone/0.5>

²⁰<http://genshi.edgewall.org/wiki/Download>

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>

Note: XsdFu is now used for many different types of code generation tasks (mostly targeted at the OMERO and Bio-Formats 4.2.0 releases) as outlined by the subcommand structure above.

16.5.3 Generating the OME-XML Java toolchain

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
```

These commands internally call xsd-fu as follows:

Java classes for OME model objects

```
$ ./xsd-fu java_classes -p 'ome.xml.model' -o \
  ../ome-xml/target/generated-sources/ \
  ../specification/released-schema/2013-06/ome.xsd \
  ../specification/released-schema/2013-06/BinaryFile.xsd \
  ../specification/released-schema/2013-06/ROI.xsd \
  ../specification/released-schema/2013-06/SA.xsd \
  ../specification/released-schema/2013-06/SPW.xsd
```


Enumeration classes for OME model properties

```
$ ./xsd-fu enum_types -p 'ome.xml.model.enums' -o \
  ../ome-xml/target/generated-sources/ \
  ../specification/released-schema/2013-06/ome.xsd \
  ../specification/released-schema/2013-06/BinaryFile.xsd \
  ../specification/released-schema/2013-06/ROI.xsd \
  ../specification/released-schema/2013-06/SA.xsd \
  ../specification/released-schema/2013-06/SPW.xsd
```

Enumeration handlers for OME model properties

```
$ ./xsd-fu enum_handlers -p 'ome.xml.model.enums.handlers' -o \
  ../ome-xml/target/generated-sources/ \
  ../specification/released-schema/2013-06/ome.xsd \
  ../specification/released-schema/2013-06/BinaryFile.xsd \
  ../specification/released-schema/2013-06/ROI.xsd \
  ../specification/released-schema/2013-06/SA.xsd \
  ../specification/released-schema/2013-06/SPW.xsd
```

Metadata store and Metadata retrieve interfaces

```
$ ./xsd-fu metadata -o ../ome-xml/target/generated-sources/ \
  ../specification/released-schema/2013-06/ome.xsd \
  ../specification/released-schema/2013-06/BinaryFile.xsd \
  ../specification/released-schema/2013-06/ROI.xsd \
  ../specification/released-schema/2013-06/SA.xsd \
  ../specification/released-schema/2013-06/SPW.xsd
```

OMEXMLMetadataImpl Metadata store and Metadata retrieve implementation

```
$ ./xsd-fu omexml_metadata -o ../ome-xml/target/generated-sources/ \
  ../specification/released-schema/2013-06/ome.xsd \
  ../specification/released-schema/2013-06/BinaryFile.xsd \
  ../specification/released-schema/2013-06/ROI.xsd \
  ../specification/released-schema/2013-06/SA.xsd \
  ../specification/released-schema/2013-06/SPW.xsd
```

16.5.4 Working with Enumerations and Enumeration Handlers

XsdFu code generates enumeration regular expressions using a flexible [configuration file](#)²¹.

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"
```

²¹https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/xsd-fu/cfg/enum_handler.cfg

```
".*Flu.*tar.*" = "Fluotar"  
".*Fluo.*" = "Fluor"  
".*Flua.*" = "Fluar"  
"^\\s*Apo.*" = "Apo"
```

16.5.5 Generate OMERO model specification files

This work was completed as part of the Update XsdFu (#8086²²) story.

```
$ cd components/xsd-fu  
$ ./xsd-fu omero_model -o where/to/place/output/ \  
  ./specification/inprogress/ome.xsd ../specification/inprogress/SPW.xsd \  
  ./specification/inprogress/SA.xsd ../specification/inprogress/ROI.xsd
```

16.5.6 Special Thanks

A special thanks goes out to [Dave Kuhlman](#)²³ for his fabulous work on [generateDS](#)²⁴ which XSD Fu makes heavy use of internally.

See [open Trac tickets for Bio-Formats](#)²⁵ 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](#)²⁶.

²²<http://trac.openmicroscopy.org.uk/ome/ticket/8086>

²³<http://www.rexx.com/dkuhlman/>

²⁴<http://www.rexx.com/dkuhlman/generateDS.html>

²⁵<https://trac.openmicroscopy.org.uk/ome/report/44>

²⁶<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](#)²⁷. If you have any questions, or would prefer not to use QA, please email the [ome-users mailing list](#)²⁸. 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.

²⁷<http://qa.openmicroscopy.org.uk/qa/upload/>

²⁸<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>	.ims	■	▲	▼	■	▼	✘	✘
<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.tif	▲	▲	▲	▼	▲	✓	✓
<i>OME-XML</i>	.ome	▲	▲	▲	▼	▲	✓	✓
<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	▲	■	▼	▼	▼	✘	✘
<i>PGM (Portable Gray Map)</i>	.pgm	▲	■	▲	■	▼	✘	✓
<i>Adobe Photoshop PSD</i>	.psd	■	■	■	■	▼	✘	✘
<i>Photoshop TIFF</i>	.tif, .tiff	■	■	■	■	■	✘	✘
<i>PICT (Macintosh Picture)</i>	.pict	▲	▼	▼	▲	▼	✘	✓
<i>PNG (Portable Network Graphics)</i>	.png	▲	■	▲	▲	▼	✓	✓
<i>Prairie Technologies TIFF</i>	.tif, .xml, .cfg	▲	■	■	▼	■	✘	✘
<i>Quesant</i>	.afm	■	▼	▼	▼	▼	✘	✘
<i>QuickTime Movie</i>	.mov	■	▲	▼	▲	▼	✓	✓
<i>RHK</i>	.sm2, .sm3	■	▼	▼	▼	▼	✘	✘
<i>SBIG</i>	.sm2, .sm3	▲	■	▲	▼	▼	✘	✘
<i>Seiko</i>	.xqd, .xqf	■	▼	▼	▼	▼	✘	✘
<i>SimplePCI & HCIImage</i>	.xcd	▲	■	▲	▼	▼	✘	✘

Continued on next page

Table 18.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD
<i>SimplePCI & HCLm- age TIFF</i>	.tiff	▲	■	▲	▼	■	✘	✘
<i>SM Camera</i>	.tiff	■	▼	▼	▼	▼	✘	✘
<i>SPIDER</i>	.spi, .stk	▲	▲	▲	■	■	✘	✘
<i>Targa</i>	.tga	▲	▲	▲	■	▼	✘	✘
<i>Text</i>	.txt	■	▼	▼	▼	▼	✘	✓
<i>TIFF (Tagged Image File Format)</i>	.tif	▲	▲	▲	▲	▼	✓	✓
<i>TillPhotonics TillVi- sion</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>	.czi	▲	▲	▲	▼	■	✘	✘
<i>Zeiss LSM (Laser Scanning Micro- scope) 510/710</i>	.lsm, .mdb	▲	▲	■	▲	■	✘	✘

Bio-Formats currently supports **135** formats

Ratings legend and definitions

	Outstanding
	Very good
	Good
	Fair
	Poor

Pixels Our estimation of Bio-Formats’ ability to reliably extract complete and accurate pixel values from files in that format. The better this score, the more confident we are that Bio-Formats will successfully read your file without displaying an error message or displaying an erroneous image.

Metadata Our certainty in the thoroughness and correctness of Bio-Formats' metadata extraction and conversion from files of that format into standard OME-XML. The better this score, the more confident we are that all meaningful metadata will be parsed and populated as OME-XML.

Openness This is not a direct expression of Bio-Formats' performance, but rather indicates the level of cooperation the format's controlling interest has demonstrated toward the scientific community with respect to the format. The better this score, the more tools (specification documents, source code, sample files, etc.) have been made available.

Presence This is also not directly related to Bio-Formats, but instead represents our understanding of the format's popularity, and is also as a measure of compatibility between applications. The better this score, the more common the format and the more software packages include support for it.

Utility Our opinion of the format's suitability for storing metadata-rich microscopy image data. The better this score, the wider the variety of information that can be effectively stored in the format.

Export This indicates whether Bio-Formats is capable of writing the format (Bio-Formats can read every format on this list).

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](http://www.intelligent-imaging.com/)¹

Owner: [Intelligent Imaging Innovations](http://www.intelligent-imaging.com/)²

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](https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SlidebookReader.java)³

Notes:

We strongly encourage users to export their .sld files to OME-TIFF using the SlideBook software. Bio-Formats is not likely to support the full range of metadata that is included in .sld files, and so exporting to OME-TIFF from SlideBook is the best way to ensure that all metadata is preserved.

¹<http://www.intelligent-imaging.com/>

²<http://www.intelligent-imaging.com/>

³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SlidebookReader.java>

See also:

Slidebook software overview⁴


18.2 Andor Bio-Imaging Division (ABD) TIFF

Extensions: .tif

Developer: Andor Bioimaging Department

Owner: [Andor Technology](#)⁵

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](#)⁶

Notes:

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

With a few minor exceptions, the ABD-TIFF format is identical to the Fluoview TIFF format.

18.3 AIM

Extensions: .aim

Developer: [SCANCO Medical AG](#)⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

⁴<https://www.slidebook.com>

⁵<http://www.andor.com/>

⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>

⁷<http://www.scanco.ch>

Supported Metadata Fields: *AIM*

We currently have:


- one .aim file

We would like to have:


- an .aim specification document
- more .aim files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [AIMReader.java](#)⁸


Notes:

18.4 Alicona 3D

Extensions: .al3d

Owner: [Alicona Imaging](#)⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0

Supported Metadata Fields: *Alicona 3D*


We currently have:

- an AL3D specification document¹⁰ (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: 

Utility: 

Additional Information

⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/AIMReader.java>

⁹<http://www.alicon.com/>

¹⁰<http://www.alicon.com/home/fileadmin/alicon.com/downloads/AL3DFormat.pdf>

Source Code: [AliconaReader.java](#)¹¹

Notes:

Known deficiencies:

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


18.5 Amersham Biosciences Gel

Extensions: .gel

Developer: Molecular Dynamics

Owner: [GE Healthcare Life Sciences](#)¹²

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](#)¹³

Notes:

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

See also:

[GEL Technical Overview](#)¹⁴

18.6 Amira Mesh

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

Developer: [Visage Imaging](#)¹⁵

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/AliconaReader.java>

¹²<http://www.gelifesciences.com/>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/GelReader.java>

¹⁴<http://www.awaresystems.be/imaging/tiff/tifftags/docs/gel.html>

¹⁵<http://www.amiravis.com/>

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 InformationSource Code: [AmiraReader.java](#)¹⁶

Notes:

18.7 Analyze 7.5

Extensions: .img, .hdr

Developer: [Mayo Foundation Biomedical Imaging Resource](#)¹⁷**Support**

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Analyze 7.5*

We currently have:

- an *Analyze 7.5* specification document¹⁸
- several *Analyze 7.5* datasets

We would like to have:

Ratings


Pixels: ▲

Metadata: ■

Openness: ▲

Presence: ■

¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/AmiraReader.java>¹⁷<http://www.mayo.edu/bir>¹⁸http://analyzedirect.com/support/10.0Documents/Analyze_Resource_01.pdf

Utility: **Additional Information**Source Code: [AnalyzeReader.java](#)¹⁹

Notes:

18.8 Animated PNG

Extensions: .png

Developer: [The Animated PNG Project](#)²⁰**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Animated PNG*




Freely Available Software:

- [Firefox 3+](#)²¹
- [Opera 9.5+](#)²²
- [KSquirrel](#)²³

We currently have:

- [a specification document](#)²⁴
- several APNG files

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [APNGReader.java](#)²⁵

Notes:

¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/AnalyzeReader.java>²⁰<http://www.animatedpng.com/>²¹<http://www.mozilla.com/firefox>²²<http://www.opera.com/download>²³<http://ksquirrel.sourceforge.net/download.php>²⁴http://wiki.mozilla.org/APNG_Specification²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/APNGReader.java>

18.9 Aperio AFI

Extensions: .afi, .svs

Owner: [Aperio](#)²⁶

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](#)²⁷

Notes:

See also:

[Aperio ImageScope](#)²⁸

18.10 Aperio SVS TIFF

Extensions: .svs

Owner: [Aperio](#)²⁹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 8.0, 8.2, 9.0

Supported Metadata Fields: *Aperio SVS TIFF*

We currently have:

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

²⁶<http://www.aperio.com/>


²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/AFIReader.java>

²⁸<http://www.leicabiosystems.com/index.php?id=8991>


²⁹<http://www.aperio.com/>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SVSReader.java](#)³⁰

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](#)³¹

18.11 Applied Precision CellWorX

Extensions: .htd, .pnl

Developer: [Applied Precision](#)³²

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: 

Additional Information

Source Code: [CellWorXReader.java](#)³³

Notes:

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SVSReader.java>

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

³²<http://www.api.com>


³³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/CellWorXReader.java>

18.12 AVI (Audio Video Interleave)

Extensions: .avi

Developer: Microsoft³⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

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

Freely Available Software:

- [AVI Reader plugin for ImageJ](#)³⁵
- [AVI Writer plugin for ImageJ](#)³⁶

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](#)³⁷

Notes:

- Bio-Formats can save image stacks as AVI (uncompressed).
- The following codecs are supported for reading:
 - Microsoft Run-Length Encoding (MSRLE)
 - Microsoft Video (MSV1)
 - Raw (uncompressed)
 - JPEG

See also:

[AVI RIFF File Reference](#)³⁸ [AVI on Wikipedia](#)³⁹

³⁴<http://www.microsoft.com/>

³⁵<http://rsb.info.nih.gov/ij/plugins/avi-reader.html>

³⁶<http://rsb.info.nih.gov/ij/plugins/avi.html>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/AVIReader.java>

³⁸<http://msdn2.microsoft.com/en-us/library/ms779636.aspx>

³⁹http://en.wikipedia.org/wiki/Audio_Video_Interleave

18.13 Axon Raw Format

Extensions: .arf

Owner: INDEC BioSystems⁴⁰

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Axon Raw Format*

We currently have:

- one ARF dataset
- a specification document⁴¹

We would like to have:

- more ARF datasets

Ratings

Pixels: ▲

Metadata: ▼

Openness: ▲

Presence: ▼

Utility: ▼

Additional Information

Source Code: *ARFReader.java*⁴²

Notes:

18.14 BD Pathway

Extensions: .exp, .tif

Owner: BD Biosciences⁴³

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *BD Pathway*

We currently have:

- a few BD Pathway datasets

We would like to have:




- more BD Pathway datasets

⁴⁰<http://www.indecbiosystems.com/>

⁴¹http://www.indecbiosystems.com/imagingworkbench/ApplicationNotes/IWAppNote11-ARF_File_Format.pdf

⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ARFReader.java>


⁴³<http://www.bdbiosciences.com>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [BDReader.java](#)⁴⁴

Notes:

18.15 Becker & Hickl SPCImage

Extensions: .sdt

Owner: [Becker-Hickl](#)⁴⁵**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*⁴⁶ software
- a large number of SDT datasets
- the ability to produce new datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [SDTReader.java](#)⁴⁷

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BDReader.java>⁴⁵<http://www.becker-hickl.de/>⁴⁶<http://www.becker-hickl.de/software/tcspc/softwaretcspcspecial.htm>⁴⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SDTReader.java>

18.16 Bio-Rad Gel

Extensions: .lsc

Owner: Bio-Rad⁴⁸

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](#)⁴⁹

Notes:

18.17 Bio-Rad PIC

Extensions: .pic, .raw, .xml

Developer: Bio-Rad

Owner: Carl Zeiss, Inc.⁵⁰

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *Bio-Rad PIC*

Freely Available Software:

- Bio-Rad PIC reader plugin for ImageJ⁵¹

⁴⁸<http://www.bio-rad.com>

⁴⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BioRadGelReader.java>

⁵⁰<http://www.zeiss.com/>


⁵¹<http://rsb.info.nih.gov/ij/plugins/biorad.html>

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](#)⁵²

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](#)⁵³
 - [SVI Huygens](#)⁵⁴

18.18 Bio-Rad SCN

Extensions: .scn

Developer: Bio-Rad

Owner: [Bio-Rad](#)⁵⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *Bio-Rad SCN*

We currently have:

- a few Bio-Rad .scn files

We would like to have:

Ratings

Pixels: 

Metadata: 


Openness: 


⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BioRadReader.java>

⁵³<http://www.bitplane.com/>

⁵⁴<http://svi.nl/>

⁵⁵<http://www.bio-rad.com>

Presence: 

Utility: 

Additional Information

Source Code: [BioRadSCNReader.java](#)⁵⁶


Notes:

18.19 Bitplane Imaris

Extensions: .ims

Owner: [Bitplane](#)⁵⁷

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](#)⁵⁸ (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

Source Code: [ImarisHDFReader.java](#)⁵⁹, [ImarisTiffReader.java](#)⁶⁰, [ImarisReader.java](#)⁶¹

Notes:

- **There are three distinct Imaris formats:**
 1. the old binary format (introduced in Imaris version 2.7)

⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BioRadSCNReader.java>

⁵⁷<http://www.bitplane.com/>

⁵⁸<http://flash.bitplane.com/support/faqs/faqsview.cfm?inCat=6&inQuestionID=104>

⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImarisHDFReader.java>

⁶⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImarisTiffReader.java>


⁶¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

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](#)⁶²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Bruker MRI*

Freely Available Software:

- [Bruker plugin for ImageJ](#)⁶³


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](#)⁶⁴

Notes:

18.21 Burleigh

Extensions: .img

Owner: Burleigh Instruments

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Burleigh*

We currently have:

- Pascal code that can read Burleigh files (from ImageSXM)

⁶²<http://www.bruker.com/>

⁶³<http://rsbweb.nih.gov/ij/plugins/bruker.html>


⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BrukerReader.java>

- 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](#)⁶⁵


Notes:

18.22 Canon DNG

Extensions: .cr2, .crw

Developer: [Canon](#)⁶⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Canon DNG*

Freely Available Software:

- [IrfanView](#)⁶⁷


We currently have:

- a few example datasets


We would like to have:


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [DNGReader.java](#)⁶⁸

⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/BurleighReader.java>

⁶⁶<http://canon.com>

⁶⁷<http://www.irfanview.com/>

⁶⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/DNGReader.java>

Notes:

18.23 Cellomics

Extensions: .c01

Developer: Thermo Fisher Scientific⁶⁹

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

Ratings

Pixels: ▲

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

Additional Information

Source Code: *CellomicsReader.java*⁷⁰

Notes:

18.24 cellSens VSI

Extensions: .vsi

Developer: Olympus⁷¹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *cellSens VSI*

We currently have:

- a few example datasets

We would like to have:

⁶⁹<http://www.thermofisher.com/>

⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/CellomicsReader.java>


⁷¹<http://www.olympus.com/>


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [CellSensReader.java](#)⁷²


Notes:

18.25 CellVoyager

Extensions: .xml, .tif

Owner: [Yokogawa](#)⁷³

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: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [CellVoyagerReader.java](#)⁷⁴

Notes:

18.26 DeltaVision

Extensions: .dv, .r3d

Owner: [Applied Precision](#)⁷⁵


⁷²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/CellSensReader.java>

⁷³<http://www.yokogawa.com/>

⁷⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/CellVoyagerReader.java>

⁷⁵<http://www.api.com/>

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *DeltaVision*

Freely Available Software:

- [DeltaVision Opener plugin for ImageJ](#)⁷⁶

Sample Datasets:

- [Applied Precision Datasets](#)⁷⁷

We currently have:

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


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [DeltavisionReader.java](#)⁷⁸

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:
 - [Bitplane Imaris](#)⁷⁹
 - [SVI Huygens](#)⁸⁰
 - [Image-Pro Plus](#)⁸¹

See also:

[DeltaVision system description](#)⁸²

18.27 DICOM

Extensions: .dcm, .dicom

Developer: [National Electrical Manufacturers Association](#)⁸³

⁷⁶<http://rsb.info.nih.gov/ij/plugins/track/delta.html>

⁷⁷<http://www.api.com/downloads/software/softworxexplorer2.0/SampleImages.zip>

⁷⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/DeltavisionReader.java>

⁷⁹<http://www.bitplane.com/>


⁸⁰<http://svi.nl/>

⁸¹<http://www.mediacy.com/>

⁸²<http://api.com/deltavision.asp>

⁸³<http://www.nema.org/>

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *DICOM*

Freely Available Software:

- [OsiriX Medical Imaging Software](#)⁸⁴
- [ezDICOM](#)⁸⁵
- [Wikipedia's list of freeware health software](#)⁸⁶

Sample Datasets:


- [MRI Chest from FreeVol-3D web site](#)⁸⁷
- [Medical Image Samples from Sebastien Barre's Medical Imaging page](#)⁸⁸
- [DICOM sample image sets from OsiriX web site](#)⁸⁹

We currently have:


- [DICOM specification documents](#)⁹⁰ (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: 

Additional Information

Source Code: [DicomReader.java](#)⁹¹

Notes:

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

See also:

[DICOM homepage](#)⁹²

⁸⁴<http://www.osirix-viewer.com/>

⁸⁵<http://www.sph.sc.edu/comd/rorden/ezdicom.html>

⁸⁶http://en.wikipedia.org/wiki/List_of_freeware_health_software#Imaging.2FVisualization

⁸⁷http://members.tripod.com/%7Eclunus_immensus/free3d/hk-40.zip

⁸⁸<http://www.barre.nom.fr/medical/samples/>

⁸⁹<http://osirix-viewer.com/datasets/>

⁹⁰<http://medical.nema.org/dicom/2007/>

⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/DicomReader.java>

⁹²<http://medical.nema.org/>

18.28 ECAT7

Extensions: .v

Developer: Siemens⁹³

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*⁹⁴


Notes:

18.29 EPS (Encapsulated PostScript)

Extensions: .eps, .epsi, .ps

Developer: Adobe⁹⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *EPS (Encapsulated PostScript)*

Freely Available Software:

- *EPS Writer plugin for ImageJ*⁹⁶

We currently have:

- a few EPS datasets

⁹³<http://www.siemens.com>

⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/Ecat7Reader.java>


⁹⁵<http://www.adobe.com/>


⁹⁶<http://rsb.info.nih.gov/ij/plugins/eps-writer.html>


- the ability to produce new datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [EPSReader.java](#)⁹⁷ Source Code: [EPSWriter.java](#)⁹⁸

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](#)⁹⁹

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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [FlexReader.java](#)¹⁰⁰

Notes:

The LuraWave LWF decoder library (i.e. lwf_jsdk2.6.jar) with license code is required to decode wavelet-compressed Flex files.

⁹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/EPSReader.java>

⁹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/EPSWriter.java>

⁹⁹<http://www.perkinelmer.com/>

¹⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FlexReader.java>

See also:

LuraTech (developers of the proprietary LuraWave LWF compression used for Flex image planes)¹⁰¹

18.31 FEI

Extensions: .img

Developer: FEI¹⁰²

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

Ratings

Pixels: ▼

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

Additional Information

Source Code: FEIReader.java¹⁰³

Notes:

18.32 FEI TIFF

Extensions: .tiff

Developer: FEI¹⁰⁴

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *FEI TIFF*

We currently have:

¹⁰¹<http://www.luratech.com/>

¹⁰²<http://www.fei.com/>


¹⁰³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FEIReader.java>

¹⁰⁴<http://www.fei.com>


- a few FEI TIFF datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [FEITiffReader.java](#)¹⁰⁵


Notes:

18.33 FITS (Flexible Image Transport System)

Extensions: .fits

Developer: [National Radio Astronomy Observatory](#)¹⁰⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

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

We currently have:

- a [FITS specification document](#)¹⁰⁷ (NOST 100-2.0, from 1999 March 29, in HTML)
- several FITS datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [FitsReader.java](#)¹⁰⁸

Notes:

See also:

[MAST:FITS homepage](#)¹⁰⁹ [FITS Support Office](#)¹¹⁰

¹⁰⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FEITiffReader.java>

¹⁰⁶<http://www.nrao.edu/>

¹⁰⁷http://archive.stsci.edu/fits/fits_standard/

¹⁰⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/FitsReader.java>

¹⁰⁹<http://archive.stsci.edu/fits/>


¹¹⁰<http://fits.gsfc.nasa.gov/>

18.34 Gatan Digital Micrograph

Extensions: .dm3

Owner: [Gatan](#)¹¹¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 3

Supported Metadata Fields: *Gatan Digital Micrograph*

Freely Available Software:

- [DM3 Reader plugin for ImageJ](#)¹¹²
- [EMAN](#)¹¹³


We currently have:

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


We would like to have:


- a DM3 specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [GatanReader.java](#)¹¹⁴

Notes:


Commercial applications that support .dm3 files include [Datasqueeze](#)¹¹⁵.

18.35 Gatan Digital Micrograph 2

Extensions: .dm2

Developer: [Gatan](#)¹¹⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 2

¹¹¹<http://www.gatan.com/>

¹¹²http://rsb.info.nih.gov/ij/plugins/DM3_Reader.html

¹¹³<http://blake.bcm.edu/EMAN/>

¹¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/GatanReader.java>

¹¹⁵<http://www.datasqueezesoftware.com/>

¹¹⁶<http://www.gatan.com>

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](#)¹¹⁷

Notes:


18.36 GIF (Graphics Interchange Format)

Extensions: .gif

Developer: [CompuServe](#)¹¹⁸

Owner: [Unisys](#)¹¹⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

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

Freely Available Software:

- [Animated GIF Reader plugin for ImageJ](#)¹²⁰
- [GIF Stack Writer plugin for ImageJ](#)¹²¹

We currently have:

- a [GIF specification document](#)¹²² (Version 89a, from 1990, in HTML)
- numerous GIF datasets
- the ability to produce new datasets

¹¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/GatanDM2Reader.java>

¹¹⁸<http://www.compuserve.com/>

¹¹⁹<http://www.unisys.com/>


¹²⁰<http://rsb.info.nih.gov/ij/plugins/agr.html>


¹²¹<http://rsb.info.nih.gov/ij/plugins/gif-stack-writer.html>


¹²²<http://tronche.com/computer-graphics/gif/>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [GIFReader.java](#)¹²³


Notes:

18.37 Hamamatsu Aquacosmos NAF

Extensions: .naf

Developer: [Hamamatsu](#)¹²⁴

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: 

Presence: 

Utility: 

Additional Information

Source Code: [NAFReader.java](#)¹²⁵

Notes:

¹²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/GIFReader.java>

¹²⁴<http://www.hamamatsu.com/>

¹²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NAFReader.java>

18.38 Hamamatsu HIS

Extensions: .his

Owner: [Hamamatsu](#)¹²⁶

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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [HISReader.java](#)¹²⁷

Notes:

18.39 Hamamatsu ndpi

Extensions: .ndpi

Developer: [Hamamatsu](#)¹²⁸

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu ndpi*

Freely Available Software:

- [NDP.view](#)¹²⁹

Sample Datasets:

¹²⁶<http://www.hamamatsu.com>

¹²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/HISReader.java>

¹²⁸<http://www.hamamatsu.com>

¹²⁹http://www.olympusamerica.com/seg_section/seg_vm_downloads.asp

- [OpenSlide](#)¹³⁰


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](#)¹³¹


Notes:

18.40 Hamamatsu VMS

Extensions: .vms

Developer: [Hamamatsu](#)¹³²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Hamamatsu VMS*

Sample Datasets:

- [OpenSlide](#)¹³³


We currently have:

- a few example datasets
- [developer documentation from the OpenSlide project](#)¹³⁴

We would like to have:

- an official specification document
- more example datasets

Ratings

Pixels: 

Metadata: 

Openness: 



¹³⁰<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu/>

¹³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NDPIReader.java>

¹³²<http://www.hamamatsu.com>

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


¹³⁴<http://openslide.org/Hamamatsu%20format/>

Presence: Utility: **Additional Information**Source Code: [HamamatsuVMSReader.java](#)¹³⁵

Notes:

18.41 Hitachi S-4800

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

Developer: [Hitachi](#)¹³⁶**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:


RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [HitachiReader.java](#)¹³⁷

Notes:

18.42 ICS (Image Cytometry Standard)

Extensions: .ics, .ids

Developer: P. Dean et al.

SupportBSD-licensed: Export: 

Officially Supported Versions: 1.0, 2.0

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

Freely Available Software:

¹³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/HamamatsuVMSReader.java>¹³⁶http://www.hitachi-hita.com/sites/default/files/technotes/Hitachi_4800_STEM.pdf¹³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/HitachiReader.java>


- Libics (ICS reference library)¹³⁸
- ICS Opener plugin for ImageJ¹³⁹
- IrfanView¹⁴⁰


We currently have:


- numerous ICS datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [ICSReader.java](#)¹⁴¹ Source Code: [ICSWriter.java](#)¹⁴²

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 Imaris¹⁴³
- SVI Huygens¹⁴⁴

18.43 Imacon

Extensions: .fff

Owner: [Hasselblad](#)¹⁴⁵

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

¹³⁸<http://libics.sourceforge.net/>

¹³⁹http://valelab.ucsf.edu/%7Enstuurman/IJplugins/Ics_Opener.html

¹⁴⁰<http://www.irfanview.com/>






¹⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/ICSReader.java>

¹⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/ICSWriter.java>

¹⁴³<http://www.bitplane.com/>

¹⁴⁴<http://svi.nl/>


¹⁴⁵<http://www.hasselbladusa.com/>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [ImaconReader.java](#)¹⁴⁶

Notes:

18.44 ImagePro Sequence

Extensions: .seq

Owner: [Media Cybernetics](#)¹⁴⁷**Support**BSD-licensed: Export: 

Officially Supported Versions:






Supported Metadata Fields: *ImagePro Sequence*

We currently have:

- the [Image-Pro Plus](#)¹⁴⁸ software
- a few SEQ datasets
- the ability to produce more datasets

We would like to have:

- an official SEQ specification document

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [SEQReader.java](#)¹⁴⁹

Notes:

¹⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImaconReader.java>¹⁴⁷<http://www.mediacy.com/>¹⁴⁸<http://www.mediacy.com/index.aspx?page=IPP>¹⁴⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SEQReader.java>

18.45 ImagePro Workspace

Extensions: .ipw

Owner: Media Cybernetics¹⁵⁰

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Supported Metadata Fields: *ImagePro Workspace*

We currently have:

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

We would like to have:

- an official IPW specification document
- more IPW datasets:
 - multiple datasets in one file
 - 2+ GB files

Ratings

Pixels: ▲

Metadata: ▲

Openness: ▼

Presence: ▼

Utility: ▼

Additional Information

Source Code: *IPWReader.java*¹⁵²

Notes:

Bio-Formats uses a modified version of the *Apache Jakarta POI*¹⁵³ library to read IPW files.

18.46 IMAGIC

Extensions: .hed, .img

Developer: Image Science¹⁵⁴

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

¹⁵⁰<http://www.mediacy.com/>

¹⁵¹<http://www.mediacy.com/index.aspx?page=IPP>

¹⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/IPWReader.java>

¹⁵³<http://jakarta.apache.org/poi/>

¹⁵⁴<http://www.imagescience.de>

Supported Metadata Fields: *IMAGIC*

Freely Available Software:

- [em2em](#)¹⁵⁵


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](#)¹⁵⁶

Notes:

See also:

[IMAGIC specification](#)¹⁵⁷


18.47 IMOD

Extensions: `.mod`

Developer: [Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells](#)¹⁵⁸

Owner: [Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells](#)¹⁵⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *IMOD*

Freely Available Software:

- [IMOD](#)¹⁶⁰

We currently have:

- a few sample datasets
- [official documentation](#)¹⁶¹

¹⁵⁵<http://www.imagescience.de/em2em.html>

¹⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImagicReader.java>

¹⁵⁷<http://www.imagescience.de/em2em.html>

¹⁵⁸<http://bio3d.colorado.edu>


¹⁵⁹<http://bio3d.colorado.edu>

¹⁶⁰<http://bio3d.colorado.edu/imod/>


¹⁶¹<http://bio3d.colorado.edu/imod/doc/binspec.html>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [IMODReader.java](#)¹⁶²

Notes:

18.48 Improvission Openlab LIFF

Extensions: .liff

Developer: [Improvission](#)¹⁶³

Owner: [PerkinElmer](#)¹⁶⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 2.0, 5.0

Supported Metadata Fields: *Improvission Openlab LIFF*


We currently have:

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

We would like to have:

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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [OpenlabReader.java](#)¹⁶⁵

Notes:

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

¹⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/IMODReader.java>

¹⁶³<http://www.improvission.com/>

¹⁶⁴<http://www.perkinelmer.com/>

¹⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/OpenlabReader.java>

See also:

[Openlab software review](#)¹⁶⁶


18.49 Improvition Openlab Raw

Extensions: .raw

Developer: [Improvition](#)¹⁶⁷

Owner: [PerkinElmer](#)¹⁶⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *Improvition Openlab Raw*

We currently have:


- an [Openlab Raw specification document](#)¹⁶⁹ (from 2004 November 09, in HTML)
- a few Openlab Raw datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [OpenlabRawReader.java](#)¹⁷⁰

Notes:

See also:

[Openlab software review](#)¹⁷¹

18.50 Improvition TIFF

Extensions: .tif

Developer: [Improvition](#)¹⁷²

Owner: [PerkinElmer](#)¹⁷³

Support

¹⁶⁶<http://www.improvition.com/products/openlab/>

¹⁶⁷<http://www.improvition.com/>

¹⁶⁸<http://www.perkinelmer.com/>

¹⁶⁹http://cellularimaging.perkinelmer.com/support/technical_notes/detail.php?id=344

¹⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/OpenlabRawReader.java>

¹⁷¹<http://www.improvition.com/products/openlab/>

¹⁷²<http://www.improvition.com/>

¹⁷³<http://www.perkinelmer.com/>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Improvision TIFF*

We currently have:

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

We would like to have:

Ratings

Pixels: ▲

Metadata: ▲

Openness: ▲

Presence: ▼

Utility: □

Additional Information

Source Code: [ImprovisionTiffReader.java](#)¹⁷⁴

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](#)¹⁷⁵

18.51 Inspector OBF

Extensions: .obf, .msr

Developer: Department of NanoBiophotonics, MPI-BPC¹⁷⁶

Owner: MPI-BPC¹⁷⁷

Support

BSD-licensed: ✅

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *Inspector OBF*

We currently have:

- a few .msr datasets
- a [specification document](#)¹⁷⁸

¹⁷⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ImprovisionTiffReader.java>

¹⁷⁵<http://www.improvision.com/products/openlab/>


¹⁷⁶<https://inspector.mpibpc.mpg.de/index.html>

¹⁷⁷<http://www.mpibpc.mpg.de/>


¹⁷⁸<https://inspector.mpibpc.mpg.de/documentation/fileformat.html>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [OBFReader.java](#)¹⁷⁹


Notes:

18.52 InCell 1000

Extensions: .xdce, .tif

Developer: [GE](#)¹⁸⁰

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](#)¹⁸¹

Notes:

¹⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/OBFReader.java>

¹⁸⁰<http://gelifesciences.com/>

¹⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/InCellReader.java>

18.53 InCell 3000

Extensions: .frm

Developer: GE¹⁸²

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Supported Metadata Fields: *InCell 3000*

Sample Datasets:

- [Broad Bioimage Benchmark Collection](#)¹⁸³


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](#)¹⁸⁴

Notes:

18.54 INR

Extensions: .inr

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:


Supported Metadata Fields: *INR*

We currently have:

- several sample .inr datasets

We would like to have:


Ratings


Pixels: 


¹⁸²<http://gelifesciences.com/>


¹⁸³<http://www.broadinstitute.org/bbbc/BBBC013/>

¹⁸⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/InCell3000Reader.java>

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


Source Code: [INRRReader.java](#)¹⁸⁵

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](#)¹⁸⁶

Notes:


18.56 IPLab

Extensions: .ipl

Developer: Scanalytics

Owner: was [BD Biosystems](#)¹⁸⁷, now [BioVision Technologies](#)¹⁸⁸

Support

BSD-licensed: 

Export: 

¹⁸⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/INRRReader.java>

¹⁸⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/InveonReader.java>

¹⁸⁷<http://www.bdbiosciences.com/>

¹⁸⁸<http://www.biovis.com/iplab.htm>

Officially Supported Versions:

Supported Metadata Fields: *IPLab*

Freely Available Software:

- [IPLab Reader plugin for ImageJ](#)¹⁸⁹


We currently have:

- an IPLab specification document (v3.6.5, from 2004 December 1, in PDF)
- several IPLab datasets


We would like to have:


- more IPLab datasets (preferably with 32-bit integer or floating point data)


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [IPLabReader.java](#)¹⁹⁰

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](#)¹⁹¹
- [SVI Huygens](#)¹⁹²

See also:


[IPLab software review](#)¹⁹³

18.57 IPLab-Mac

Extensions: .ipm

Owner: [BioVision Technologies](#)¹⁹⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *IPLab-Mac*

We currently have:

- a few IPLab-Mac datasets

¹⁸⁹<http://rsb.info.nih.gov/ij/plugins/iplab-reader.html>

¹⁹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/IPLabReader.java>

¹⁹¹<http://www.bitplane.com/>

¹⁹²<http://svi.nl/>

¹⁹³<http://www.biovis.com/iplab.htm>


¹⁹⁴<http://biovis.com/>

- a specification document


We would like to have:


- more IPLab-Mac datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [IvisionReader.java](#)¹⁹⁵

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](#)¹⁹⁶

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: 

Additional Information

Source Code: [JEOLReader.java](#)¹⁹⁷

¹⁹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/IvisionReader.java>

¹⁹⁶<http://www.jeol.com>

¹⁹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/JEOLReader.java>


Notes:

18.59 JPEG

Extensions: .jpg

Developer: Independent JPEG Group¹⁹⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *JPEG*

We currently have:


- a [JPEG specification document](#)¹⁹⁹ (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](#)²⁰⁰ Source Code: [JPEGWriter.java](#)²⁰¹

Notes:

Bio-Formats can save individual planes as JPEG. Bio-Formats uses the [Java Image I/O](#)²⁰² API to read and write JPEG files. JPEG stands for “Joint Photographic Experts Group”.

See also:


[JPEG homepage](#)²⁰³

18.60 JPEG 2000

Extensions: .jp2

Developer: Independent JPEG Group²⁰⁴

Support

BSD-licensed: 

¹⁹⁸<http://www.ijg.org/>

¹⁹⁹<http://www.w3.org/Graphics/JPEG/jfif3.pdf>

²⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/JPEGReader.java>

²⁰¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/JPEGWriter.java>

²⁰²<http://docs.oracle.com/javase/6/docs/technotes/guides/imageio/>

²⁰³<http://www.jpeg.org/jpeg/index.html>

²⁰⁴<http://www.ijg.org/>

Export: 

Officially Supported Versions:

Supported Metadata Fields: *JPEG 2000*

Freely Available Software:


- [JJ2000 \(JPEG 2000 library for Java\)](#)²⁰⁵

We currently have:


- a [JPEG 2000 specification document](#)²⁰⁶ (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](#)²⁰⁷ Source Code: [JPEG2000Writer.java](#)²⁰⁸

Notes:


Bio-Formats uses the [JAI Image I/O Tools](#)²⁰⁹ library to read JP2 files. JPEG stands for “Joint Photographic Experts Group”.

18.61 JPK

Extensions: .jpk

Developer: [JPK Instruments](#)²¹⁰

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
- more JPK files

²⁰⁵<http://code.google.com/p/jj2000/>





²⁰⁶<http://www.jpeg.org/jpeg2000/CDs15444.html>

²⁰⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/JPEG2000Reader.java>

²⁰⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/JPEG2000Writer.java>

²⁰⁹<https://java.net/projects/jai-imageio>


²¹⁰<http://www.jpk.com>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [JPKReader.java](#)²¹¹

Notes:

18.62 JPX

Extensions: .jpx

Developer: [JPEG Committee](#)²¹²**Support**BSD-licensed: Export: 



Officially Supported Versions:

Supported Metadata Fields: *JPX*

We currently have:

- a few .jpx files

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [JPXReader.java](#)²¹³

Notes:

18.63 Khoros VIFF (Visualization Image File Format) Bitmap

Extensions: .xv

Developer: [Khoral](#)²¹⁴Owner: [AccuSoft](#)²¹⁵²¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/JPKReader.java>²¹²<http://www.jpeg.org/jpeg2000/>²¹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/JPXReader.java>²¹⁴<http://www.khoral.com/company/>²¹⁵<http://www.accusoft.com/company/>

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

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





Sample Datasets:

- [VIFF Images](#)²¹⁶

We currently have:

- several VIFF datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [KhorosReader.java](#)²¹⁷

Notes:

See also:[VisiQuest software overview \(formerly known as KhorosPro\)](#)²¹⁸

18.64 Kodak BIP

Extensions: .bip

Developer: [Kodak/Carestream](#)²¹⁹**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

²¹⁶<http://netghost.narod.ru/gff/sample/images/viff/index.htm>²¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/KhorosReader.java>²¹⁸<http://www.accusoft.com/products/visiquest/>²¹⁹<http://carestream.com>


RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [KodakReader.java](#)²²⁰

Notes:

See also:[Information on Image Station systems](#)²²¹

18.65 Lambert Instruments FLIM

Extensions: .fli

Developer: [Lambert Instruments](#)²²²**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](#)²²³

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.²²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/KodakReader.java>²²¹<http://carestream.com/PublicContent.aspx?langType=1033&id=448953>²²²<http://www.lambert-instruments.com>²²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LiFlimReader.java>

18.66 LaVision Inspector

Extensions: .msr

Developer: [LaVision BioTec](#)²²⁴

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](#)²²⁵

Notes:

18.67 Leica LCS LEI

Extensions: .lei, .tif

Developer: [Leica Microsystems CMS GmbH](#)²²⁶

Owner: [Leica](#)²²⁷

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *Leica LCS LEI*

Freely Available Software:

- [Leica LCS Lite](#)²²⁸

We currently have:

- an LEI specification document (beta 2.000, from no later than 2004 February 17, in PDF)
- many LEI datasets

²²⁴<http://www.lavisionbiotec.com/>

²²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/InspectorReader.java>

²²⁶<http://www.leica-microsystems.com/>

²²⁷<http://www.leica.com/>

²²⁸<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](#)²²⁹

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](#)²³⁰
- [SVI Huygens](#)²³¹
- [Image-Pro Plus](#)²³²

18.68 Leica LAS AF LIF (Leica Image File Format)

Extensions: .lif

Developer: [Leica Microsystems CMS GmbH](#)²³³

Owner: [Leica](#)²³⁴

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](#)²³⁵ (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: 🟢

²²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LeicaReader.java>

²³⁰<http://www.bitplane.com/>





²³¹<http://svi.nl/>

²³²<http://www.mediacy.com/>

²³³<http://www.leica-microsystems.com/>

²³⁴<http://www.leica.com/>

²³⁵<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](#)²³⁶

Notes:

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


LAS stands for “Leica Application Suite”. AF stands for “Advanced Fluorescence”.

Commercial applications that support LIF include:

- [Bitplane Imaris](#)²³⁷
- [SVI Huygens](#)²³⁸
- [Amira](#)²³⁹

18.69 Leica SCN

Extensions: .scn

Developer: [Leica Microsystems](#)²⁴⁰**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](#)²⁴¹²³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LIFReader.java>²³⁷<http://www.bitplane.com/>²³⁸<http://svi.nl/>²³⁹<http://www.amira.com/>²⁴⁰<http://www.leica-microsystems.com/>²⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LeicaSCNReader.java>

Notes:

18.70 LEO

Extensions: .sxm

Owner: Zeiss²⁴²

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*²⁴³

Notes:

18.71 Li-Cor L2D

Extensions: .l2d, .tif, .scn

Owner: LiCor Biosciences²⁴⁴

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Supported Metadata Fields: *Li-Cor L2D*

We currently have:

- a few L2D datasets

²⁴²<http://www.zeiss.de>


²⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LEOReader.java>


²⁴⁴<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](#)²⁴⁵

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](#)²⁴⁶

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](#)²⁴⁷

Notes:

²⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/L2DReader.java>

²⁴⁶<http://www.lim.cz/>

²⁴⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/LIMReader.java>

Bio-Formats only supports uncompressed LIM files.

Commercial applications that support LIM include:


- NIS Elements²⁴⁸

18.73 MetaMorph 7.5 TIFF

Extensions: .tiff

Owner: Molecular Devices²⁴⁹

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*²⁵⁰


Notes:


18.74 MetaMorph Stack (STK)

Extensions: .stk, .nd

Owner: Molecular Devices²⁵¹

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)

²⁴⁸<http://www.nis-elements.com/>

²⁴⁹<http://www.moleculardevices.com/>


²⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MetamorphTiffReader.java>

²⁵¹<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](#)²⁵²

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](#)²⁵³
- [SVI Huygens](#)²⁵⁴
- [DIMIN](#)²⁵⁵

See also:

[Metamorph imaging system overview](#)²⁵⁶

18.75 MIAS (Maia Scientific)

Extensions: .tif

Developer: [Maia Scientific](#)²⁵⁷

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: 

²⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MetamorphReader.java>




²⁵³<http://www.bitplane.com/>

²⁵⁴<http://svi.nl/>

²⁵⁵<http://dimin.net/>

²⁵⁶<http://www.metamorph.com/>

²⁵⁷<http://www.selectscience.net/supplier/maia-scientific/?compID=6088>

Openness: Presence: Utility: **Additional Information**Source Code: [MIASReader.java](#)²⁵⁸

Notes:

18.76 Micro-Manager

Extensions: .tif, .txt, .xml

Developer: [Vale Lab](#)²⁵⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Micro-Manager*




Freely Available Software:

- [Micro-Manager](#)²⁶⁰

We currently have:

- many Micro-manager datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [MicromanagerReader.java](#)²⁶¹

Notes:

18.77 MINC MRI

Extensions: .mnc

Developer: [McGill University](#)²⁶²**Support**BSD-licensed: ²⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MIASReader.java>²⁵⁹<http://valelab.ucsf.edu/>²⁶⁰<http://micro-manager.org/>²⁶¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/MicromanagerReader.java>²⁶²<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

Export: 

Officially Supported Versions:

Supported Metadata Fields: *MINC MRI*

Freely Available Software:


- [MINC](#)²⁶³

We currently have:


- a few MINC files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [MINCReader.java](#)²⁶⁴


Notes:

18.78 Minolta MRW

Extensions: .mrw

Developer: [Minolta](#)²⁶⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Minolta MRW*

Freely Available Software:


- [dcraw](#)²⁶⁶

We currently have:

- several .mrw files

We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

²⁶³<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

²⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MINCReader.java>

²⁶⁵<http://www.konicaminolta.com/>

²⁶⁶<http://www.cybercom.net/%7Edcoffin/dcraw/>

Utility: 

Additional Information

Source Code: [MRWReader.java](#)²⁶⁷

Notes:

See also:


[Description of MRW format](#)²⁶⁸

18.79 MNG (Multiple-image Network Graphics)

Extensions: .mng

Developer: [MNG Development Group](#)²⁶⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *MNG (Multiple-image Network Graphics)*

Freely Available Software:

- [libmng \(MNG reference library\)](#)²⁷⁰

Sample Datasets:


- [MNG sample files](#)²⁷¹

We currently have:


- the [libmng-testsuites](#)²⁷² 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](#)²⁷³

Notes:

See also:

[MNG homepage](#)²⁷⁴ [MNG specification](#)²⁷⁵

²⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MRWReader.java>

²⁶⁸<http://www.dalibor.cz/files/MRW%20File%20Format.txt>

²⁶⁹<http://www.libpng.org/pub/mng/mngnews.html>

²⁷⁰<http://sourceforge.net/projects/libmng/>

²⁷¹<http://sourceforge.net/projects/libmng/files/libmng-testsuites/MNGsuite-1.0/MNGsuite.zip/download>

²⁷²<http://downloads.sourceforge.net/libmng/MNGsuite-20030305.zip>

²⁷³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/MNGReader.java>

²⁷⁴<http://www.libpng.org/pub/mng/>

²⁷⁵<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](#)²⁷⁶

Notes:

18.81 MRC (Medical Research Council)

Extensions: .mrc

Developer: [MRC Laboratory of Molecular Biology](#)²⁷⁷

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *MRC (Medical Research Council)*

Sample Datasets:

- [golgi.mrc](#)²⁷⁸

We currently have:

- an [MRC specification document](#)²⁷⁹ (in HTML)

²⁷⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MolecularImagingReader.java>

²⁷⁷<http://www2.mrc-lmb.cam.ac.uk/>


²⁷⁸http://bio3d.colorado.edu/imod/files/imod_data.tar.gz

²⁷⁹http://ami.scripps.edu/software/mrctools/mrc_specification.php


- another MRC specification document²⁸⁰ (in TXT)
- a few MRC datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [MRCReader.java](#)²⁸¹

Notes:

Commercial applications that support MRC include:

- [Bitplane Imaris](#)²⁸²

See also:


[MRC on Wikipedia](#)²⁸³

18.82 NEF (Nikon Electronic Format)

Extensions: .nef, .tif

Developer: [Nikon](#)²⁸⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *NEF (Nikon Electronic Format)*

Sample Datasets:


- [neffile1.zip](#)²⁸⁵
- [Sample NEF images](#)²⁸⁶

We currently have:

- a NEF specification document (v0.1, from 2003, in PDF)
- several NEF datasets

We would like to have:

Ratings

Pixels: 

Metadata: 

²⁸⁰http://bio3d.colorado.edu/imod/doc/mrc_format.txt

²⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/MRCReader.java>




²⁸²<http://www.bitplane.com/>

²⁸³http://en.wikipedia.org/wiki/MRC_%28file_format%29

²⁸⁴<http://www.nikon.com/>

²⁸⁵http://www.outbackphoto.com/workshop/NEF_conversion/neffile1.zip

²⁸⁶http://www.nikondigital.org/articles/library/nikon_d2x_first_impressions.htm


Openness: Presence: Utility: **Additional Information**Source Code: [NikonReader.java](#)²⁸⁷

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](#)²⁸⁸

18.83 NifTI

Extensions: .img, .hdr

Developer: [National Institutes of Health](#)²⁸⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *NifTI*



Sample Datasets:

- [Official test data](#)²⁹⁰

We currently have:

- [NifTI specification documents](#)²⁹¹
- several NifTI datasets

We would like to have:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [NiftiReader.java](#)²⁹²

Notes:

²⁸⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NikonReader.java>²⁸⁸http://www.outbackphoto.com/workshop/NEF_conversion/nefconversion.html²⁸⁹<http://www.nih.gov/>²⁹⁰<http://nifti.nih.gov/nifti-1/data>²⁹¹<http://nifti.nih.gov/nifti-1/>²⁹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NiftiReader.java>

18.84 Nikon Elements TIFF

Extensions: .tiff

Developer: [Nikon](#)²⁹³

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](#)²⁹⁴

Notes:

18.85 Nikon EZ-C1 TIFF

Extensions: .tiff

Developer: [Nikon](#)²⁹⁵

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: 🟢

²⁹³<http://www.nikon.com>

²⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NikonElementsTiffReader.java>


²⁹⁵<http://www.nikon.com/>

Openness: Presence: Utility: **Additional Information**Source Code: [NikonTiffReader.java](#)²⁹⁶

Notes:

18.86 Nikon NIS-Elements ND2

Extensions: .nd2

Developer: [Nikon USA](#)²⁹⁷**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Nikon NIS-Elements ND2*

Freely Available Software:




- [NIS-Elements Viewer from Nikon](#)²⁹⁸

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](#)²⁹⁹

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](#)³⁰⁰ 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](#)³⁰¹ installed. Additionally, you will need to download [LegacyND2Reader.dll](#)³⁰² and place it in your ImageJ plugin folder.

²⁹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NikonTiffReader.java>

²⁹⁷<http://www.nikonusa.com/>

²⁹⁸<http://www.nis-elements.com/resources-downloads.html>

²⁹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/NativeND2Reader.java>

³⁰⁰<http://java.net/projects/jai-imageio>

³⁰¹<http://rsb.info.nih.gov/ij/plugins/nd2-reader.html>


³⁰²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/lib/LegacyND2Reader.dll?raw=true>

18.87 NRRD (Nearly Raw Raster Data)

Extensions: `.nrrd`, `.nhdr`, `.raw`, `.txt`

Developer: [Teem developers](#)³⁰³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *NRRD (Nearly Raw Raster Data)*

Freely Available Software:

- [nrrd \(NRRD reference library\)](#)³⁰⁴

Sample Datasets:


- [Diffusion tensor MRI datasets](#)³⁰⁵

We currently have:

- [an nrrd specification document](#)³⁰⁶ (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](#)³⁰⁷


Notes:

18.88 Olympus CellIR/APL

Extensions: `.apl`, `.mtb`, `.tnb`, `.tif`, `.obsep`

Owner: [Olympus](#)³⁰⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Olympus CellIR/APL*

³⁰³<http://teem.sourceforge.net/>

³⁰⁴<http://teem.sourceforge.net/nrrd/>

³⁰⁵<http://www.sci.utah.edu/%7Egk/DTI-data/>

³⁰⁶<http://teem.sourceforge.net/nrrd/format.html>

³⁰⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/NRRDReader.java>

³⁰⁸<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](#)³⁰⁹


Notes:

18.89 Olympus FluoView FV1000

Extensions: .oib, .oif

Owner: [Olympus](#)³¹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0, 2.0

Supported Metadata Fields: *Olympus FluoView FV1000*

Freely Available Software:

- [FV-Viewer from Olympus](#)³¹¹


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: 

³⁰⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/APLReader.java>

³¹⁰<http://www.olympus.com/>

³¹¹http://www.olympus.co.uk/microscopy/22_FluoView_FV1000__Confocal_Microscope.htm

Presence: Utility: **Additional Information**Source Code: [FV1000Reader.java](#)³¹²

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](#)³¹³ 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](#)³¹⁴
- [SVI Huygens](#)³¹⁵

See also:[Olympus FluoView Resource Center](#)³¹⁶

18.90 Olympus FluoView TIFF

Extensions: .tif

Owner: [Olympus](#)³¹⁷**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Olympus FluoView TIFF*



Freely Available Software:


- [DIMIN](#)³¹⁸

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: ³¹²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FV1000Reader.java>³¹³<http://jakarta.apache.org/poi/>³¹⁴<http://www.bitplane.com/>³¹⁵<http://svi.nl/>³¹⁶<http://www.olympusfluoview.com>³¹⁷<http://www.olympus.com/>³¹⁸<http://www.dimin.net/>

Utility: 

Additional Information

Source Code: [FluoviewReader.java](#)³¹⁹

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 Imaris³²⁰
- SVI Huygens³²¹


18.91 Olympus ScanR

Extensions: .xml, .dat, .tif

Developer: Olympus³²²

Owner: Olympus³²³

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](#)³²⁴

Notes:

18.92 Olympus SIS TIFF

Extensions: .tiff

Developer: Olympus³²⁵

³¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>

³²⁰<http://www.bitplane.com/>

³²¹<http://svi.nl/>

³²²<http://www.olympus.com/>

³²³<http://www.olympus.com/>

³²⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ScanrReader.java>

³²⁵<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](#)³²⁶

Notes:

18.93 OME-TIFF

Extensions: .ome.tiff

Developer: [Open Microscopy Environment](#)³²⁷**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 document³²⁸ (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: 🟠

³²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SISReader.java>³²⁷<http://www.openmicroscopy.org/>³²⁸<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/specification.html>

Utility: 

Additional Information

Source Code: [OMETiffReader.java](#)³²⁹ Source Code: [OMETiffWriter.java](#)³³⁰

Notes:

Bio-Formats can save image stacks as OME-TIFF.

Commercial applications that support OME-TIFF include:

- [Bitplane Imaris](#)³³¹
- [SVI Huygens](#)³³²

See also:


[OME-TIFF technical overview](#)³³³

18.94 OME-XML

Extensions: .ome

Developer: [Open Microscopy Environment](#)³³⁴

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](#)³³⁵
- 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](#)³³⁶ Source Code: [OMEXMLWriter.java](#)³³⁷

Notes:

³²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/OMETiffReader.java>

³³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/OMETiffWriter.java>

³³¹<http://www.bitplane.com/>

³³²<http://svi.nl/>

³³³<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

³³⁴<http://www.openmicroscopy.org/>

³³⁵<http://www.openmicroscopy.org/Schemas/>

³³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/OMEXMLReader.java>

³³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/OMEXMLWriter.java>

Bio-Formats uses the [OME-XML Java library](#)³³⁸ to read OME-XML files.

Commercial applications that support OME-XML include:


- [Bitplane Imaris](#)³³⁹
- [SVI Huygens](#)³⁴⁰

18.95 Oxford Instruments

Extensions: .top

Owner: [Oxford Instruments](#)³⁴¹

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](#)³⁴²

Notes:

18.96 PCORAW

Extensions: .pcoraw, .rec

Developer: [PCO](#)³⁴³

Support

BSD-licensed: 

³³⁸<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/java-library.html>


³³⁹<http://www.bitplane.com/>

³⁴⁰<http://svi.nl/>

³⁴¹<http://www.oxinst.com>

³⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/OxfordInstrumentsReader.java>

³⁴³<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](#)³⁴⁴


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](#)³⁴⁵

Notes:

³⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PCORAWReader.java>

³⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/PCXReader.java>

Commercial applications that support PCX include [Zeiss LSM Image Browser](#)³⁴⁶.

18.98 Perkin Elmer Densitometer

Extensions: .pds

Developer: [Perkin Elmer](#)³⁴⁷

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](#)³⁴⁸

Notes:

18.99 PerkinElmer Operetta

Extensions: .tiff, .xml

Developer: [PerkinElmer](#)³⁴⁹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *PerkinElmer Operetta*

We currently have:

- a few sample datasets

³⁴⁶http://www.zeiss.com.au/microscopy/en_au/downloads/lsm-5-series.html

³⁴⁷<http://www.perkinelmer.com>


³⁴⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PDSReader.java>


³⁴⁹<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](#)³⁵⁰


Notes:

18.100 PerkinElmer UltraView

Extensions: .tif, .2, .3, .4, etc.

Owner: [PerkinElmer](#)³⁵¹

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](#)³⁵²

Notes:

Other associated extensions include: .tim, .zpo, .csv, .htm, .cfg, .ano, .rec

Commercial applications that support this format include:

- [Bitplane Imaris](#)³⁵³

³⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/OperettaReader.java>

³⁵¹<http://www.perkinelmer.com/>

³⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

³⁵³<http://www.bitplane.com/>

- Image-Pro Plus³⁵⁴

See also:


PerkinElmer UltraView system overview³⁵⁵

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 filter³⁵⁶

We currently have:

- a PGM specification document³⁵⁷ (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.java³⁵⁸

Notes:

18.102 Adobe Photoshop PSD

Extensions: .psd

Developer: Adobe³⁵⁹

Support

BSD-licensed: 

Export: 

³⁵⁴<http://www.mediacy.com/>

³⁵⁵<http://www.perkinelmer.com/pages/020/cellularimaging/products/ultraviewvoxsysteoverview.xhtml>

³⁵⁶<http://netpbm.sourceforge.net/>

³⁵⁷<http://netpbm.sourceforge.net/doc/pgm.html>

³⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/PGMReader.java>

³⁵⁹<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](#)³⁶⁰


Notes:

18.103 Photoshop TIFF

Extensions: .tif, .tiff

Developer: [Adobe](#)³⁶¹

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

³⁶⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PSDReader.java>

³⁶¹<http://www.adobe.com>

Source Code: [PhotoshopTiffReader.java](#)³⁶²


Notes:

18.104 PICT (Macintosh Picture)

Extensions: .pict

Developer: [Apple Computer](#)³⁶³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *PICT (Macintosh Picture)*

We currently have:


- many PICT datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PictReader.java](#)³⁶⁴

Notes:

[QuickTime for Java](#)³⁶⁵ is required for reading vector files and some compressed files.

See also:


[PICT technical overview](#)³⁶⁶ [Another PICT technical overview](#)³⁶⁷

18.105 PNG (Portable Network Graphics)

Extensions: .png

Developer: [PNG Development Group](#)³⁶⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

³⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PhotoshopTiffReader.java>

³⁶³<http://www.apple.com>

³⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/PictReader.java>

³⁶⁵<http://www.apple.com/quicktime/download/standalone.html>

³⁶⁶<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-107.html>

³⁶⁷<http://www.prepressure.com/formats/pict/fileformat.htm>

³⁶⁸<http://www.libpng.org/pub/png/pngnews.html>

Supported Metadata Fields: *PNG (Portable Network Graphics)*

Freely Available Software:


- [PNG Writer plugin for ImageJ](#)³⁶⁹

We currently have:


- a [PNG specification document](#)³⁷⁰ (W3C/ISO/IEC version, from 2003 November 10, in HTML)
- several PNG datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [APNGReader.java](#)³⁷¹

Notes:

Bio-Formats uses the [Java Image I/O](#)³⁷² API to read and write PNG files.

See also:

[PNG technical overview](#)³⁷³

18.106 Prairie Technologies TIFF

Extensions: .tif, .xml, .cfg

Developer: [Prairie Technologies](#)³⁷⁴

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: 

³⁶⁹<http://rsb.info.nih.gov/ij/plugins/png-writer.html>



³⁷⁰<http://www.libpng.org/pub/png/spec/iso/>

³⁷¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/APNGReader.java>

³⁷²<http://docs.oracle.com/javase/6/docs/technotes/guides/imageio/>

³⁷³<http://www.libpng.org/pub/png/>

³⁷⁴<http://www.prairie-technologies.com/>


Presence: Utility: **Additional Information**Source Code: [PrairieReader.java](#)³⁷⁵

Notes:

18.107 Quesant

Extensions: .afm

Developer: Quesant Instrument Corporation

Owner: [KLA-Tencor Corporation](#)³⁷⁶**Support**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


RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [QuesantReader.java](#)³⁷⁷

Notes:

18.108 QuickTime Movie

Extensions: .mov

Owner: [Apple Computer](#)³⁷⁸**Support**³⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PrairieReader.java>³⁷⁶<http://www.kla-tencor.com/surface-profilometry-and-metrology.html>³⁷⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/QuesantReader.java>³⁷⁸<http://www.apple.com/>

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *QuickTime Movie*

Freely Available Software:

- [QuickTime Player](#)³⁷⁹


We currently have:

- a [QuickTime specification document](#)³⁸⁰ (from 2001 March 1, in HTML)
- several QuickTime datasets
- the ability to produce more datasets

We would like to have:

- more QuickTime datasets, including:
 - files compressed with a common, unsupported codec
 - files with audio tracks and/or multiple video tracks


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [NativeQTReader.java](#)³⁸¹ Source Code: [QTWriter.java](#)³⁸²

Notes:

Bio-Formats has two modes of operation for QuickTime:

- QTJava mode requires [QuickTime](#)³⁸³ 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:

³⁷⁹<http://www.apple.com/quicktime/download/>

³⁸⁰<http://developer.apple.com/documentation/Quicktime/QTFF/>

³⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/NativeQTReader.java>

³⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/QTWriter.java>

³⁸³<http://www.apple.com/quicktime/download/>

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](#)³⁸⁴

18.109 RHK

Extensions: .sm2, .sm3

Owner: [RHK Technologies](#)³⁸⁵

Support

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: 

³⁸⁴<http://www.apple.com/quicktime/>

³⁸⁵<http://www.rhk-tech.com>

Additional Information


Source Code: [RHKReader.java](#)³⁸⁶

Notes:

18.110 SBIG

Owner: [Santa Barbara Instrument Group \(SBIG\)](#)³⁸⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *SBIG*


We currently have:

- an official SBIG specification document³⁸⁸
- a few SBIG files


We would like to have:


- more SBIG files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SBIGReader.java](#)³⁸⁹

Notes:

18.111 Seiko

Extensions: .xqd, .xqf

Owner: [Seiko](#)³⁹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Seiko*

We currently have:

³⁸⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/RHKReader.java>

³⁸⁷<http://www.sbig.com>

³⁸⁸<http://sbig.impulse.net/pdffiles/file.format.pdf>

³⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SBIGReader.java>


³⁹⁰<http://www.seiko.co.jp/en/index.php>


- 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](#)³⁹¹


Notes:

18.112 SimplePCI & HImage

Extensions: .xcd

Developer: [Compix](#)³⁹²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Supported Metadata Fields: *SimplePCI & HImage*

We currently have:


- several SimplePCI files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [PCIReader.java](#)³⁹³

Notes:

Bio-Formats uses a modified version of the [Apache Jakarta POI library](#)³⁹⁴ to read CXD files.

³⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SeikoReader.java>

³⁹²<http://hcimage.com>

³⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/PCIReader.java>

³⁹⁴<http://jakarta.apache.org/poi/>

See also:

SimplePCI software overview³⁹⁵

18.113 SimplePCI & HImage TIFF

Extensions: .tiff

Developer: Hamamatsu³⁹⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Supported Metadata Fields: *SimplePCI & HImage TIFF*

We currently have:

- a few SimplePCI TIFF datasets

We would like to have:

- more SimplePCI TIFF datasets

Ratings

Pixels: ▲

Metadata: ◻

Openness: ▲

Presence: ▼

Utility: ◻

Additional Information

Source Code: SimplePCITiffReader.java³⁹⁷

Notes:

18.114 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


³⁹⁵<http://hcimage.com/simple-pci-legacy/>

³⁹⁶<http://hcimage.com/simple-pci-legacy/>


³⁹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SimplePCITiffReader.java>


- more SM-Camera files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SMCameraReader.java](#)³⁹⁸


Notes:

18.115 SPIDER

Extensions: .spi, .stk

Developer: [Wadsworth Center](#)³⁹⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *SPIDER*

Freely Available Software:


- [SPIDER](#)⁴⁰⁰

We currently have:


- a few example datasets
- [official file format documentation](#)⁴⁰¹


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [SpiderReader.java](#)⁴⁰²

Notes:

³⁹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SMCameraReader.java>

³⁹⁹http://www.wadsworth.org/spider_doc/spider/docs/spider.html

⁴⁰⁰http://www.wadsworth.org/spider_doc/spider/docs/spider.html

⁴⁰¹http://www.wadsworth.org/spider_doc/spider/docs/image_doc.html

⁴⁰²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/SpiderReader.java>

18.116 Targa

Extensions: .tga

Developer: Truevision⁴⁰³

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*⁴⁰⁴

Notes:

18.117 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: ▼

⁴⁰³<http://www.truevision.com>

⁴⁰⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/TargaReader.java>

Utility: 

Additional Information

Source Code: [TextReader.java](#)⁴⁰⁵

Notes:

Reads tabular pixel data produced by a variety of software.


18.118 TIFF (Tagged Image File Format)

Extensions: .tif

Developer: Aldus and Microsoft

Owner: [Adobe](#)⁴⁰⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *TIFF (Tagged Image File Format)*

Sample Datasets:


- [LZW TIFF data gallery](#)⁴⁰⁷
- [Big TIFF](#)⁴⁰⁸

We currently have:

- a [TIFF specification document](#)⁴⁰⁹ (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](#)⁴¹⁰ Source Code: [TiffWriter.java](#)⁴¹¹

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:

⁴⁰⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/TextReader.java>

⁴⁰⁶<http://www.adobe.com>

⁴⁰⁷http://marlin.life.utsa.edu/Data_Gallery.html

⁴⁰⁸<http://tiffcentral.com/>

⁴⁰⁹<http://partners.adobe.com/asn/developer/PDFS/TN/TIFF6.pdf>

⁴¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/TiffReader.java>

⁴¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/out/TiffWriter.java>

TIFF technical overview⁴¹² BigTIFF technical overview⁴¹³

18.119 TillPhotonics TillVision

Extensions: .vws

Developer: TILL Photonics⁴¹⁴

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: 

Additional Information

Source Code: *TillVisionReader.java*⁴¹⁵

Notes:

18.120 Topometrix

Extensions: .tfr, .ffr, .zfr, .zfp, .2fl

Owner: TopoMetrix (now Veeco)⁴¹⁶

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

⁴¹²<http://www.awaresystems.be/imaging/tiff/faq.html#q3>

⁴¹³<http://www.awaresystems.be/imaging/tiff/bigtiff.html>

⁴¹⁴<http://www.till-photonics.com/>


⁴¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/TillVisionReader.java>


⁴¹⁶<http://www.veeco.com/>


We would like to have:


- an official specification document
- more Topometrix files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


Source Code: [TopometrixReader.java](#)⁴¹⁷

Notes:

18.121 Trestle

Extensions: .tif, .sld, .jpg

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Trestle*

Sample Datasets:


- [OpenSlide](#)⁴¹⁸

We currently have:


- a few example datasets
- [developer documentation from the OpenSlide project](#)⁴¹⁹


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [TrestleReader.java](#)⁴²⁰

Notes:

⁴¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/TopometrixReader.java>

⁴¹⁸<http://openslide.cs.cmu.edu/download/openslide-testdata/Trestle/>

⁴¹⁹<http://openslide.org/Trestle%20format/>

⁴²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/TrestleReader.java>

18.122 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](#)⁴²¹

Notes:

18.123 Unisoku

Extensions: .dat, .hdr

Owner: [Unisoku](#)⁴²²

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


⁴²¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/UBMReader.java>


⁴²²<http://www.unisoku.com>


- more Unisoku files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [UnisokuReader.java](#)⁴²³


Notes:

18.124 Varian FDF

Extensions: .fdf

Developer: [Varian, Inc.](#)⁴²⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Varian FDF*


We currently have:

- a few Varian FDF datasets

We would like to have:


- an official specification document
- more Varian FDF datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [VarianFDFReader.java](#)⁴²⁵

Notes:

⁴²³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/UnisokuReader.java>


⁴²⁴<http://www.varianinc.com>

⁴²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/VarianFDFReader.java>

18.125 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](#)⁴²⁶


Notes:

18.126 VisiTech XYS

Extensions: .xys, .html

Developer: [VisiTech International](#)⁴²⁷

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

⁴²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/VGSAMReader.java>

⁴²⁷<http://www.visitech.co.uk/>

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [VisitechReader.java](#)⁴²⁸

Notes:

18.127 Volocity

Extensions: .mvd2

Developer: [PerkinElmer](#)⁴²⁹**Support**

BSD-licensed:

Export:

Officially Supported Versions:

Supported Metadata Fields: *Volocity*

Sample Datasets:

- [Volocity Demo](#)⁴³⁰

We currently have:

- many example Volocity datasets

We would like to have:

- an official specification document
- any Volocity datasets that do not open correctly

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional InformationSource Code: [VolocityReader.java](#)⁴³¹

Notes:

.mvd2 files are [Metakit database files](#)⁴³².⁴²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/VisitechReader.java>⁴²⁹<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.xhtml>⁴³⁰<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocitydemo.xhtml>⁴³¹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/VolocityReader.java>⁴³²<http://equi4.com/metakit/>

18.128 Volocity Library Clipping

Extensions: .acff

Developer: [PerkinElmer](#)⁴³³

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](#)⁴³⁴

Notes:

RGB .acff files are not yet supported. See [#6413](#)⁴³⁵.

18.129 WA-TOP

Extensions: .wat

Developer: WA Technology

Owner: [Oxford Instruments](#)⁴³⁶

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)

⁴³³<http://www.perkinelmer.com/pages/020/cellularimaging/products/volocity.shtml>

⁴³⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/VolocityClippingReader.java>

⁴³⁵<http://trac.openmicroscopy.org.uk/ome/ticket/6413>


⁴³⁶<http://www.oxinst.com>

- 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](#)⁴³⁷


Notes:

18.130 Windows Bitmap

Extensions: .bmp

Developer: Microsoft and IBM

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Windows Bitmap*

Freely Available Software:


- [BMP Writer plugin for ImageJ](#)⁴³⁸

We currently have:


- many BMP datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [BMPReader.java](#)⁴³⁹

Notes:

⁴³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/WATOPReader.java>

⁴³⁸<http://rsb.info.nih.gov/ij/plugins/bmp-writer.html>

⁴³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-bsd/src/loci/formats/in/BMPReader.java>

Compressed BMP files are currently not supported.

See also:


[Technical Overview](#)⁴⁴⁰

18.131 Woolz

Extensions: .wlz

Developer: [MRC Human Genetics Unit](#)⁴⁴¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Woolz*

Freely Available Software:


- [Woolz](#)⁴⁴²


We currently have:


- a few Woolz datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [WlzReader.java](#)⁴⁴³ Source Code: [WlzWriter.java](#)⁴⁴⁴

Notes:

18.132 Zeiss AxioVision TIFF

Extensions: .xml, .tiff

Developer: [Carl Zeiss MicroImaging GmbH](#)⁴⁴⁵

Owner: [Carl Zeiss MicroImaging GmbH](#)⁴⁴⁶

Support

BSD-licensed: 

Export: 

⁴⁴⁰<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-18.html>

⁴⁴¹http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

⁴⁴²http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

⁴⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/WlzReader.java>

⁴⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/out/WlzWriter.java>

⁴⁴⁵<http://www.zeiss.com/micro>

⁴⁴⁶<http://www.zeiss.com/micro>

Officially Supported Versions:

Supported Metadata Fields: *Zeiss AxioVision TIFF*

Freely Available Software:

- [Zeiss ZEN Lite](#)⁴⁴⁷


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](#)⁴⁴⁸

Notes:

18.133 Zeiss AxioVision ZVI (Zeiss Vision Image)

Extensions: `.zvi`

Developer: [Carl Zeiss MicroImaging GmbH \(AxioVision\)](#)⁴⁴⁹

Owner: [Carl Zeiss MicroImaging GmbH](#)⁴⁵⁰

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](#)⁴⁵¹

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

⁴⁴⁷http://microscopy.zeiss.com/microscopy/en_de/downloads/zen.html

⁴⁴⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ZeissTIFFReader.java>


⁴⁴⁹<http://www.zeiss.com/axiovision>


⁴⁵⁰<http://www.zeiss.com/micro>


⁴⁵¹<http://www.zeiss.de/c/12567be0045acf1/Contents-Frame/cbe917247da02a1cc1256e0000491172>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Source Code: [ZeissZVIReader.java](#)⁴⁵²

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](#)⁴⁵³ to read ZVI files.

Commercial applications that support ZVI include [Bitplane Imaris](#)⁴⁵⁴.

See also:


[Axiovision software overview](#)⁴⁵⁵

18.134 Zeiss CZI

Extensions: .czi

Developer: [Carl Zeiss MicroImaging GmbH](#)⁴⁵⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Supported Metadata Fields: *Zeiss CZI*

Freely Available Software:


- [Zeiss ZEN 2011](#)⁴⁵⁷

We currently have:

- many example datasets
- official specification documents


We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

⁴⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ZeissZVIReader.java>


⁴⁵³<http://jakarta.apache.org/poi/>

⁴⁵⁴<http://www.bitplane.com/>

⁴⁵⁵<http://www.zeiss.com/C12567BE0045ACF1/ContentsWWWIntern/668C9FDCBB18C6E2412568C10045A72E>

⁴⁵⁶<http://www.zeiss.com/micro>

⁴⁵⁷<http://www.zeiss.de/C12567BE0045ACF1/Contents-Frame/A57B6AE510CE8FF1C12578FE002A725D>


Utility: **Additional Information**Source Code: [ZeissCZIReader.java](#)⁴⁵⁸

Notes:

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

18.135 Zeiss LSM (Laser Scanning Microscope) 510/710

Extensions: .lsm, .mdb

Owner: [Carl Zeiss MicroImaging GmbH](#)⁴⁵⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Supported Metadata Fields: *Zeiss LSM (Laser Scanning Microscope) 510/710*





Freely Available Software:

- [Zeiss LSM Image Browser](#)⁴⁶⁰
- [LSM Toolbox plugin for ImageJ](#)⁴⁶¹
- [LSM Reader plugin for ImageJ](#)⁴⁶²
- [DIMIN](#)⁴⁶³

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:

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**Source Code: [ZeissLSMReader.java](#)⁴⁶⁴

Notes:

Please note that while we have specification documents for this format, we are not able to distribute them to third parties.⁴⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ZeissCZIReader.java>⁴⁵⁹<http://www.zeiss.com/micro>⁴⁶⁰http://www.zeiss.com.au/microscopy/en_au/downloads/lsm-5-series.html⁴⁶¹<http://imagejdocu.tudor.lu/Members/ppirrotte/lsmtoolbox>⁴⁶²<http://rsb.info.nih.gov/ij/plugins/lsm-reader.html>⁴⁶³<http://www.dimin.net/>⁴⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.0.2/components/formats-gpl/src/loci/formats/in/ZeissLSMReader.java>

Bio-Formats uses the [MDB Tools Java port](http://mdbtools.sourceforge.net/)⁴⁶⁵

Commercial applications that support this format include:

- [SVI Huygens](http://www.svi.nl/)⁴⁶⁶
- [Bitplane Imaris](http://www.bitplane.com/)⁴⁶⁷
- [Amira](http://www.amira.com/)⁴⁶⁸
- [Image-Pro Plus](http://www.mediacy.com/)⁴⁶⁹

⁴⁶⁵<http://mdbtools.sourceforge.net/>

⁴⁶⁶<http://www2.svi.nl/>

⁴⁶⁷<http://www.bitplane.com/>

⁴⁶⁸<http://www.amira.com/>

⁴⁶⁹<http://www.mediacy.com/>

SUMMARY OF SUPPORTED METADATA FIELDS

19.1 Format readers

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>AFIReader</i>	23	0	0	452
<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>PCIReader</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>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
<i>ZeissZVIReader</i>	19	0	0	456

Continued on next page

Table 19.1 – continued from previous page

Format	Supported	Unsupported	Partial	Unknown/Missing
<i>ZipReader</i>	19	0	0	456

19.2 Metadata fields

Field	Supported	Unsupported	Partial	Unknown/Missing
Arc - ID ¹	0	0	0	159
Arc - LotNumber ²	1	0	0	158
Arc - Manufacturer ³	1	0	0	158
Arc - Model ⁴	1	0	0	158
Arc - Power ⁵	1	0	0	158
Arc - SerialNumber ⁶	1	0	0	158
Arc - Type ⁷	0	0	0	159
BooleanAnnotation - AnnotationRef ⁸	0	0	0	159
BooleanAnnotation - Description ⁹	0	0	0	159
BooleanAnnotation - ID ¹⁰	0	0	0	159
BooleanAnnotation - Namespace ¹¹	0	0	0	159
BooleanAnnotation - Value ¹²	0	0	0	159
Channel - AcquisitionMode ¹³	4	0	0	155
Channel - AnnotationRef ¹⁴	0	0	0	159
Channel - Color ¹⁵	8	0	0	151
Channel - ContrastMethod ¹⁶	0	0	0	159
Channel - EmissionWavelength ¹⁷	16	0	0	143
Channel - ExcitationWavelength ¹⁸	17	0	0	142
Channel - FilterSetRef ¹⁹	1	0	0	158
Channel - Fluor ²⁰	1	0	0	158
Channel - ID ²¹	159	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	156
Channel - LightSourceSettingsAttenuation ²³	1	0	0	158
Channel - LightSourceSettingsID ²⁴	5	0	0	154
Channel - LightSourceSettingsWavelength ²⁵	2	0	0	157
Channel - NDFilter ²⁶	2	0	0	157
Channel - Name ²⁷	31	0	0	128
Channel - PinholeSize ²⁸	10	0	0	149
Channel - PockelCellSetting ²⁹	0	0	0	159
Channel - SamplesPerPixel ³⁰	159	0	0	0
CommentAnnotation - AnnotationRef ³¹	0	0	0	159
CommentAnnotation - Description ³²	0	0	0	159
CommentAnnotation - ID ³³	0	0	0	159
CommentAnnotation - Namespace ³⁴	0	0	0	159
CommentAnnotation - Value ³⁵	0	0	0	159
Dataset - AnnotationRef ³⁶	0	0	0	159
Dataset - Description ³⁷	0	0	0	159
Dataset - ExperimenterGroupRef ³⁸	0	0	0	159
Dataset - ExperimenterRef ³⁹	0	0	0	159
Dataset - ID ⁴⁰	0	0	0	159
Dataset - ImageRef ⁴¹	0	0	0	159
Dataset - Name ⁴²	0	0	0	159

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	157
Detector - Gain ⁴⁴	5	0	0	154
Detector - ID ⁴⁵	34	0	0	125
Detector - LotNumber ⁴⁶	1	0	0	158
Detector - Manufacturer ⁴⁷	4	0	0	155
Detector - Model ⁴⁸	13	0	0	146
Detector - Offset ⁴⁹	5	0	0	154
Detector - SerialNumber ⁵⁰	3	0	0	156
Detector - Type ⁵¹	27	0	0	132
Detector - Voltage ⁵²	2	0	0	157
Detector - Zoom ⁵³	4	0	0	155
DetectorSettings - Binning ⁵⁴	17	0	0	142
DetectorSettings - Gain ⁵⁵	19	0	0	140
DetectorSettings - ID ⁵⁶	32	0	0	127
DetectorSettings - Offset ⁵⁷	8	0	0	151
DetectorSettings - ReadOutRate ⁵⁸	5	0	0	154
DetectorSettings - Voltage ⁵⁹	6	0	0	153
Dichroic - ID ⁶⁰	6	0	0	153
Dichroic - LotNumber ⁶¹	1	0	0	158
Dichroic - Manufacturer ⁶²	1	0	0	158
Dichroic - Model ⁶³	6	0	0	153
Dichroic - SerialNumber ⁶⁴	1	0	0	158
DoubleAnnotation - AnnotationRef ⁶⁵	0	0	0	159

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	159
DoubleAnnotation - ID ⁶⁷	0	0	0	159
DoubleAnnotation - Namespace ⁶⁸	0	0	0	159
DoubleAnnotation - Value ⁶⁹	0	0	0	159
Ellipse - FillColor ⁷⁰	0	0	0	159
Ellipse - FillRule ⁷¹	0	0	0	159
Ellipse - FontFamily ⁷²	0	0	0	159
Ellipse - FontSize ⁷³	2	0	0	157
Ellipse - FontStyle ⁷⁴	0	0	0	159
Ellipse - ID ⁷⁵	5	0	0	154
Ellipse - LineCap ⁷⁶	0	0	0	159
Ellipse - Locked ⁷⁷	0	0	0	159
Ellipse - RadiusX ⁷⁸	5	0	0	154
Ellipse - RadiusY ⁷⁹	5	0	0	154
Ellipse - StrokeColor ⁸⁰	0	0	0	159
Ellipse - StrokeDashArray ⁸¹	0	0	0	159
Ellipse - StrokeWidth ⁸²	2	0	0	157
Ellipse - Text ⁸³	3	0	0	156
Ellipse - TheC ⁸⁴	0	0	0	159
Ellipse - TheT ⁸⁵	2	0	0	157
Ellipse - TheZ ⁸⁶	2	0	0	157
Ellipse - Transform ⁸⁷	2	0	0	157
Ellipse - Visible ⁸⁸	0	0	0	159
Ellipse - X ⁸⁹	5	0	0	154
Ellipse - Y ⁹⁰	5	0	0	154
Experiment - Description ⁹¹	1	0	0	158

Continued on next page

- ⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Description
- ⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_ID
- ⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#Annotation_Namespace
- ⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SA_xsd.html#DoubleAnnotation_Value
- ⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor
- ⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule
- ⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily
- ⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize
- ⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle
- ⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID
- ⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap
- ⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked
- ⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX
- ⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY
- ⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor
- ⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray
- ⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth
- ⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text
- ⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC
- ⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT
- ⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ
- ⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform
- ⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible
- ⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X
- ⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y
- ⁹¹http://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	159
Experiment - ID ⁹³	5	0	0	154
Experiment - Type ⁹⁴	5	0	0	154
Experimenter - AnnotationRef ⁹⁵	0	0	0	159
Experimenter - Email ⁹⁶	2	0	0	157
Experimenter - FirstName ⁹⁷	5	0	0	154
Experimenter - ID ⁹⁸	11	0	0	148
Experimenter - Institution ⁹⁹	4	0	0	155
Experimenter - LastName ¹⁰⁰	9	0	0	150
Experimenter - MiddleName ¹⁰¹	1	0	0	158
Experimenter - UserName ¹⁰²	3	0	0	156
ExperimenterGroup - AnnotationRef ¹⁰³	0	0	0	159
ExperimenterGroup - Description ¹⁰⁴	0	0	0	159
ExperimenterGroup - ExperimentRef ¹⁰⁵	0	0	0	159
ExperimenterGroup - ID ¹⁰⁶	0	0	0	159
ExperimenterGroup - Leader ¹⁰⁷	0	0	0	159
ExperimenterGroup - Name ¹⁰⁸	0	0	0	159
Filament - ID ¹⁰⁹	0	0	0	159
Filament - LotNumber ¹¹⁰	1	0	0	158
Filament - Manufacturer ¹¹¹	1	0	0	158
Filament - Model ¹¹²	1	0	0	158
Filament - Power ¹¹³	1	0	0	158

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	158
Filament - Type ¹¹⁵	0	0	0	159
FileAnnotation - AnnotationRef ¹¹⁶	0	0	0	159
FileAnnotation - Description ¹¹⁷	0	0	0	159
FileAnnotation - ID ¹¹⁸	0	0	0	159
FileAnnotation - Namespace ¹¹⁹	0	0	0	159
Filter - Filter-Wheel ¹²⁰	2	0	0	157
Filter - ID ¹²¹	8	0	0	151
Filter - LotNumber ¹²²	1	0	0	158
Filter - Manufacturer ¹²³	1	0	0	158
Filter - Model ¹²⁴	8	0	0	151
Filter - SerialNumber ¹²⁵	1	0	0	158
Filter - Type ¹²⁶	2	0	0	157
FilterSet - DichroicRef ¹²⁷	2	0	0	157
FilterSet - Emission-FilterRef ¹²⁸	2	0	0	157
FilterSet - ExcitationFilterRef ¹²⁹	2	0	0	157
FilterSet - ID ¹³⁰	2	0	0	157
FilterSet - LotNumber ¹³¹	1	0	0	158
FilterSet - Manufacturer ¹³²	1	0	0	158
FilterSet - Model ¹³³	2	0	0	157
FilterSet - Serial-Number ¹³⁴	1	0	0	158
Image - Acquisition-Date ¹³⁵	159	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	159
Image - Description ¹³⁷	43	0	0	116
Image - ExperimentRef ¹³⁸	2	0	0	157
Image - ExperimenterGroupRef ¹³⁹	0	0	0	159
Image - ExperimenterRef ¹⁴⁰	6	0	0	153
Image - ID ¹⁴¹	159	0	0	0
Image - InstrumentRef ¹⁴²	42	0	0	117
Image - Microbeam-ManipulationRef ¹⁴³	0	0	0	159
Image - Name ¹⁴⁴	159	0	0	0
Image - ROIRef ¹⁴⁵	11	0	0	148
ImagingEnvironment - AirPressure ¹⁴⁶	1	0	0	158
ImagingEnvironment - CO2Percent ¹⁴⁷	1	0	0	158
ImagingEnvironment - Humidity ¹⁴⁸	1	0	0	158
ImagingEnvironment - Temperature ¹⁴⁹	10	0	0	149
Instrument - ID ¹⁵⁰	47	0	0	112
Label - FillColor ¹⁵¹	0	0	0	159
Label - FillRule ¹⁵²	0	0	0	159
Label - FontFamily ¹⁵³	0	0	0	159
Label - FontSize ¹⁵⁴	2	0	0	157
Label - FontStyle ¹⁵⁵	0	0	0	159
Label - ID ¹⁵⁶	3	0	0	156
Label - LineCap ¹⁵⁷	0	0	0	159
Label - Locked ¹⁵⁸	0	0	0	159
Label - StrokeColor ¹⁵⁹	0	0	0	159

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	159
Label - StrokeWidth ¹⁶¹	2	0	0	157
Label - Text ¹⁶²	3	0	0	156
Label - TheC ¹⁶³	0	0	0	159
Label - TheT ¹⁶⁴	0	0	0	159
Label - TheZ ¹⁶⁵	0	0	0	159
Label - Transform ¹⁶⁶	0	0	0	159
Label - Visible ¹⁶⁷	0	0	0	159
Label - X ¹⁶⁸	3	0	0	156
Label - Y ¹⁶⁹	3	0	0	156
Laser - Frequency-Multiplication ¹⁷⁰	0	0	0	159
Laser - ID ¹⁷¹	9	0	0	150
Laser - Laser-Medium ¹⁷²	8	0	0	151
Laser - LotNumber ¹⁷³	1	0	0	158
Laser - Manufacturer ¹⁷⁴	2	0	0	157
Laser - Model ¹⁷⁵	4	0	0	155
Laser - PockelCell ¹⁷⁶	0	0	0	159
Laser - Power ¹⁷⁷	3	0	0	156
Laser - Pulse ¹⁷⁸	0	0	0	159
Laser - Pump ¹⁷⁹	0	0	0	159
Laser - Repetition-Rate ¹⁸⁰	1	0	0	158
Laser - SerialNumber ¹⁸¹	1	0	0	158
Laser - Tuneable ¹⁸²	0	0	0	159
Laser - Type ¹⁸³	8	0	0	151
Laser - Wavelength ¹⁸⁴	7	0	0	152
LightEmittingDiode - ID ¹⁸⁵	0	0	0	159

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	158
LightEmittingDiode - Manufacturer ¹⁸⁷	1	0	0	158
LightEmittingDiode - Model ¹⁸⁸	1	0	0	158
LightEmittingDiode - Power ¹⁸⁹	1	0	0	158
LightEmittingDiode - SerialNumber ¹⁹⁰	1	0	0	158
LightPath - DichroicRef ¹⁹¹	3	0	0	156
LightPath - EmissionFilterRef ¹⁹²	5	0	0	154
LightPath - ExcitationFilterRef ¹⁹³	1	0	0	158
Line - FillColor ¹⁹⁴	0	0	0	159
Line - FillRule ¹⁹⁵	0	0	0	159
Line - FontFamily ¹⁹⁶	0	0	0	159
Line - FontSize ¹⁹⁷	2	0	0	157
Line - FontStyle ¹⁹⁸	0	0	0	159
Line - ID ¹⁹⁹	5	0	0	154
Line - LineCap ²⁰⁰	0	0	0	159
Line - Locked ²⁰¹	0	0	0	159
Line - MarkerEnd ²⁰²	0	0	0	159
Line - MarkerStart ²⁰³	0	0	0	159
Line - StrokeColor ²⁰⁴	0	0	0	159
Line - StrokeDashArray ²⁰⁵	0	0	0	159
Line - StrokeWidth ²⁰⁶	2	0	0	157
Line - Text ²⁰⁷	2	0	0	157
Line - TheC ²⁰⁸	0	0	0	159
Line - TheT ²⁰⁹	1	0	0	158
Line - TheZ ²¹⁰	1	0	0	158
Line - Transform ²¹¹	1	0	0	158

Continued on next page

- ¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber
- ¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer
- ¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model
- ¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power
- ¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber
- ¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID
- ¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID
- ¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID
- ¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor
- ¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillRule
- ¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontFamily
- ¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize
- ¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontStyle
- ¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID
- ²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_LineCap
- ²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Locked
- ²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_MarkerEnd
- ²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_MarkerStart
- ²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor
- ²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray
- ²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth
- ²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text
- ²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC
- ²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT
- ²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ
- ²¹¹http://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	159
Line - X1 ²¹³	5	0	0	154
Line - X2 ²¹⁴	5	0	0	154
Line - Y1 ²¹⁵	5	0	0	154
Line - Y2 ²¹⁶	5	0	0	154
ListAnnotation - AnnotationRef ²¹⁷	0	0	0	159
ListAnnotation - Description ²¹⁸	0	0	0	159
ListAnnotation - ID ²¹⁹	0	0	0	159
ListAnnotation - Namespace ²²⁰	0	0	0	159
LongAnnotation - AnnotationRef ²²¹	0	0	0	159
LongAnnotation - Description ²²²	0	0	0	159
LongAnnotation - ID ²²³	0	0	0	159
LongAnnotation - Namespace ²²⁴	0	0	0	159
LongAnnotation - Value ²²⁵	0	0	0	159
Mask - FillColor ²²⁶	1	0	0	158
Mask - FillRule ²²⁷	0	0	0	159
Mask - FontFamily ²²⁸	0	0	0	159
Mask - FontSize ²²⁹	0	0	0	159
Mask - Height ²³⁰	2	0	0	157
Mask - ID ²³¹	2	0	0	157
Mask - LineCap ²³²	0	0	0	159
Mask - Locked ²³³	0	0	0	159
Mask - StrokeColor ²³⁴	1	0	0	158
Mask - StrokeDashArray ²³⁵	0	0	0	159

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	159
Mask - Text ²³⁷	0	0	0	159
Mask - TheC ²³⁸	0	0	0	159
Mask - TheT ²³⁹	0	0	0	159
Mask - TheZ ²⁴⁰	0	0	0	159
Mask - Transform ²⁴¹	0	0	0	159
Mask - Visible ²⁴²	0	0	0	159
Mask - Width ²⁴³	2	0	0	157
Mask - X ²⁴⁴	2	0	0	157
Mask - Y ²⁴⁵	2	0	0	157
MicrobeamManipulation - ExperimenterRef ²⁴⁶	0	0	0	159
MicrobeamManipulation - ID ²⁴⁷	0	0	0	159
MicrobeamManipulation - ROIRef ²⁴⁸	0	0	0	159
MicrobeamManipulation - Type ²⁴⁹	0	0	0	159
MicrobeamManipulationLightSourceSettings - Attenuation ²⁵⁰	0	0	0	159
MicrobeamManipulationLightSourceSettings - ID ²⁵¹	0	0	0	159
MicrobeamManipulationLightSourceSettings - Wavelength ²⁵²	0	0	0	159
Microscope - Lot-Number ²⁵³	1	0	0	158
Microscope - Manufacturer ²⁵⁴	2	0	0	157
Microscope - Model ²⁵⁵	11	0	0	148
Microscope - Serial-Number ²⁵⁶	4	0	0	155
Microscope - Type ²⁵⁷	3	0	0	156
Objective - CalibratedMagnification ²⁵⁸	9	0	0	150
Objective - Correction ²⁵⁹	25	0	0	134

Continued on next page

²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth
²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text
²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheC
²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT
²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ
²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform
²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Visible
²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width
²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X
²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y
²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID
²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#MicrobeamManipulation_ID
²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID
²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#MicrobeamManipulation_Type
²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Attenuation
²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID
²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength
²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber
²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer
²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model
²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber
²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type
²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification
²⁵⁹http://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	32	0	0	127
Objective - Immersion ²⁶¹	26	0	0	133
Objective - Iris ²⁶²	2	0	0	157
Objective - LensNA ²⁶³	19	0	0	140
Objective - LotNumber ²⁶⁴	1	0	0	158
Objective - Manufacturer ²⁶⁵	5	0	0	154
Objective - Model ²⁶⁶	12	0	0	147
Objective - NominalMagnification ²⁶⁷	24	0	0	135
Objective - SerialNumber ²⁶⁸	3	0	0	156
Objective - WorkingDistance ²⁶⁹	9	0	0	150
ObjectiveSettings - CorrectionCollar ²⁷⁰	1	0	0	158
ObjectiveSettings - ID ²⁷¹	27	0	0	132
ObjectiveSettings - Medium ²⁷²	1	0	0	158
ObjectiveSettings - RefractiveIndex ²⁷³	7	0	0	152
Pixels - AnnotationRef ²⁷⁴	0	0	0	159
Pixels - BigEndian ²⁷⁵	159	0	0	0
Pixels - DimensionOrder ²⁷⁶	159	0	0	0
Pixels - ID ²⁷⁷	159	0	0	0
Pixels - Interleaved ²⁷⁸	159	0	0	0
Pixels - PhysicalSizeX ²⁷⁹	83	0	0	76
Pixels - PhysicalSizeY ²⁸⁰	83	0	0	76
Pixels - PhysicalSizeZ ²⁸¹	42	0	0	117

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	159	0	0	0
Pixels - SizeC ²⁸³	159	0	0	0
Pixels - SizeT ²⁸⁴	159	0	0	0
Pixels - SizeX ²⁸⁵	159	0	0	0
Pixels - SizeY ²⁸⁶	159	0	0	0
Pixels - SizeZ ²⁸⁷	159	0	0	0
Pixels - TimeIncrement ²⁸⁸	16	0	0	143
Pixels - Type ²⁸⁹	159	0	0	0
Plane - Annotation-Ref ²⁹⁰	0	0	0	159
Plane - DeltaT ²⁹¹	24	0	0	135
Plane - Exposure-Time ²⁹²	30	0	0	129
Plane - HashSHA1 ²⁹³	0	0	0	159
Plane - PositionX ²⁹⁴	27	0	0	132
Plane - PositionY ²⁹⁵	27	0	0	132
Plane - PositionZ ²⁹⁶	21	0	0	138
Plane - TheC ²⁹⁷	159	0	0	0
Plane - TheT ²⁹⁸	159	0	0	0
Plane - TheZ ²⁹⁹	159	0	0	0
Plate - Annotation-Ref ³⁰⁰	0	0	0	159
Plate - ColumnNamingConvention ³⁰¹	8	0	0	151
Plate - Columns ³⁰²	4	0	0	155
Plate - Description ³⁰³	2	0	0	157
Plate - ExternalIdentifier ³⁰⁴	3	0	0	156
Plate - ID ³⁰⁵	10	0	0	149
Plate - Name ³⁰⁶	9	0	0	150
Plate - RowNamingConvention ³⁰⁷	8	0	0	151

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	155
Plate - Status ³⁰⁹	0	0	0	159
Plate - WellOriginX ³¹⁰	1	0	0	158
Plate - WellOriginY ³¹¹	1	0	0	158
PlateAcquisition - AnnotationRef ³¹²	0	0	0	159
PlateAcquisition - Description ³¹³	0	0	0	159
PlateAcquisition - EndTime ³¹⁴	2	0	0	157
PlateAcquisition - ID ³¹⁵	8	0	0	151
PlateAcquisition - MaximumFieldCount ³¹⁶	8	0	0	151
PlateAcquisition - Name ³¹⁷	0	0	0	159
PlateAcquisition - StartTime ³¹⁸	3	0	0	156
PlateAcquisition - WellSampleRef ³¹⁹	7	0	0	152
Point - FillColor ³²⁰	0	0	0	159
Point - FillRule ³²¹	0	0	0	159
Point - FontFamily ³²²	0	0	0	159
Point - FontSize ³²³	1	0	0	158
Point - FontStyle ³²⁴	0	0	0	159
Point - ID ³²⁵	3	0	0	156
Point - LineCap ³²⁶	0	0	0	159
Point - Locked ³²⁷	0	0	0	159
Point - StrokeColor ³²⁸	1	0	0	158
Point - StrokeDashArray ³²⁹	1	0	0	158
Point - StrokeWidth ³³⁰	2	0	0	157
Point - Text ³³¹	1	0	0	158

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	159
Point - TheT ³³³	1	0	0	158
Point - TheZ ³³⁴	2	0	0	157
Point - Transform ³³⁵	0	0	0	159
Point - Visible ³³⁶	0	0	0	159
Point - X ³³⁷	3	0	0	156
Point - Y ³³⁸	3	0	0	156
Polygon - Fill-Color ³³⁹	0	0	0	159
Polygon - FillRule ³⁴⁰	0	0	0	159
Polygon - FontFamily ³⁴¹	0	0	0	159
Polygon - Font-Size ³⁴²	2	0	0	157
Polygon - FontStyle ³⁴³	0	0	0	159
Polygon - ID ³⁴⁴	7	0	0	152
Polygon - LineCap ³⁴⁵	0	0	0	159
Polygon - Locked ³⁴⁶	0	0	0	159
Polygon - Points ³⁴⁷	7	0	0	152
Polygon - Stroke-Color ³⁴⁸	1	0	0	158
Polygon - StrokeDashArray ³⁴⁹	1	0	0	158
Polygon - StrokeWidth ³⁵⁰	3	0	0	156
Polygon - Text ³⁵¹	2	0	0	157
Polygon - TheC ³⁵²	0	0	0	159
Polygon - TheT ³⁵³	1	0	0	158
Polygon - TheZ ³⁵⁴	2	0	0	157
Polygon - Transform ³⁵⁵	1	0	0	158
Polygon - Visible ³⁵⁶	0	0	0	159
Polyline - Fill-Color ³⁵⁷	0	0	0	159

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	159
Polyline - FontFamily ³⁵⁹	0	0	0	159
Polyline - FontSize ³⁶⁰	2	0	0	157
Polyline - FontStyle ³⁶¹	0	0	0	159
Polyline - ID ³⁶²	5	0	0	154
Polyline - LineCap ³⁶³	0	0	0	159
Polyline - Locked ³⁶⁴	0	0	0	159
Polyline - MarkerEnd ³⁶⁵	0	0	0	159
Polyline - MarkerStart ³⁶⁶	0	0	0	159
Polyline - Points ³⁶⁷	5	0	0	154
Polyline - StrokeColor ³⁶⁸	1	0	0	158
Polyline - StrokeDashArray ³⁶⁹	1	0	0	158
Polyline - StrokeWidth ³⁷⁰	3	0	0	156
Polyline - Text ³⁷¹	2	0	0	157
Polyline - TheC ³⁷²	0	0	0	159
Polyline - TheT ³⁷³	1	0	0	158
Polyline - TheZ ³⁷⁴	2	0	0	157
Polyline - Transform ³⁷⁵	1	0	0	158
Polyline - Visible ³⁷⁶	0	0	0	159
Project - AnnotationRef ³⁷⁷	0	0	0	159
Project - DatasetRef ³⁷⁸	0	0	0	159
Project - Description ³⁷⁹	0	0	0	159
Project - ExperimenterGroupRef ³⁸⁰	0	0	0	159
Project - ExperimenterRef ³⁸¹	0	0	0	159

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	159
Project - Name ³⁸³	0	0	0	159
ROI - Annotation-Ref ³⁸⁴	0	0	0	159
ROI - Description ³⁸⁵	1	0	0	158
ROI - ID ³⁸⁶	11	0	0	148
ROI - Name ³⁸⁷	3	0	0	156
ROI - Namespace ³⁸⁸	0	0	0	159
Reagent - AnnotationRef ³⁸⁹	0	0	0	159
Reagent - Description ³⁹⁰	0	0	0	159
Reagent - ID ³⁹¹	0	0	0	159
Reagent - Name ³⁹²	0	0	0	159
Reagent - ReagentIdentifier ³⁹³	0	0	0	159
Rectangle - FillColor ³⁹⁴	0	0	0	159
Rectangle - FillRule ³⁹⁵	0	0	0	159
Rectangle - FontFamily ³⁹⁶	0	0	0	159
Rectangle - FontSize ³⁹⁷	2	0	0	157
Rectangle - FontStyle ³⁹⁸	0	0	0	159
Rectangle - Height ³⁹⁹	7	0	0	152
Rectangle - ID ⁴⁰⁰	7	0	0	152
Rectangle - LineCap ⁴⁰¹	0	0	0	159
Rectangle - Locked ⁴⁰²	0	0	0	159
Rectangle - StrokeColor ⁴⁰³	0	0	0	159
Rectangle - StrokeDashArray ⁴⁰⁴	0	0	0	159
Rectangle - StrokeWidth ⁴⁰⁵	2	0	0	157

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	157
Rectangle - TheC ⁴⁰⁷	0	0	0	159
Rectangle - TheT ⁴⁰⁸	1	0	0	158
Rectangle - TheZ ⁴⁰⁹	1	0	0	158
Rectangle - Transform ⁴¹⁰	1	0	0	158
Rectangle - Visible ⁴¹¹	0	0	0	159
Rectangle - Width ⁴¹²	7	0	0	152
Rectangle - X ⁴¹³	7	0	0	152
Rectangle - Y ⁴¹⁴	7	0	0	152
Screen - AnnotationRef ⁴¹⁵	0	0	0	159
Screen - Description ⁴¹⁶	0	0	0	159
Screen - ID ⁴¹⁷	1	0	0	158
Screen - Name ⁴¹⁸	1	0	0	158
Screen - PlateRef ⁴¹⁹	1	0	0	158
Screen - ProtocolDescription ⁴²⁰	0	0	0	159
Screen - ProtocolIdentifier ⁴²¹	0	0	0	159
Screen - ReagentSetDescription ⁴²²	0	0	0	159
Screen - ReagentSetIdentifier ⁴²³	0	0	0	159
Screen - Type ⁴²⁴	0	0	0	159
StageLabel - Name ⁴²⁵	3	0	0	156
StageLabel - X ⁴²⁶	2	0	0	157
StageLabel - Y ⁴²⁷	2	0	0	157
StageLabel - Z ⁴²⁸	3	0	0	156
TagAnnotation - AnnotationRef ⁴²⁹	0	0	0	159
TagAnnotation - Description ⁴³⁰	0	0	0	159

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	159
TagAnnotation Namespace ⁴³²	0	0	0	159
TagAnnotation Value ⁴³³	0	0	0	159
TermAnnotation AnnotationRef ⁴³⁴	0	0	0	159
TermAnnotation Description ⁴³⁵	0	0	0	159
TermAnnotation ID ⁴³⁶	0	0	0	159
TermAnnotation Namespace ⁴³⁷	0	0	0	159
TermAnnotation Value ⁴³⁸	0	0	0	159
TiffData - FirstC ⁴³⁹	0	0	0	159
TiffData - FirstT ⁴⁴⁰	0	0	0	159
TiffData - FirstZ ⁴⁴¹	0	0	0	159
TiffData - IFD ⁴⁴²	0	0	0	159
TiffData PlaneCount ⁴⁴³	0	0	0	159
TimestampAnnotation - AnnotationRef ⁴⁴⁴	0	0	0	159
TimestampAnnotation - Description ⁴⁴⁵	0	0	0	159
TimestampAnnotation - ID ⁴⁴⁶	0	0	0	159
TimestampAnnotation - Namespace ⁴⁴⁷	0	0	0	159
TimestampAnnotation - Value ⁴⁴⁸	0	0	0	159
TransmittanceRange - CutIn ⁴⁴⁹	5	0	0	154
TransmittanceRange - CutInTolerance ⁴⁵⁰	1	0	0	158
TransmittanceRange - CutOut ⁴⁵¹	5	0	0	154

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	158
TransmittanceRange - Transmittance ⁴⁵³	1	0	0	158
UUID - FileName ⁴⁵⁴	0	0	0	159
UUID - Value ⁴⁵⁵	0	0	0	159
Well - Annotation-Ref ⁴⁵⁶	0	0	0	159
Well - Color ⁴⁵⁷	0	0	0	159
Well - Column ⁴⁵⁸	11	0	0	148
Well - ExternalDescription ⁴⁵⁹	0	0	0	159
Well - ExternalIdentifier ⁴⁶⁰	0	0	0	159
Well - ID ⁴⁶¹	11	0	0	148
Well - ReagentRef ⁴⁶²	0	0	0	159
Well - Row ⁴⁶³	11	0	0	148
Well - Type ⁴⁶⁴	0	0	0	159
WellSample - AnnotationRef ⁴⁶⁵	0	0	0	159
WellSample - ID ⁴⁶⁶	11	0	0	148
WellSample - ImageRef ⁴⁶⁷	10	0	0	149
WellSample - Index ⁴⁶⁸	11	0	0	148
WellSample - PositionX ⁴⁶⁹	5	0	0	154
WellSample - PositionY ⁴⁷⁰	5	0	0	154
WellSample - Timepoint ⁴⁷¹	0	0	0	159
XMLAnnotation - AnnotationRef ⁴⁷²	0	0	0	159
XMLAnnotation - ID ⁴⁷³	0	0	0	159
XMLAnnotation - Namespace ⁴⁷⁴	0	0	0	159

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	159

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 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 Aperio AFI format reader:

- Channel : EmissionWavelength⁶³⁹
- Channel : ExcitationWavelength⁶⁴⁰
- Channel : ID⁶⁴¹
- Channel : Name⁶⁴²
- Channel : SamplesPerPixel⁶⁴³
- Image : AcquisitionDate⁶⁴⁴
- Image : ID⁶⁴⁵
- Image : Name⁶⁴⁶
- Pixels : BigEndian⁶⁴⁷
- Pixels : DimensionOrder⁶⁴⁸
- Pixels : 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#Image_Name

⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁶⁵⁰
- Pixels : SignificantBits⁶⁵¹
- Pixels : SizeC⁶⁵²
- Pixels : SizeT⁶⁵³
- Pixels : SizeX⁶⁵⁴
- Pixels : SizeY⁶⁵⁵
- Pixels : SizeZ⁶⁵⁶
- Pixels : Type⁶⁵⁷
- Plane : ExposureTime⁶⁵⁸
- Plane : TheC⁶⁵⁹
- Plane : TheT⁶⁶⁰
- Plane : TheZ⁶⁶¹

Total supported: 23

Total unknown or missing: 452

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](#)⁶⁶². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Aperio SVS format reader:

- Channel : EmissionWavelength⁶⁶³
- Channel : ExcitationWavelength⁶⁶⁴
- Channel : ID⁶⁶⁵
- Channel : SamplesPerPixel⁶⁶⁶
- Image : AcquisitionDate⁶⁶⁷

⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁶⁶²<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description⁶⁶⁸
- Image : ID⁶⁶⁹
- Image : InstrumentRef⁶⁷⁰
- Image : Name⁶⁷¹
- Instrument : ID⁶⁷²
- Objective : ID⁶⁷³
- Objective : NominalMagnification⁶⁷⁴
- ObjectiveSettings : ID⁶⁷⁵
- Pixels : BigEndian⁶⁷⁶
- Pixels : DimensionOrder⁶⁷⁷
- Pixels : ID⁶⁷⁸
- Pixels : Interleaved⁶⁷⁹
- Pixels : PhysicalSizeX⁶⁸⁰
- Pixels : PhysicalSizeY⁶⁸¹
- Pixels : SignificantBits⁶⁸²
- Pixels : SizeC⁶⁸³
- Pixels : SizeT⁶⁸⁴
- Pixels : SizeX⁶⁸⁵
- Pixels : SizeY⁶⁸⁶
- Pixels : SizeZ⁶⁸⁷
- Pixels : Type⁶⁸⁸
- Plane : TheC⁶⁸⁹
- Plane : TheT⁶⁹⁰
- Plane : TheZ⁶⁹¹

Total supported: 29

Total unknown or missing: 446

⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.9 CellWorxReader

This page lists supported metadata fields for the Bio-Formats CellWorx format reader.

These fields are from the OME data model⁶⁹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength⁶⁹³
- Channel : ExcitationWavelength⁶⁹⁴
- Channel : ID⁶⁹⁵
- Channel : Name⁶⁹⁶
- Channel : SamplesPerPixel⁶⁹⁷
- Detector : ID⁶⁹⁸
- DetectorSettings : Gain⁶⁹⁹
- DetectorSettings : ID⁷⁰⁰
- Image : AcquisitionDate⁷⁰¹
- Image : ID⁷⁰²
- Image : InstrumentRef⁷⁰³
- Image : Name⁷⁰⁴
- Instrument : ID⁷⁰⁵
- Microscope : SerialNumber⁷⁰⁶
- Pixels : BigEndian⁷⁰⁷
- Pixels : DimensionOrder⁷⁰⁸
- Pixels : ID⁷⁰⁹
- Pixels : Interleaved⁷¹⁰
- Pixels : PhysicalSizeX⁷¹¹

⁶⁹²<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁷¹²
- Pixels : SignificantBits⁷¹³
- Pixels : SizeC⁷¹⁴
- Pixels : SizeT⁷¹⁵
- Pixels : SizeX⁷¹⁶
- Pixels : SizeY⁷¹⁷
- Pixels : SizeZ⁷¹⁸
- Pixels : Type⁷¹⁹
- Plane : TheC⁷²⁰
- Plane : TheT⁷²¹
- Plane : TheZ⁷²²
- Plate : ID⁷²³
- Plate : Name⁷²⁴
- PlateAcquisition : EndTime⁷²⁵
- PlateAcquisition : ID⁷²⁶
- PlateAcquisition : MaximumFieldCount⁷²⁷
- PlateAcquisition : StartTime⁷²⁸
- PlateAcquisition : WellSampleRef⁷²⁹
- Well : Column⁷³⁰
- Well : ID⁷³¹
- Well : Row⁷³²
- WellSample : ID⁷³³
- WellSample : ImageRef⁷³⁴
- WellSample : Index⁷³⁵
- WellSample : PositionX⁷³⁶
- WellSample : PositionY⁷³⁷

⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_EndTime

⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

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](#)⁷³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁷³⁹
- Channel : SamplesPerPixel⁷⁴⁰
- Image : AcquisitionDate⁷⁴¹
- Image : ID⁷⁴²
- Image : Name⁷⁴³
- Pixels : BigEndian⁷⁴⁴
- Pixels : DimensionOrder⁷⁴⁵
- Pixels : ID⁷⁴⁶
- Pixels : Interleaved⁷⁴⁷
- Pixels : SignificantBits⁷⁴⁸
- Pixels : SizeC⁷⁴⁹
- Pixels : SizeT⁷⁵⁰
- Pixels : SizeX⁷⁵¹
- Pixels : SizeY⁷⁵²
- Pixels : SizeZ⁷⁵³
- Pixels : Type⁷⁵⁴
- Plane : TheC⁷⁵⁵

⁷³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁷⁵⁶
- Plane : TheZ⁷⁵⁷

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](#)⁷⁵⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁷⁵⁹
- Channel : SamplesPerPixel⁷⁶⁰
- Image : AcquisitionDate⁷⁶¹
- Image : ID⁷⁶²
- Image : Name⁷⁶³
- Pixels : BigEndian⁷⁶⁴
- Pixels : DimensionOrder⁷⁶⁵
- Pixels : ID⁷⁶⁶
- Pixels : Interleaved⁷⁶⁷
- Pixels : SignificantBits⁷⁶⁸
- Pixels : SizeC⁷⁶⁹
- Pixels : SizeT⁷⁷⁰
- Pixels : SizeX⁷⁷¹
- Pixels : SizeY⁷⁷²
- Pixels : SizeZ⁷⁷³

⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷⁵⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type⁷⁷⁴
- Plane : TheC⁷⁷⁵
- Plane : TheT⁷⁷⁶
- Plane : TheZ⁷⁷⁷

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](#)⁷⁷⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength⁷⁷⁹
- Channel : ExcitationWavelength⁷⁸⁰
- Channel : ID⁷⁸¹
- Channel : Name⁷⁸²
- Channel : SamplesPerPixel⁷⁸³
- Detector : ID⁷⁸⁴
- DetectorSettings : Binning⁷⁸⁵
- DetectorSettings : Gain⁷⁸⁶
- DetectorSettings : ID⁷⁸⁷
- DetectorSettings : Offset⁷⁸⁸
- Image : AcquisitionDate⁷⁸⁹
- Image : ID⁷⁹⁰
- Image : InstrumentRef⁷⁹¹

⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁷⁷⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name⁷⁹²
- Image : ROIRef⁷⁹³
- Instrument : ID⁷⁹⁴
- Objective : ID⁷⁹⁵
- Objective : LensNA⁷⁹⁶
- Objective : Manufacturer⁷⁹⁷
- Objective : NominalMagnification⁷⁹⁸
- ObjectiveSettings : ID⁷⁹⁹
- Pixels : BigEndian⁸⁰⁰
- Pixels : DimensionOrder⁸⁰¹
- Pixels : ID⁸⁰²
- Pixels : Interleaved⁸⁰³
- Pixels : SignificantBits⁸⁰⁴
- Pixels : SizeC⁸⁰⁵
- Pixels : SizeT⁸⁰⁶
- Pixels : SizeX⁸⁰⁷
- Pixels : SizeY⁸⁰⁸
- Pixels : SizeZ⁸⁰⁹
- Pixels : Type⁸¹⁰
- Plane : DeltaT⁸¹¹
- Plane : ExposureTime⁸¹²
- Plane : TheC⁸¹³
- Plane : TheT⁸¹⁴
- Plane : TheZ⁸¹⁵
- Plate : ColumnNamingConvention⁸¹⁶
- Plate : Description⁸¹⁷

⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Description

- Plate : ID⁸¹⁸
- Plate : Name⁸¹⁹
- Plate : RowNamingConvention⁸²⁰
- PlateAcquisition : ID⁸²¹
- PlateAcquisition : MaximumFieldCount⁸²²
- PlateAcquisition : WellSampleRef⁸²³
- ROI : ID⁸²⁴
- Rectangle : Height⁸²⁵
- Rectangle : ID⁸²⁶
- Rectangle : Width⁸²⁷
- Rectangle : X⁸²⁸
- Rectangle : Y⁸²⁹
- Well : Column⁸³⁰
- Well : ID⁸³¹
- Well : Row⁸³²
- WellSample : ID⁸³³
- WellSample : ImageRef⁸³⁴
- WellSample : Index⁸³⁵

Total supported: 57

Total unknown or missing: 418

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](#)⁸³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

⁸³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats SPCImage Data format reader:

- Channel : ID⁸³⁷
- Channel : SamplesPerPixel⁸³⁸
- Image : AcquisitionDate⁸³⁹
- Image : ID⁸⁴⁰
- Image : Name⁸⁴¹
- Pixels : BigEndian⁸⁴²
- Pixels : DimensionOrder⁸⁴³
- Pixels : ID⁸⁴⁴
- Pixels : Interleaved⁸⁴⁵
- Pixels : SignificantBits⁸⁴⁶
- Pixels : SizeC⁸⁴⁷
- Pixels : SizeT⁸⁴⁸
- Pixels : SizeX⁸⁴⁹
- Pixels : SizeY⁸⁵⁰
- Pixels : SizeZ⁸⁵¹
- Pixels : Type⁸⁵²
- Plane : TheC⁸⁵³
- Plane : TheT⁸⁵⁴
- Plane : TheZ⁸⁵⁵

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](#)⁸⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁸⁵⁶<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 Bio-Rad GEL format reader:**

- Channel : ID⁸⁵⁷
- Channel : SamplesPerPixel⁸⁵⁸
- Image : AcquisitionDate⁸⁵⁹
- Image : ID⁸⁶⁰
- Image : Name⁸⁶¹
- Pixels : BigEndian⁸⁶²
- Pixels : DimensionOrder⁸⁶³
- Pixels : ID⁸⁶⁴
- Pixels : Interleaved⁸⁶⁵
- Pixels : PhysicalSizeX⁸⁶⁶
- Pixels : PhysicalSizeY⁸⁶⁷
- Pixels : SignificantBits⁸⁶⁸
- Pixels : SizeC⁸⁶⁹
- Pixels : SizeT⁸⁷⁰
- Pixels : SizeX⁸⁷¹
- Pixels : SizeY⁸⁷²
- Pixels : SizeZ⁸⁷³
- Pixels : Type⁸⁷⁴
- Plane : TheC⁸⁷⁵
- Plane : TheT⁸⁷⁶
- Plane : TheZ⁸⁷⁷

Total supported: 21**Total unknown or missing: 454**

⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)⁸⁷⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁸⁷⁹
- Channel : SamplesPerPixel⁸⁸⁰
- Detector : Gain⁸⁸¹
- Detector : ID⁸⁸²
- Detector : Offset⁸⁸³
- Detector : Type⁸⁸⁴
- DetectorSettings : Gain⁸⁸⁵
- DetectorSettings : ID⁸⁸⁶
- DetectorSettings : Offset⁸⁸⁷
- Experiment : ID⁸⁸⁸
- Experiment : Type⁸⁸⁹
- Image : AcquisitionDate⁸⁹⁰
- Image : ID⁸⁹¹
- Image : InstrumentRef⁸⁹²
- Image : Name⁸⁹³
- Instrument : ID⁸⁹⁴
- Objective : Correction⁸⁹⁵
- Objective : ID⁸⁹⁶
- Objective : Immersion⁸⁹⁷

⁸⁷⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

- Objective : LensNA⁸⁹⁸
- Objective : Model⁸⁹⁹
- Objective : NominalMagnification⁹⁰⁰
- ObjectiveSettings : ID⁹⁰¹
- Pixels : BigEndian⁹⁰²
- Pixels : DimensionOrder⁹⁰³
- Pixels : ID⁹⁰⁴
- Pixels : Interleaved⁹⁰⁵
- Pixels : PhysicalSizeX⁹⁰⁶
- Pixels : PhysicalSizeY⁹⁰⁷
- Pixels : PhysicalSizeZ⁹⁰⁸
- Pixels : SignificantBits⁹⁰⁹
- Pixels : SizeC⁹¹⁰
- Pixels : SizeT⁹¹¹
- Pixels : SizeX⁹¹²
- Pixels : SizeY⁹¹³
- Pixels : SizeZ⁹¹⁴
- Pixels : Type⁹¹⁵
- Plane : TheC⁹¹⁶
- Plane : TheT⁹¹⁷
- Plane : TheZ⁹¹⁸

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](#)⁹¹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹¹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

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 : ID⁹²⁰
- Channel : SamplesPerPixel⁹²¹
- Detector : ID⁹²²
- DetectorSettings : Binning⁹²³
- DetectorSettings : Gain⁹²⁴
- DetectorSettings : ID⁹²⁵
- Image : AcquisitionDate⁹²⁶
- Image : ID⁹²⁷
- Image : Name⁹²⁸
- Instrument : ID⁹²⁹
- Microscope : Model⁹³⁰
- Microscope : SerialNumber⁹³¹
- Pixels : BigEndian⁹³²
- Pixels : DimensionOrder⁹³³
- Pixels : ID⁹³⁴
- Pixels : Interleaved⁹³⁵
- Pixels : PhysicalSizeX⁹³⁶
- Pixels : PhysicalSizeY⁹³⁷
- Pixels : SignificantBits⁹³⁸
- Pixels : SizeC⁹³⁹
- Pixels : SizeT⁹⁴⁰
- Pixels : SizeX⁹⁴¹

⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY⁹⁴²
- Pixels : SizeZ⁹⁴³
- Pixels : Type⁹⁴⁴
- Plane : ExposureTime⁹⁴⁵
- Plane : TheC⁹⁴⁶
- Plane : TheT⁹⁴⁷
- Plane : TheZ⁹⁴⁸

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](#)⁹⁴⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : Color⁹⁵⁰
- Channel : ID⁹⁵¹
- Channel : SamplesPerPixel⁹⁵²
- Image : AcquisitionDate⁹⁵³
- Image : ID⁹⁵⁴
- Image : Name⁹⁵⁵
- Pixels : BigEndian⁹⁵⁶
- Pixels : DimensionOrder⁹⁵⁷
- Pixels : ID⁹⁵⁸
- Pixels : Interleaved⁹⁵⁹

⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹⁴⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX⁹⁶⁰
- Pixels : PhysicalSizeY⁹⁶¹
- Pixels : PhysicalSizeZ⁹⁶²
- Pixels : SignificantBits⁹⁶³
- Pixels : SizeC⁹⁶⁴
- Pixels : SizeT⁹⁶⁵
- Pixels : SizeX⁹⁶⁶
- Pixels : SizeY⁹⁶⁷
- Pixels : SizeZ⁹⁶⁸
- Pixels : Type⁹⁶⁹
- Plane : TheC⁹⁷⁰
- Plane : TheT⁹⁷¹
- Plane : TheZ⁹⁷²

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](#)⁹⁷³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Bruker format reader:

- Channel : ID⁹⁷⁴
- Channel : SamplesPerPixel⁹⁷⁵
- Experimenter : ID⁹⁷⁶
- Experimenter : Institution⁹⁷⁷

⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

- `Experimenter : LastName`⁹⁷⁸
- `Image : AcquisitionDate`⁹⁷⁹
- `Image : ExperimenterRef`⁹⁸⁰
- `Image : ID`⁹⁸¹
- `Image : Name`⁹⁸²
- `Pixels : BigEndian`⁹⁸³
- `Pixels : DimensionOrder`⁹⁸⁴
- `Pixels : ID`⁹⁸⁵
- `Pixels : Interleaved`⁹⁸⁶
- `Pixels : SignificantBits`⁹⁸⁷
- `Pixels : SizeC`⁹⁸⁸
- `Pixels : SizeT`⁹⁸⁹
- `Pixels : SizeX`⁹⁹⁰
- `Pixels : SizeY`⁹⁹¹
- `Pixels : SizeZ`⁹⁹²
- `Pixels : Type`⁹⁹³
- `Plane : TheC`⁹⁹⁴
- `Plane : TheT`⁹⁹⁵
- `Plane : TheZ`⁹⁹⁶

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](#)⁹⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁹⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Burleigh format reader:

- Channel : ID⁹⁹⁸
- Channel : SamplesPerPixel⁹⁹⁹
- Image : AcquisitionDate¹⁰⁰⁰
- Image : ID¹⁰⁰¹
- Image : Name¹⁰⁰²
- Pixels : BigEndian¹⁰⁰³
- Pixels : DimensionOrder¹⁰⁰⁴
- Pixels : ID¹⁰⁰⁵
- Pixels : Interleaved¹⁰⁰⁶
- Pixels : PhysicalSizeX¹⁰⁰⁷
- Pixels : PhysicalSizeY¹⁰⁰⁸
- Pixels : PhysicalSizeZ¹⁰⁰⁹
- Pixels : SignificantBits¹⁰¹⁰
- Pixels : SizeC¹⁰¹¹
- Pixels : SizeT¹⁰¹²
- Pixels : SizeX¹⁰¹³
- Pixels : SizeY¹⁰¹⁴
- Pixels : SizeZ¹⁰¹⁵
- Pixels : Type¹⁰¹⁶
- Plane : TheC¹⁰¹⁷
- Plane : TheT¹⁰¹⁸
- Plane : TheZ¹⁰¹⁹

Total supported: 22

Total unknown or missing: 453

- ⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ¹⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)¹⁰²⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁰²¹
- Channel : SamplesPerPixel¹⁰²²
- Image : AcquisitionDate¹⁰²³
- Image : ID¹⁰²⁴
- Image : Name¹⁰²⁵
- Pixels : BigEndian¹⁰²⁶
- Pixels : DimensionOrder¹⁰²⁷
- Pixels : ID¹⁰²⁸
- Pixels : Interleaved¹⁰²⁹
- Pixels : SignificantBits¹⁰³⁰
- Pixels : SizeC¹⁰³¹
- Pixels : SizeT¹⁰³²
- Pixels : SizeX¹⁰³³
- Pixels : SizeY¹⁰³⁴
- Pixels : SizeZ¹⁰³⁵
- Pixels : Type¹⁰³⁶
- Plane : TheC¹⁰³⁷
- Plane : TheT¹⁰³⁸

¹⁰²⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁰³⁹

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](#)¹⁰⁴⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁰⁴¹
- Channel : SamplesPerPixel¹⁰⁴²
- Image : AcquisitionDate¹⁰⁴³
- Image : ID¹⁰⁴⁴
- Image : Name¹⁰⁴⁵
- Pixels : BigEndian¹⁰⁴⁶
- Pixels : DimensionOrder¹⁰⁴⁷
- Pixels : ID¹⁰⁴⁸
- Pixels : Interleaved¹⁰⁴⁹
- Pixels : PhysicalSizeX¹⁰⁵⁰
- Pixels : PhysicalSizeY¹⁰⁵¹
- Pixels : SignificantBits¹⁰⁵²
- Pixels : SizeC¹⁰⁵³
- Pixels : SizeT¹⁰⁵⁴
- Pixels : SizeX¹⁰⁵⁵
- Pixels : SizeY¹⁰⁵⁶

¹⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰⁴⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁰⁵⁷
- Pixels : Type¹⁰⁵⁸
- Plane : TheC¹⁰⁵⁹
- Plane : TheT¹⁰⁶⁰
- Plane : TheZ¹⁰⁶¹
- Plate : ColumnNamingConvention¹⁰⁶²
- Plate : ID¹⁰⁶³
- Plate : Name¹⁰⁶⁴
- Plate : RowNamingConvention¹⁰⁶⁵
- Well : Column¹⁰⁶⁶
- Well : ID¹⁰⁶⁷
- Well : Row¹⁰⁶⁸
- WellSample : ID¹⁰⁶⁹
- WellSample : ImageRef¹⁰⁷⁰
- WellSample : Index¹⁰⁷¹

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](#)¹⁰⁷². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 CellSens VSI format reader:

- Channel : ID¹⁰⁷³
- Channel : SamplesPerPixel¹⁰⁷⁴

¹⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

¹⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹⁰⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate¹⁰⁷⁵
- Image : ID¹⁰⁷⁶
- Image : Name¹⁰⁷⁷
- Pixels : BigEndian¹⁰⁷⁸
- Pixels : DimensionOrder¹⁰⁷⁹
- Pixels : ID¹⁰⁸⁰
- Pixels : Interleaved¹⁰⁸¹
- Pixels : SignificantBits¹⁰⁸²
- Pixels : SizeC¹⁰⁸³
- Pixels : SizeT¹⁰⁸⁴
- Pixels : SizeX¹⁰⁸⁵
- Pixels : SizeY¹⁰⁸⁶
- Pixels : SizeZ¹⁰⁸⁷
- Pixels : Type¹⁰⁸⁸
- Plane : TheC¹⁰⁸⁹
- Plane : TheT¹⁰⁹⁰
- Plane : TheZ¹⁰⁹¹

Total supported: 19

Total unknown or missing: 456

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](#)¹⁰⁹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

¹⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁰⁹²<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats CellVoyager format reader:

- Channel : ID¹⁰⁹³
- Channel : Name¹⁰⁹⁴
- Channel : PinholeSize¹⁰⁹⁵
- Channel : SamplesPerPixel¹⁰⁹⁶
- Image : AcquisitionDate¹⁰⁹⁷
- Image : ID¹⁰⁹⁸
- Image : Name¹⁰⁹⁹
- Pixels : BigEndian¹¹⁰⁰
- Pixels : DimensionOrder¹¹⁰¹
- Pixels : ID¹¹⁰²
- Pixels : Interleaved¹¹⁰³
- Pixels : SignificantBits¹¹⁰⁴
- Pixels : SizeC¹¹⁰⁵
- Pixels : SizeT¹¹⁰⁶
- Pixels : SizeX¹¹⁰⁷
- Pixels : SizeY¹¹⁰⁸
- Pixels : SizeZ¹¹⁰⁹
- Pixels : Type¹¹¹⁰
- Plane : TheC¹¹¹¹
- Plane : TheT¹¹¹²
- Plane : TheZ¹¹¹³
- Plate : Columns¹¹¹⁴
- Plate : Rows¹¹¹⁵
- PlateAcquisition : EndTime¹¹¹⁶

¹⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

¹⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns

¹¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows

¹¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_EndTime

- PlateAcquisition : ID¹¹¹⁷
- PlateAcquisition : MaximumFieldCount¹¹¹⁸
- PlateAcquisition : StartTime¹¹¹⁹
- Well : Column¹¹²⁰
- Well : ID¹¹²¹
- Well : Row¹¹²²
- WellSample : ID¹¹²³
- WellSample : Index¹¹²⁴
- WellSample : PositionX¹¹²⁵
- WellSample : PositionY¹¹²⁶

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 model](#)¹¹²⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength¹¹²⁸
- Channel : ExcitationWavelength¹¹²⁹
- Channel : ID¹¹³⁰
- Channel : NDFilter¹¹³¹
- Channel : Name¹¹³²
- Channel : SamplesPerPixel¹¹³³
- Detector : ID¹¹³⁴

¹¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

¹¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

¹¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹¹²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_NDFilter

¹¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

- Detector : Model¹¹³⁵
- Detector : Type¹¹³⁶
- DetectorSettings : Binning¹¹³⁷
- DetectorSettings : Gain¹¹³⁸
- DetectorSettings : ID¹¹³⁹
- DetectorSettings : ReadOutRate¹¹⁴⁰
- Image : AcquisitionDate¹¹⁴¹
- Image : Description¹¹⁴²
- Image : ID¹¹⁴³
- Image : InstrumentRef¹¹⁴⁴
- Image : Name¹¹⁴⁵
- ImagingEnvironment : Temperature¹¹⁴⁶
- Instrument : ID¹¹⁴⁷
- Objective : CalibratedMagnification¹¹⁴⁸
- Objective : Correction¹¹⁴⁹
- Objective : ID¹¹⁵⁰
- Objective : Immersion¹¹⁵¹
- Objective : LensNA¹¹⁵²
- Objective : Manufacturer¹¹⁵³
- Objective : Model¹¹⁵⁴
- Objective : NominalMagnification¹¹⁵⁵
- Objective : WorkingDistance¹¹⁵⁶
- ObjectiveSettings : ID¹¹⁵⁷
- Pixels : BigEndian¹¹⁵⁸
- Pixels : DimensionOrder¹¹⁵⁹
- Pixels : ID¹¹⁶⁰

¹¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

¹¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

¹¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹¹⁶¹
- Pixels : PhysicalSizeX¹¹⁶²
- Pixels : PhysicalSizeY¹¹⁶³
- Pixels : PhysicalSizeZ¹¹⁶⁴
- Pixels : SignificantBits¹¹⁶⁵
- Pixels : SizeC¹¹⁶⁶
- Pixels : SizeT¹¹⁶⁷
- Pixels : SizeX¹¹⁶⁸
- Pixels : SizeY¹¹⁶⁹
- Pixels : SizeZ¹¹⁷⁰
- Pixels : Type¹¹⁷¹
- Plane : DeltaT¹¹⁷²
- Plane : ExposureTime¹¹⁷³
- Plane : PositionX¹¹⁷⁴
- Plane : PositionY¹¹⁷⁵
- Plane : PositionZ¹¹⁷⁶
- Plane : TheC¹¹⁷⁷
- Plane : TheT¹¹⁷⁸
- Plane : TheZ¹¹⁷⁹

Total supported: 52

Total unknown or missing: 423

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](#)¹¹⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

¹¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹¹⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats DICOM format reader:

- Channel : ID¹¹⁸¹
- Channel : SamplesPerPixel¹¹⁸²
- Image : AcquisitionDate¹¹⁸³
- Image : Description¹¹⁸⁴
- Image : ID¹¹⁸⁵
- Image : Name¹¹⁸⁶
- Pixels : BigEndian¹¹⁸⁷
- Pixels : DimensionOrder¹¹⁸⁸
- Pixels : ID¹¹⁸⁹
- Pixels : Interleaved¹¹⁹⁰
- Pixels : PhysicalSizeX¹¹⁹¹
- Pixels : PhysicalSizeY¹¹⁹²
- Pixels : PhysicalSizeZ¹¹⁹³
- Pixels : SignificantBits¹¹⁹⁴
- Pixels : SizeC¹¹⁹⁵
- Pixels : SizeT¹¹⁹⁶
- Pixels : SizeX¹¹⁹⁷
- Pixels : SizeY¹¹⁹⁸
- Pixels : SizeZ¹¹⁹⁹
- Pixels : Type¹²⁰⁰
- Plane : TheC¹²⁰¹
- Plane : TheT¹²⁰²
- Plane : TheZ¹²⁰³

Total supported: 23

Total unknown or missing: 452

- ¹¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description
- ¹¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ¹¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)¹²⁰⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹²⁰⁵
- Channel : SamplesPerPixel¹²⁰⁶
- Image : AcquisitionDate¹²⁰⁷
- Image : Description¹²⁰⁸
- Image : ID¹²⁰⁹
- Image : Name¹²¹⁰
- Pixels : BigEndian¹²¹¹
- Pixels : DimensionOrder¹²¹²
- Pixels : ID¹²¹³
- Pixels : Interleaved¹²¹⁴
- Pixels : PhysicalSizeX¹²¹⁵
- Pixels : PhysicalSizeY¹²¹⁶
- Pixels : PhysicalSizeZ¹²¹⁷
- Pixels : SignificantBits¹²¹⁸
- Pixels : SizeC¹²¹⁹
- Pixels : SizeT¹²²⁰
- Pixels : SizeX¹²²¹
- Pixels : SizeY¹²²²

¹²⁰⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹²²³
- Pixels : Type¹²²⁴
- Plane : TheC¹²²⁵
- Plane : TheT¹²²⁶
- Plane : TheZ¹²²⁷

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](#)¹²²⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹²²⁹
- Channel : SamplesPerPixel¹²³⁰
- Image : AcquisitionDate¹²³¹
- Image : ID¹²³²
- Image : Name¹²³³
- Pixels : BigEndian¹²³⁴
- Pixels : DimensionOrder¹²³⁵
- Pixels : ID¹²³⁶
- Pixels : Interleaved¹²³⁷
- Pixels : SignificantBits¹²³⁸
- Pixels : SizeC¹²³⁹
- Pixels : SizeT¹²⁴⁰

¹²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹²²⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹²⁴¹
- Pixels : SizeY¹²⁴²
- Pixels : SizeZ¹²⁴³
- Pixels : Type¹²⁴⁴
- Plane : TheC¹²⁴⁵
- Plane : TheT¹²⁴⁶
- Plane : TheZ¹²⁴⁷

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](#)¹²⁴⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹²⁴⁹
- Channel : LightSourceSettingsID¹²⁵⁰
- Channel : Name¹²⁵¹
- Channel : SamplesPerPixel¹²⁵²
- Detector : ID¹²⁵³
- Detector : Type¹²⁵⁴
- DetectorSettings : Binning¹²⁵⁵
- DetectorSettings : ID¹²⁵⁶
- Dichroic : ID¹²⁵⁷
- Dichroic : Model¹²⁵⁸

¹²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹²⁴⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

¹²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

¹²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Filter : FilterWheel¹²⁵⁹
- Filter : ID¹²⁶⁰
- Filter : Model¹²⁶¹
- Image : AcquisitionDate¹²⁶²
- Image : ID¹²⁶³
- Image : InstrumentRef¹²⁶⁴
- Image : Name¹²⁶⁵
- Instrument : ID¹²⁶⁶
- Laser : ID¹²⁶⁷
- Laser : LaserMedium¹²⁶⁸
- Laser : Type¹²⁶⁹
- Laser : Wavelength¹²⁷⁰
- LightPath : DichroicRef¹²⁷¹
- LightPath : EmissionFilterRef¹²⁷²
- LightPath : ExcitationFilterRef¹²⁷³
- Objective : CalibratedMagnification¹²⁷⁴
- Objective : Correction¹²⁷⁵
- Objective : ID¹²⁷⁶
- Objective : Immersion¹²⁷⁷
- Objective : LensNA¹²⁷⁸
- ObjectiveSettings : ID¹²⁷⁹
- Pixels : BigEndian¹²⁸⁰
- Pixels : DimensionOrder¹²⁸¹
- Pixels : ID¹²⁸²
- Pixels : Interleaved¹²⁸³
- Pixels : PhysicalSizeX¹²⁸⁴

¹²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_FilterWheel

¹²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

¹²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

¹²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

¹²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

¹²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

¹²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

¹²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY¹²⁸⁵
- Pixels : SignificantBits¹²⁸⁶
- Pixels : SizeC¹²⁸⁷
- Pixels : SizeT¹²⁸⁸
- Pixels : SizeX¹²⁸⁹
- Pixels : SizeY¹²⁹⁰
- Pixels : SizeZ¹²⁹¹
- Pixels : Type¹²⁹²
- Plane : DeltaT¹²⁹³
- Plane : ExposureTime¹²⁹⁴
- Plane : PositionX¹²⁹⁵
- Plane : PositionY¹²⁹⁶
- Plane : PositionZ¹²⁹⁷
- Plane : TheC¹²⁹⁸
- Plane : TheT¹²⁹⁹
- Plane : TheZ¹³⁰⁰
- Plate : ColumnNamingConvention¹³⁰¹
- Plate : ExternalIdentifier¹³⁰²
- Plate : ID¹³⁰³
- Plate : Name¹³⁰⁴
- Plate : RowNamingConvention¹³⁰⁵
- PlateAcquisition : ID¹³⁰⁶
- PlateAcquisition : MaximumFieldCount¹³⁰⁷
- PlateAcquisition : StartTime¹³⁰⁸
- PlateAcquisition : WellSampleRef¹³⁰⁹
- Well : Column¹³¹⁰

¹²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

¹³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

¹³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_StartTime

¹³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

¹³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

- Well : ID¹³¹¹
- Well : Row¹³¹²
- WellSample : ID¹³¹³
- WellSample : ImageRef¹³¹⁴
- WellSample : Index¹³¹⁵
- WellSample : PositionX¹³¹⁶
- WellSample : PositionY¹³¹⁷

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 model](#)¹³¹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹³¹⁹
- Channel : SamplesPerPixel¹³²⁰
- Image : AcquisitionDate¹³²¹
- Image : ID¹³²²
- Image : Name¹³²³
- Pixels : BigEndian¹³²⁴
- Pixels : DimensionOrder¹³²⁵
- Pixels : ID¹³²⁶
- Pixels : Interleaved¹³²⁷
- Pixels : SignificantBits¹³²⁸

¹³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

¹³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹³¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC¹³²⁹
- Pixels : SizeT¹³³⁰
- Pixels : SizeX¹³³¹
- Pixels : SizeY¹³³²
- Pixels : SizeZ¹³³³
- Pixels : Type¹³³⁴
- Plane : TheC¹³³⁵
- Plane : TheT¹³³⁶
- Plane : TheZ¹³³⁷

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](#)¹³³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹³³⁹
- Channel : SamplesPerPixel¹³⁴⁰
- Detector : ID¹³⁴¹
- Detector : Model¹³⁴²
- Detector : Type¹³⁴³
- Experimenter : ID¹³⁴⁴
- Experimenter : LastName¹³⁴⁵
- Image : AcquisitionDate¹³⁴⁶

¹³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description¹³⁴⁷
- Image : ID¹³⁴⁸
- Image : InstrumentRef¹³⁴⁹
- Image : Name¹³⁵⁰
- Instrument : ID¹³⁵¹
- Microscope : Model¹³⁵²
- Objective : Correction¹³⁵³
- Objective : ID¹³⁵⁴
- Objective : Immersion¹³⁵⁵
- Objective : NominalMagnification¹³⁵⁶
- Pixels : BigEndian¹³⁵⁷
- Pixels : DimensionOrder¹³⁵⁸
- Pixels : ID¹³⁵⁹
- Pixels : Interleaved¹³⁶⁰
- Pixels : PhysicalSizeX¹³⁶¹
- Pixels : PhysicalSizeY¹³⁶²
- Pixels : SignificantBits¹³⁶³
- Pixels : SizeC¹³⁶⁴
- Pixels : SizeT¹³⁶⁵
- Pixels : SizeX¹³⁶⁶
- Pixels : SizeY¹³⁶⁷
- Pixels : SizeZ¹³⁶⁸
- Pixels : TimeIncrement¹³⁶⁹
- Pixels : Type¹³⁷⁰
- Plane : TheC¹³⁷¹
- Plane : TheT¹³⁷²

¹³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹³⁷³
- StageLabel : Name¹³⁷⁴
- StageLabel : X¹³⁷⁵
- StageLabel : Y¹³⁷⁶
- StageLabel : Z¹³⁷⁷

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](#)¹³⁷⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹³⁷⁹
- Channel : SamplesPerPixel¹³⁸⁰
- Image : AcquisitionDate¹³⁸¹
- Image : ID¹³⁸²
- Image : Name¹³⁸³
- Pixels : BigEndian¹³⁸⁴
- Pixels : DimensionOrder¹³⁸⁵
- Pixels : ID¹³⁸⁶
- Pixels : Interleaved¹³⁸⁷
- Pixels : SignificantBits¹³⁸⁸
- Pixels : SizeC¹³⁸⁹
- Pixels : SizeT¹³⁹⁰

¹³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name

¹³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_X

¹³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Y

¹³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z

¹³⁷⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹³⁹¹
- Pixels : SizeY¹³⁹²
- Pixels : SizeZ¹³⁹³
- Pixels : Type¹³⁹⁴
- Plane : TheC¹³⁹⁵
- Plane : TheT¹³⁹⁶
- Plane : TheZ¹³⁹⁷

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](#)¹³⁹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹³⁹⁹
- Channel : SamplesPerPixel¹⁴⁰⁰
- Detector : ID¹⁴⁰¹
- DetectorSettings : Binning¹⁴⁰²
- DetectorSettings : ID¹⁴⁰³
- Experimenter : FirstName¹⁴⁰⁴
- Experimenter : ID¹⁴⁰⁵
- Experimenter : LastName¹⁴⁰⁶
- Image : AcquisitionDate¹⁴⁰⁷
- Image : ExperimenterRef¹⁴⁰⁸

¹³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹³⁹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

¹⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

- Image : ID¹⁴⁰⁹
- Image : InstrumentRef¹⁴¹⁰
- Image : Name¹⁴¹¹
- Instrument : ID¹⁴¹²
- Pixels : BigEndian¹⁴¹³
- Pixels : DimensionOrder¹⁴¹⁴
- Pixels : ID¹⁴¹⁵
- Pixels : Interleaved¹⁴¹⁶
- Pixels : PhysicalSizeX¹⁴¹⁷
- Pixels : PhysicalSizeY¹⁴¹⁸
- Pixels : SignificantBits¹⁴¹⁹
- Pixels : SizeC¹⁴²⁰
- Pixels : SizeT¹⁴²¹
- Pixels : SizeX¹⁴²²
- Pixels : SizeY¹⁴²³
- Pixels : SizeZ¹⁴²⁴
- Pixels : Type¹⁴²⁵
- Plane : TheC¹⁴²⁶
- Plane : TheT¹⁴²⁷
- Plane : TheZ¹⁴²⁸

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](#)¹⁴²⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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*:

- ¹⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID
- ¹⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ¹⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ¹⁴²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 : AcquisitionMode¹⁴³⁰
- Channel : ID¹⁴³¹
- Channel : SamplesPerPixel¹⁴³²
- Detector : ID¹⁴³³
- DetectorSettings : ID¹⁴³⁴
- DetectorSettings : Voltage¹⁴³⁵
- Image : AcquisitionDate¹⁴³⁶
- Image : ID¹⁴³⁷
- Image : Name¹⁴³⁸
- Instrument : ID¹⁴³⁹
- Objective : Correction¹⁴⁴⁰
- Objective : ID¹⁴⁴¹
- Objective : Immersion¹⁴⁴²
- Objective : NominalMagnification¹⁴⁴³
- ObjectiveSettings : ID¹⁴⁴⁴
- Pixels : BigEndian¹⁴⁴⁵
- Pixels : DimensionOrder¹⁴⁴⁶
- Pixels : ID¹⁴⁴⁷
- Pixels : Interleaved¹⁴⁴⁸
- Pixels : PhysicalSizeX¹⁴⁴⁹
- Pixels : PhysicalSizeY¹⁴⁵⁰
- Pixels : PhysicalSizeZ¹⁴⁵¹
- Pixels : SignificantBits¹⁴⁵²

¹⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

¹⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

¹⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC¹⁴⁵³
- Pixels : SizeT¹⁴⁵⁴
- Pixels : SizeX¹⁴⁵⁵
- Pixels : SizeY¹⁴⁵⁶
- Pixels : SizeZ¹⁴⁵⁷
- Pixels : Type¹⁴⁵⁸
- Plane : ExposureTime¹⁴⁵⁹
- Plane : PositionX¹⁴⁶⁰
- Plane : PositionY¹⁴⁶¹
- Plane : PositionZ¹⁴⁶²
- Plane : TheC¹⁴⁶³
- Plane : TheT¹⁴⁶⁴
- Plane : TheZ¹⁴⁶⁵

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](#)¹⁴⁶⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Graphics Interchange Format format reader:

- Channel : ID¹⁴⁶⁷
- Channel : SamplesPerPixel¹⁴⁶⁸
- Image : AcquisitionDate¹⁴⁶⁹
- Image : ID¹⁴⁷⁰

¹⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁴⁶⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name¹⁴⁷¹
- Pixels : BigEndian¹⁴⁷²
- Pixels : DimensionOrder¹⁴⁷³
- Pixels : ID¹⁴⁷⁴
- Pixels : Interleaved¹⁴⁷⁵
- Pixels : SignificantBits¹⁴⁷⁶
- Pixels : SizeC¹⁴⁷⁷
- Pixels : SizeT¹⁴⁷⁸
- Pixels : SizeX¹⁴⁷⁹
- Pixels : SizeY¹⁴⁸⁰
- Pixels : SizeZ¹⁴⁸¹
- Pixels : Type¹⁴⁸²
- Plane : TheC¹⁴⁸³
- Plane : TheT¹⁴⁸⁴
- Plane : TheZ¹⁴⁸⁵

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](#)¹⁴⁸⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Hamamatsu Aquacosmos format reader:

- Channel : ID¹⁴⁸⁷
- Channel : SamplesPerPixel¹⁴⁸⁸

¹⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁴⁸⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate¹⁴⁸⁹
- Image : ID¹⁴⁹⁰
- Image : Name¹⁴⁹¹
- Pixels : BigEndian¹⁴⁹²
- Pixels : DimensionOrder¹⁴⁹³
- Pixels : ID¹⁴⁹⁴
- Pixels : Interleaved¹⁴⁹⁵
- Pixels : SignificantBits¹⁴⁹⁶
- Pixels : SizeC¹⁴⁹⁷
- Pixels : SizeT¹⁴⁹⁸
- Pixels : SizeX¹⁴⁹⁹
- Pixels : SizeY¹⁵⁰⁰
- Pixels : SizeZ¹⁵⁰¹
- Pixels : Type¹⁵⁰²
- Plane : TheC¹⁵⁰³
- Plane : TheT¹⁵⁰⁴
- Plane : TheZ¹⁵⁰⁵

Total supported: 19

Total unknown or missing: 456

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](#)¹⁵⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

¹⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu HIS format reader:

- Channel : ID¹⁵⁰⁷
- Channel : SamplesPerPixel¹⁵⁰⁸
- Detector : ID¹⁵⁰⁹
- Detector : Offset¹⁵¹⁰
- Detector : Type¹⁵¹¹
- DetectorSettings : Binning¹⁵¹²
- DetectorSettings : ID¹⁵¹³
- Image : AcquisitionDate¹⁵¹⁴
- Image : ID¹⁵¹⁵
- Image : InstrumentRef¹⁵¹⁶
- Image : Name¹⁵¹⁷
- Instrument : ID¹⁵¹⁸
- Pixels : BigEndian¹⁵¹⁹
- Pixels : DimensionOrder¹⁵²⁰
- Pixels : ID¹⁵²¹
- Pixels : Interleaved¹⁵²²
- Pixels : SignificantBits¹⁵²³
- Pixels : SizeC¹⁵²⁴
- Pixels : SizeT¹⁵²⁵
- Pixels : SizeX¹⁵²⁶
- Pixels : SizeY¹⁵²⁷
- Pixels : SizeZ¹⁵²⁸
- Pixels : Type¹⁵²⁹
- Plane : ExposureTime¹⁵³⁰

¹⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

¹⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

- Plane : TheC¹⁵³¹
- Plane : TheT¹⁵³²
- Plane : TheZ¹⁵³³

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](#)¹⁵³⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁵³⁵
- Channel : SamplesPerPixel¹⁵³⁶
- Image : AcquisitionDate¹⁵³⁷
- Image : ID¹⁵³⁸
- Image : Name¹⁵³⁹
- Pixels : BigEndian¹⁵⁴⁰
- Pixels : DimensionOrder¹⁵⁴¹
- Pixels : ID¹⁵⁴²
- Pixels : Interleaved¹⁵⁴³
- Pixels : PhysicalSizeX¹⁵⁴⁴
- Pixels : PhysicalSizeY¹⁵⁴⁵
- Pixels : SignificantBits¹⁵⁴⁶
- Pixels : SizeC¹⁵⁴⁷
- Pixels : SizeT¹⁵⁴⁸

¹⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX¹⁵⁴⁹
- Pixels : SizeY¹⁵⁵⁰
- Pixels : SizeZ¹⁵⁵¹
- Pixels : Type¹⁵⁵²
- Plane : TheC¹⁵⁵³
- Plane : TheT¹⁵⁵⁴
- Plane : TheZ¹⁵⁵⁵

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](#)¹⁵⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁵⁵⁷
- Channel : SamplesPerPixel¹⁵⁵⁸
- Image : AcquisitionDate¹⁵⁵⁹
- Image : ID¹⁵⁶⁰
- Image : InstrumentRef¹⁵⁶¹
- Image : Name¹⁵⁶²
- Instrument : ID¹⁵⁶³
- Objective : ID¹⁵⁶⁴
- Objective : NominalMagnification¹⁵⁶⁵
- ObjectiveSettings : ID¹⁵⁶⁶

¹⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

- Pixels : BigEndian¹⁵⁶⁷
- Pixels : DimensionOrder¹⁵⁶⁸
- Pixels : ID¹⁵⁶⁹
- Pixels : Interleaved¹⁵⁷⁰
- Pixels : PhysicalSizeX¹⁵⁷¹
- Pixels : PhysicalSizeY¹⁵⁷²
- Pixels : SignificantBits¹⁵⁷³
- Pixels : SizeC¹⁵⁷⁴
- Pixels : SizeT¹⁵⁷⁵
- Pixels : SizeX¹⁵⁷⁶
- Pixels : SizeY¹⁵⁷⁷
- Pixels : SizeZ¹⁵⁷⁸
- Pixels : Type¹⁵⁷⁹
- Plane : TheC¹⁵⁸⁰
- Plane : TheT¹⁵⁸¹
- Plane : TheZ¹⁵⁸²

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.

These fields are from the [OME data model](#)¹⁵⁸³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁵⁸⁴

¹⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁵⁸³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹⁵⁸⁵
- Image : AcquisitionDate¹⁵⁸⁶
- Image : ID¹⁵⁸⁷
- Image : InstrumentRef¹⁵⁸⁸
- Image : Name¹⁵⁸⁹
- Instrument : ID¹⁵⁹⁰
- Microscope : Model¹⁵⁹¹
- Microscope : SerialNumber¹⁵⁹²
- Objective : ID¹⁵⁹³
- Objective : WorkingDistance¹⁵⁹⁴
- ObjectiveSettings : ID¹⁵⁹⁵
- Pixels : BigEndian¹⁵⁹⁶
- Pixels : DimensionOrder¹⁵⁹⁷
- Pixels : ID¹⁵⁹⁸
- Pixels : Interleaved¹⁵⁹⁹
- Pixels : PhysicalSizeX¹⁶⁰⁰
- Pixels : PhysicalSizeY¹⁶⁰¹
- Pixels : SignificantBits¹⁶⁰²
- Pixels : SizeC¹⁶⁰³
- Pixels : SizeT¹⁶⁰⁴
- Pixels : SizeX¹⁶⁰⁵
- Pixels : SizeY¹⁶⁰⁶
- Pixels : SizeZ¹⁶⁰⁷
- Pixels : Type¹⁶⁰⁸
- Plane : PositionX¹⁶⁰⁹
- Plane : PositionY¹⁶¹⁰

¹⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

- Plane : PositionZ¹⁶¹¹
- Plane : TheC¹⁶¹²
- Plane : TheT¹⁶¹³
- Plane : TheZ¹⁶¹⁴

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](#)¹⁶¹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength¹⁶¹⁶
- Channel : ExcitationWavelength¹⁶¹⁷
- Channel : ID¹⁶¹⁸
- Channel : Name¹⁶¹⁹
- Channel : PinholeSize¹⁶²⁰
- Channel : SamplesPerPixel¹⁶²¹
- Detector : ID¹⁶²²
- Detector : Manufacturer¹⁶²³
- Detector : Model¹⁶²⁴
- Detector : Type¹⁶²⁵
- DetectorSettings : Gain¹⁶²⁶
- DetectorSettings : ID¹⁶²⁷
- Dichroic : ID¹⁶²⁸

¹⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁶¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

¹⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

- Dichroic : Model¹⁶²⁹
- Experiment : ID¹⁶³⁰
- Experiment : Type¹⁶³¹
- Experimenter : ID¹⁶³²
- Experimenter : LastName¹⁶³³
- Filter : ID¹⁶³⁴
- Filter : Model¹⁶³⁵
- FilterSet : DichroicRef¹⁶³⁶
- FilterSet : EmissionFilterRef¹⁶³⁷
- FilterSet : ExcitationFilterRef¹⁶³⁸
- FilterSet : ID¹⁶³⁹
- FilterSet : Model¹⁶⁴⁰
- Image : AcquisitionDate¹⁶⁴¹
- Image : Description¹⁶⁴²
- Image : ID¹⁶⁴³
- Image : InstrumentRef¹⁶⁴⁴
- Image : Name¹⁶⁴⁵
- Instrument : ID¹⁶⁴⁶
- Laser : ID¹⁶⁴⁷
- Laser : LaserMedium¹⁶⁴⁸
- Laser : Manufacturer¹⁶⁴⁹
- Laser : Model¹⁶⁵⁰
- Laser : Power¹⁶⁵¹
- Laser : RepetitionRate¹⁶⁵²
- Laser : Type¹⁶⁵³
- Laser : Wavelength¹⁶⁵⁴

¹⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

¹⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

¹⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

¹⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

¹⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

¹⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSet_ID

¹⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

¹⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

¹⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

¹⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_RepetitionRate

¹⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

¹⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

- Microscope : Manufacturer¹⁶⁵⁵
- Microscope : Model¹⁶⁵⁶
- Objective : CalibratedMagnification¹⁶⁵⁷
- Objective : Correction¹⁶⁵⁸
- Objective : ID¹⁶⁵⁹
- Objective : Immersion¹⁶⁶⁰
- Objective : LensNA¹⁶⁶¹
- Objective : Model¹⁶⁶²
- Objective : WorkingDistance¹⁶⁶³
- ObjectiveSettings : ID¹⁶⁶⁴
- Pixels : BigEndian¹⁶⁶⁵
- Pixels : DimensionOrder¹⁶⁶⁶
- Pixels : ID¹⁶⁶⁷
- Pixels : Interleaved¹⁶⁶⁸
- Pixels : PhysicalSizeX¹⁶⁶⁹
- Pixels : PhysicalSizeY¹⁶⁷⁰
- Pixels : PhysicalSizeZ¹⁶⁷¹
- Pixels : SignificantBits¹⁶⁷²
- Pixels : SizeC¹⁶⁷³
- Pixels : SizeT¹⁶⁷⁴
- Pixels : SizeX¹⁶⁷⁵
- Pixels : SizeY¹⁶⁷⁶
- Pixels : SizeZ¹⁶⁷⁷
- Pixels : TimeIncrement¹⁶⁷⁸
- Pixels : Type¹⁶⁷⁹
- Plane : DeltaT¹⁶⁸⁰

¹⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

¹⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

- Plane : ExposureTime¹⁶⁸¹
- Plane : PositionX¹⁶⁸²
- Plane : PositionY¹⁶⁸³
- Plane : PositionZ¹⁶⁸⁴
- Plane : TheC¹⁶⁸⁵
- Plane : TheT¹⁶⁸⁶
- Plane : TheZ¹⁶⁸⁷

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 model](#)¹⁶⁸⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁶⁸⁹
- Channel : SamplesPerPixel¹⁶⁹⁰
- Experimenter : FirstName¹⁶⁹¹
- Experimenter : ID¹⁶⁹²
- Experimenter : LastName¹⁶⁹³
- Image : AcquisitionDate¹⁶⁹⁴
- Image : ExperimenterRef¹⁶⁹⁵
- Image : ID¹⁶⁹⁶
- Image : Name¹⁶⁹⁷
- Pixels : BigEndian¹⁶⁹⁸

¹⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁶⁸⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

¹⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

¹⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

¹⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

¹⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder¹⁶⁹⁹
- Pixels : ID¹⁷⁰⁰
- Pixels : Interleaved¹⁷⁰¹
- Pixels : SignificantBits¹⁷⁰²
- Pixels : SizeC¹⁷⁰³
- Pixels : SizeT¹⁷⁰⁴
- Pixels : SizeX¹⁷⁰⁵
- Pixels : SizeY¹⁷⁰⁶
- Pixels : SizeZ¹⁷⁰⁷
- Pixels : Type¹⁷⁰⁸
- Plane : TheC¹⁷⁰⁹
- Plane : TheT¹⁷¹⁰
- Plane : TheZ¹⁷¹¹

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](#)¹⁷¹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Image-Pro Sequence format reader:

- Channel : ID¹⁷¹³
- Channel : SamplesPerPixel¹⁷¹⁴
- Image : AcquisitionDate¹⁷¹⁵
- Image : ID¹⁷¹⁶

¹⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁷¹²<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name¹⁷¹⁷
- Pixels : BigEndian¹⁷¹⁸
- Pixels : DimensionOrder¹⁷¹⁹
- Pixels : ID¹⁷²⁰
- Pixels : Interleaved¹⁷²¹
- Pixels : SignificantBits¹⁷²²
- Pixels : SizeC¹⁷²³
- Pixels : SizeT¹⁷²⁴
- Pixels : SizeX¹⁷²⁵
- Pixels : SizeY¹⁷²⁶
- Pixels : SizeZ¹⁷²⁷
- Pixels : Type¹⁷²⁸
- Plane : TheC¹⁷²⁹
- Plane : TheT¹⁷³⁰
- Plane : TheZ¹⁷³¹

Total supported: 19

Total unknown or missing: 456

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](#)¹⁷³². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁷³³
- Channel : SamplesPerPixel¹⁷³⁴

¹⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁷³²<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate¹⁷³⁵
- Image : Description¹⁷³⁶
- Image : ID¹⁷³⁷
- Image : Name¹⁷³⁸
- Pixels : BigEndian¹⁷³⁹
- Pixels : DimensionOrder¹⁷⁴⁰
- Pixels : ID¹⁷⁴¹
- Pixels : Interleaved¹⁷⁴²
- Pixels : SignificantBits¹⁷⁴³
- Pixels : SizeC¹⁷⁴⁴
- Pixels : SizeT¹⁷⁴⁵
- Pixels : SizeX¹⁷⁴⁶
- Pixels : SizeY¹⁷⁴⁷
- Pixels : SizeZ¹⁷⁴⁸
- Pixels : Type¹⁷⁴⁹
- Plane : TheC¹⁷⁵⁰
- Plane : TheT¹⁷⁵¹
- Plane : TheZ¹⁷⁵²

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](#)¹⁷⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

¹⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁷⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats IMAGIC format reader:

- Channel : ID¹⁷⁵⁴
- Channel : SamplesPerPixel¹⁷⁵⁵
- Image : AcquisitionDate¹⁷⁵⁶
- Image : ID¹⁷⁵⁷
- Image : Name¹⁷⁵⁸
- Pixels : BigEndian¹⁷⁵⁹
- Pixels : DimensionOrder¹⁷⁶⁰
- Pixels : ID¹⁷⁶¹
- Pixels : Interleaved¹⁷⁶²
- Pixels : PhysicalSizeX¹⁷⁶³
- Pixels : PhysicalSizeY¹⁷⁶⁴
- Pixels : PhysicalSizeZ¹⁷⁶⁵
- Pixels : SignificantBits¹⁷⁶⁶
- Pixels : SizeC¹⁷⁶⁷
- Pixels : SizeT¹⁷⁶⁸
- Pixels : SizeX¹⁷⁶⁹
- Pixels : SizeY¹⁷⁷⁰
- Pixels : SizeZ¹⁷⁷¹
- Pixels : Type¹⁷⁷²
- Plane : TheC¹⁷⁷³
- Plane : TheT¹⁷⁷⁴
- Plane : TheZ¹⁷⁷⁵

Total supported: 22

Total unknown or missing: 453

- ¹⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ¹⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ¹⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ¹⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ¹⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ¹⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ¹⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ¹⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ¹⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ¹⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ¹⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ¹⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ¹⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ¹⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ¹⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ¹⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ¹⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ¹⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)¹⁷⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁷⁷⁷
- Channel : SamplesPerPixel¹⁷⁷⁸
- Image : AcquisitionDate¹⁷⁷⁹
- Image : ID¹⁷⁸⁰
- Image : Name¹⁷⁸¹
- Image : ROIRef¹⁷⁸²
- Pixels : BigEndian¹⁷⁸³
- Pixels : DimensionOrder¹⁷⁸⁴
- Pixels : ID¹⁷⁸⁵
- Pixels : Interleaved¹⁷⁸⁶
- Pixels : PhysicalSizeX¹⁷⁸⁷
- Pixels : PhysicalSizeY¹⁷⁸⁸
- Pixels : PhysicalSizeZ¹⁷⁸⁹
- Pixels : SignificantBits¹⁷⁹⁰
- Pixels : SizeC¹⁷⁹¹
- Pixels : SizeT¹⁷⁹²
- Pixels : SizeX¹⁷⁹³
- Pixels : SizeY¹⁷⁹⁴

¹⁷⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

¹⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁷⁹⁵
- Pixels : Type¹⁷⁹⁶
- Plane : TheC¹⁷⁹⁷
- Plane : TheT¹⁷⁹⁸
- Plane : TheZ¹⁷⁹⁹
- Point : ID¹⁸⁰⁰
- Point : StrokeColor¹⁸⁰¹
- Point : StrokeDashArray¹⁸⁰²
- Point : StrokeWidth¹⁸⁰³
- Point : TheZ¹⁸⁰⁴
- Point : X¹⁸⁰⁵
- Point : Y¹⁸⁰⁶
- Polygon : ID¹⁸⁰⁷
- Polygon : Points¹⁸⁰⁸
- Polygon : StrokeColor¹⁸⁰⁹
- Polygon : StrokeDashArray¹⁸¹⁰
- Polygon : StrokeWidth¹⁸¹¹
- Polygon : TheZ¹⁸¹²
- Polyline : ID¹⁸¹³
- Polyline : Points¹⁸¹⁴
- Polyline : StrokeColor¹⁸¹⁵
- Polyline : StrokeDashArray¹⁸¹⁶
- Polyline : StrokeWidth¹⁸¹⁷
- Polyline : TheZ¹⁸¹⁸
- ROI : ID¹⁸¹⁹
- ROI : Name¹⁸²⁰

¹⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

¹⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

¹⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_X

¹⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_Y

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#Polygon_Points

¹⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

¹⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

¹⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

¹⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

¹⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeDashArray

¹⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

¹⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

¹⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

¹⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Name

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](#)¹⁸²¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁸²²
- Channel : Name¹⁸²³
- Channel : SamplesPerPixel¹⁸²⁴
- Detector : ID¹⁸²⁵
- Detector : Type¹⁸²⁶
- DetectorSettings : Gain¹⁸²⁷
- DetectorSettings : ID¹⁸²⁸
- DetectorSettings : Offset¹⁸²⁹
- Image : AcquisitionDate¹⁸³⁰
- Image : ID¹⁸³¹
- Image : InstrumentRef¹⁸³²
- Image : Name¹⁸³³
- Instrument : ID¹⁸³⁴
- Pixels : BigEndian¹⁸³⁵
- Pixels : DimensionOrder¹⁸³⁶
- Pixels : ID¹⁸³⁷
- Pixels : Interleaved¹⁸³⁸

¹⁸²¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

¹⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX¹⁸³⁹
- Pixels : PhysicalSizeY¹⁸⁴⁰
- Pixels : SignificantBits¹⁸⁴¹
- Pixels : SizeC¹⁸⁴²
- Pixels : SizeT¹⁸⁴³
- Pixels : SizeX¹⁸⁴⁴
- Pixels : SizeY¹⁸⁴⁵
- Pixels : SizeZ¹⁸⁴⁶
- Pixels : Type¹⁸⁴⁷
- Plane : PositionX¹⁸⁴⁸
- Plane : PositionY¹⁸⁴⁹
- Plane : PositionZ¹⁸⁵⁰
- Plane : TheC¹⁸⁵¹
- Plane : TheT¹⁸⁵²
- Plane : TheZ¹⁸⁵³

Total supported: 32

Total unknown or missing: 443

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](#)¹⁸⁵⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁸⁵⁵
- Channel : SamplesPerPixel¹⁸⁵⁶

¹⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁸⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate¹⁸⁵⁷
- Image : ID¹⁸⁵⁸
- Image : Name¹⁸⁵⁹
- Pixels : BigEndian¹⁸⁶⁰
- Pixels : DimensionOrder¹⁸⁶¹
- Pixels : ID¹⁸⁶²
- Pixels : Interleaved¹⁸⁶³
- Pixels : SignificantBits¹⁸⁶⁴
- Pixels : SizeC¹⁸⁶⁵
- Pixels : SizeT¹⁸⁶⁶
- Pixels : SizeX¹⁸⁶⁷
- Pixels : SizeY¹⁸⁶⁸
- Pixels : SizeZ¹⁸⁶⁹
- Pixels : Type¹⁸⁷⁰
- Plane : TheC¹⁸⁷¹
- Plane : TheT¹⁸⁷²
- Plane : TheZ¹⁸⁷³

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](#)¹⁸⁷⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

¹⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁸⁷⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Improvisation TIFF format reader:

- Channel : ID¹⁸⁷⁵
- Channel : Name¹⁸⁷⁶
- Channel : SamplesPerPixel¹⁸⁷⁷
- Image : AcquisitionDate¹⁸⁷⁸
- Image : Description¹⁸⁷⁹
- Image : ID¹⁸⁸⁰
- Image : Name¹⁸⁸¹
- Pixels : BigEndian¹⁸⁸²
- Pixels : DimensionOrder¹⁸⁸³
- Pixels : ID¹⁸⁸⁴
- Pixels : Interleaved¹⁸⁸⁵
- Pixels : PhysicalSizeX¹⁸⁸⁶
- Pixels : PhysicalSizeY¹⁸⁸⁷
- Pixels : PhysicalSizeZ¹⁸⁸⁸
- Pixels : SignificantBits¹⁸⁸⁹
- Pixels : SizeC¹⁸⁹⁰
- Pixels : SizeT¹⁸⁹¹
- Pixels : SizeX¹⁸⁹²
- Pixels : SizeY¹⁸⁹³
- Pixels : SizeZ¹⁸⁹⁴
- Pixels : TimeIncrement¹⁸⁹⁵
- Pixels : Type¹⁸⁹⁶
- Plane : TheC¹⁸⁹⁷
- Plane : TheT¹⁸⁹⁸

¹⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

¹⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁸⁹⁹

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](#)¹⁹⁰⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁹⁰¹
- Channel : SamplesPerPixel¹⁹⁰²
- Image : AcquisitionDate¹⁹⁰³
- Image : ID¹⁹⁰⁴
- Image : Name¹⁹⁰⁵
- Pixels : BigEndian¹⁹⁰⁶
- Pixels : DimensionOrder¹⁹⁰⁷
- Pixels : ID¹⁹⁰⁸
- Pixels : Interleaved¹⁹⁰⁹
- Pixels : SignificantBits¹⁹¹⁰
- Pixels : SizeC¹⁹¹¹
- Pixels : SizeT¹⁹¹²
- Pixels : SizeX¹⁹¹³
- Pixels : SizeY¹⁹¹⁴
- Pixels : SizeZ¹⁹¹⁵
- Pixels : Type¹⁹¹⁶

¹⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹⁰⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

¹⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC¹⁹¹⁷
- Plane : TheT¹⁹¹⁸
- Plane : TheZ¹⁹¹⁹

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](#)¹⁹²⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength¹⁹²¹
- Channel : ExcitationWavelength¹⁹²²
- Channel : ID¹⁹²³
- Channel : Name¹⁹²⁴
- Channel : SamplesPerPixel¹⁹²⁵
- Detector : ID¹⁹²⁶
- Detector : Model¹⁹²⁷
- Detector : Type¹⁹²⁸
- DetectorSettings : Binning¹⁹²⁹
- DetectorSettings : Gain¹⁹³⁰
- DetectorSettings : ID¹⁹³¹
- Experiment : ID¹⁹³²
- Experiment : Type¹⁹³³
- Image : AcquisitionDate¹⁹³⁴

¹⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹²⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

¹⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

¹⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

¹⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

¹⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

¹⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

¹⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

¹⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

¹⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

¹⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

¹⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

¹⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description¹⁹³⁵
- Image : ExperimentRef¹⁹³⁶
- Image : ID¹⁹³⁷
- Image : InstrumentRef¹⁹³⁸
- Image : Name¹⁹³⁹
- ImagingEnvironment : Temperature¹⁹⁴⁰
- Instrument : ID¹⁹⁴¹
- Objective : Correction¹⁹⁴²
- Objective : ID¹⁹⁴³
- Objective : Immersion¹⁹⁴⁴
- Objective : LensNA¹⁹⁴⁵
- Objective : Manufacturer¹⁹⁴⁶
- Objective : NominalMagnification¹⁹⁴⁷
- ObjectiveSettings : ID¹⁹⁴⁸
- ObjectiveSettings : RefractiveIndex¹⁹⁴⁹
- Pixels : BigEndian¹⁹⁵⁰
- Pixels : DimensionOrder¹⁹⁵¹
- Pixels : ID¹⁹⁵²
- Pixels : Interleaved¹⁹⁵³
- Pixels : PhysicalSizeX¹⁹⁵⁴
- Pixels : PhysicalSizeY¹⁹⁵⁵
- Pixels : SignificantBits¹⁹⁵⁶
- Pixels : SizeC¹⁹⁵⁷
- Pixels : SizeT¹⁹⁵⁸
- Pixels : SizeX¹⁹⁵⁹
- Pixels : SizeY¹⁹⁶⁰

¹⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

¹⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimentRef_ID

¹⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

¹⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

¹⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

¹⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

¹⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

¹⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

¹⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

¹⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

¹⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

¹⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

¹⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

¹⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

¹⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

¹⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁹⁶¹
- Pixels : Type¹⁹⁶²
- Plane : DeltaT¹⁹⁶³
- Plane : ExposureTime¹⁹⁶⁴
- Plane : PositionX¹⁹⁶⁵
- Plane : PositionY¹⁹⁶⁶
- Plane : PositionZ¹⁹⁶⁷
- Plane : TheC¹⁹⁶⁸
- Plane : TheT¹⁹⁶⁹
- Plane : TheZ¹⁹⁷⁰
- Plate : ColumnNamingConvention¹⁹⁷¹
- Plate : ID¹⁹⁷²
- Plate : Name¹⁹⁷³
- Plate : RowNamingConvention¹⁹⁷⁴
- Plate : WellOriginX¹⁹⁷⁵
- Plate : WellOriginY¹⁹⁷⁶
- PlateAcquisition : ID¹⁹⁷⁷
- PlateAcquisition : MaximumFieldCount¹⁹⁷⁸
- PlateAcquisition : WellSampleRef¹⁹⁷⁹
- Well : Column¹⁹⁸⁰
- Well : ID¹⁹⁸¹
- Well : Row¹⁹⁸²
- WellSample : ID¹⁹⁸³
- WellSample : ImageRef¹⁹⁸⁴
- WellSample : Index¹⁹⁸⁵
- WellSample : PositionX¹⁹⁸⁶

¹⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

¹⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

¹⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

¹⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

¹⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

¹⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

¹⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

¹⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

¹⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

¹⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

¹⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

¹⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

¹⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

¹⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginX

¹⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_WellOriginY

¹⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

¹⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

¹⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

¹⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

¹⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

¹⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

¹⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

¹⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

¹⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

¹⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

- WellSample : PositionY¹⁹⁸⁷

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](#)¹⁹⁸⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID¹⁹⁸⁹
- Channel : SamplesPerPixel¹⁹⁹⁰
- Image : AcquisitionDate¹⁹⁹¹
- Image : ID¹⁹⁹²
- Image : Name¹⁹⁹³
- Pixels : BigEndian¹⁹⁹⁴
- Pixels : DimensionOrder¹⁹⁹⁵
- Pixels : ID¹⁹⁹⁶
- Pixels : Interleaved¹⁹⁹⁷
- Pixels : SignificantBits¹⁹⁹⁸
- Pixels : SizeC¹⁹⁹⁹
- Pixels : SizeT²⁰⁰⁰
- Pixels : SizeX²⁰⁰¹
- Pixels : SizeY²⁰⁰²
- Pixels : SizeZ²⁰⁰³
- Pixels : Type²⁰⁰⁴

¹⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

¹⁹⁸⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

¹⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

¹⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

¹⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

¹⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

¹⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

¹⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC²⁰⁰⁵
- Plane : TheT²⁰⁰⁶
- Plane : TheZ²⁰⁰⁷

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](#)²⁰⁰⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁰⁰⁹
- Channel : SamplesPerPixel²⁰¹⁰
- Image : AcquisitionDate²⁰¹¹
- Image : ID²⁰¹²
- Image : Name²⁰¹³
- Pixels : BigEndian²⁰¹⁴
- Pixels : DimensionOrder²⁰¹⁵
- Pixels : ID²⁰¹⁶
- Pixels : Interleaved²⁰¹⁷
- Pixels : PhysicalSizeX²⁰¹⁸
- Pixels : PhysicalSizeY²⁰¹⁹
- Pixels : PhysicalSizeZ²⁰²⁰
- Pixels : SignificantBits²⁰²¹
- Pixels : SizeC²⁰²²

²⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰⁰⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²⁰²³
- Pixels : SizeX²⁰²⁴
- Pixels : SizeY²⁰²⁵
- Pixels : SizeZ²⁰²⁶
- Pixels : Type²⁰²⁷
- Plane : TheC²⁰²⁸
- Plane : TheT²⁰²⁹
- Plane : TheZ²⁰³⁰

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](#)²⁰³¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁰³²
- Channel : SamplesPerPixel²⁰³³
- Experimenter : ID²⁰³⁴
- Experimenter : Institution²⁰³⁵
- Experimenter : UserName²⁰³⁶
- Image : AcquisitionDate²⁰³⁷
- Image : Description²⁰³⁸
- Image : ExperimenterRef²⁰³⁹
- Image : ID²⁰⁴⁰

²⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰³¹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

²⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

²⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

²⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

²⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : InstrumentRef²⁰⁴¹
- Image : Name²⁰⁴²
- Instrument : ID²⁰⁴³
- Microscope : Model²⁰⁴⁴
- Pixels : BigEndian²⁰⁴⁵
- Pixels : DimensionOrder²⁰⁴⁶
- Pixels : ID²⁰⁴⁷
- Pixels : Interleaved²⁰⁴⁸
- Pixels : PhysicalSizeX²⁰⁴⁹
- Pixels : PhysicalSizeY²⁰⁵⁰
- Pixels : PhysicalSizeZ²⁰⁵¹
- Pixels : SignificantBits²⁰⁵²
- Pixels : SizeC²⁰⁵³
- Pixels : SizeT²⁰⁵⁴
- Pixels : SizeX²⁰⁵⁵
- Pixels : SizeY²⁰⁵⁶
- Pixels : SizeZ²⁰⁵⁷
- Pixels : Type²⁰⁵⁸
- Plane : TheC²⁰⁵⁹
- Plane : TheT²⁰⁶⁰
- Plane : TheZ²⁰⁶¹

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 model²⁰⁶²](#). Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰⁶²<http://www.openmicroscopy.org/site/support/ome-model/>

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 IVision format reader:**

- Channel : ID²⁰⁶³
- Channel : SamplesPerPixel²⁰⁶⁴
- Detector : ID²⁰⁶⁵
- Detector : Type²⁰⁶⁶
- DetectorSettings : Binning²⁰⁶⁷
- DetectorSettings : Gain²⁰⁶⁸
- DetectorSettings : ID²⁰⁶⁹
- Image : AcquisitionDate²⁰⁷⁰
- Image : ID²⁰⁷¹
- Image : InstrumentRef²⁰⁷²
- Image : Name²⁰⁷³
- Instrument : ID²⁰⁷⁴
- Objective : Correction²⁰⁷⁵
- Objective : ID²⁰⁷⁶
- Objective : Immersion²⁰⁷⁷
- Objective : LensNA²⁰⁷⁸
- Objective : NominalMagnification²⁰⁷⁹
- ObjectiveSettings : ID²⁰⁸⁰
- ObjectiveSettings : RefractiveIndex²⁰⁸¹
- Pixels : BigEndian²⁰⁸²
- Pixels : DimensionOrder²⁰⁸³
- Pixels : ID²⁰⁸⁴

²⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁰⁸⁵
- Pixels : SignificantBits²⁰⁸⁶
- Pixels : SizeC²⁰⁸⁷
- Pixels : SizeT²⁰⁸⁸
- Pixels : SizeX²⁰⁸⁹
- Pixels : SizeY²⁰⁹⁰
- Pixels : SizeZ²⁰⁹¹
- Pixels : TimeIncrement²⁰⁹²
- Pixels : Type²⁰⁹³
- Plane : TheC²⁰⁹⁴
- Plane : TheT²⁰⁹⁵
- Plane : TheZ²⁰⁹⁶

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](#)²⁰⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 IPLab format reader:

- Channel : ID²⁰⁹⁸
- Channel : SamplesPerPixel²⁰⁹⁹
- Image : AcquisitionDate²¹⁰⁰
- Image : Description²¹⁰¹
- Image : ID²¹⁰²

²⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁰⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name²¹⁰³
- Image : ROIRef²¹⁰⁴
- Pixels : BigEndian²¹⁰⁵
- Pixels : DimensionOrder²¹⁰⁶
- Pixels : ID²¹⁰⁷
- Pixels : Interleaved²¹⁰⁸
- Pixels : PhysicalSizeX²¹⁰⁹
- Pixels : PhysicalSizeY²¹¹⁰
- Pixels : SignificantBits²¹¹¹
- Pixels : SizeC²¹¹²
- Pixels : SizeT²¹¹³
- Pixels : SizeX²¹¹⁴
- Pixels : SizeY²¹¹⁵
- Pixels : SizeZ²¹¹⁶
- Pixels : TimeIncrement²¹¹⁷
- Pixels : Type²¹¹⁸
- Plane : DeltaT²¹¹⁹
- Plane : TheC²¹²⁰
- Plane : TheT²¹²¹
- Plane : TheZ²¹²²
- ROI : ID²¹²³
- Rectangle : Height²¹²⁴
- Rectangle : ID²¹²⁵
- Rectangle : Width²¹²⁶
- Rectangle : X²¹²⁷
- Rectangle : Y²¹²⁸

²¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

²¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

²¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

²¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

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](#)²¹²⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²¹³⁰
- Channel : SamplesPerPixel²¹³¹
- Image : AcquisitionDate²¹³²
- Image : ID²¹³³
- Image : Name²¹³⁴
- Pixels : BigEndian²¹³⁵
- Pixels : DimensionOrder²¹³⁶
- Pixels : ID²¹³⁷
- Pixels : Interleaved²¹³⁸
- Pixels : SignificantBits²¹³⁹
- Pixels : SizeC²¹⁴⁰
- Pixels : SizeT²¹⁴¹
- Pixels : SizeX²¹⁴²
- Pixels : SizeY²¹⁴³
- Pixels : SizeZ²¹⁴⁴
- Pixels : Type²¹⁴⁵
- Plane : TheC²¹⁴⁶

²¹²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

- Plane : TheT²¹⁴⁷
- Plane : TheZ²¹⁴⁸

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](#)²¹⁴⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²¹⁵⁰
- Channel : SamplesPerPixel²¹⁵¹
- Image : AcquisitionDate²¹⁵²
- Image : ID²¹⁵³
- Image : Name²¹⁵⁴
- Pixels : BigEndian²¹⁵⁵
- Pixels : DimensionOrder²¹⁵⁶
- Pixels : ID²¹⁵⁷
- Pixels : Interleaved²¹⁵⁸
- Pixels : SignificantBits²¹⁵⁹
- Pixels : SizeC²¹⁶⁰
- Pixels : SizeT²¹⁶¹
- Pixels : SizeX²¹⁶²
- Pixels : SizeY²¹⁶³
- Pixels : SizeZ²¹⁶⁴

²¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁴⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type²¹⁶⁵
- Plane : TheC²¹⁶⁶
- Plane : TheT²¹⁶⁷
- Plane : TheZ²¹⁶⁸

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](#)²¹⁶⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²¹⁷⁰
- Channel : SamplesPerPixel²¹⁷¹
- Image : AcquisitionDate²¹⁷²
- Image : ID²¹⁷³
- Image : Name²¹⁷⁴
- Pixels : BigEndian²¹⁷⁵
- Pixels : DimensionOrder²¹⁷⁶
- Pixels : ID²¹⁷⁷
- Pixels : Interleaved²¹⁷⁸
- Pixels : SignificantBits²¹⁷⁹
- Pixels : SizeC²¹⁸⁰
- Pixels : SizeT²¹⁸¹
- Pixels : SizeX²¹⁸²

²¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY²¹⁸³
- Pixels : SizeZ²¹⁸⁴
- Pixels : Type²¹⁸⁵
- Plane : TheC²¹⁸⁶
- Plane : TheT²¹⁸⁷
- Plane : TheZ²¹⁸⁸

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 model](#)²¹⁸⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²¹⁹⁰
- Channel : SamplesPerPixel²¹⁹¹
- Image : AcquisitionDate²¹⁹²
- Image : ID²¹⁹³
- Image : Name²¹⁹⁴
- Pixels : BigEndian²¹⁹⁵
- Pixels : DimensionOrder²¹⁹⁶
- Pixels : ID²¹⁹⁷
- Pixels : Interleaved²¹⁹⁸
- Pixels : SignificantBits²¹⁹⁹
- Pixels : SizeC²²⁰⁰

²¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²¹⁸⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²²⁰¹
- Pixels : SizeX²²⁰²
- Pixels : SizeY²²⁰³
- Pixels : SizeZ²²⁰⁴
- Pixels : Type²²⁰⁵
- Plane : TheC²²⁰⁶
- Plane : TheT²²⁰⁷
- Plane : TheZ²²⁰⁸

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](#)²²⁰⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²²¹⁰
- Channel : SamplesPerPixel²²¹¹
- Image : AcquisitionDate²²¹²
- Image : ID²²¹³
- Image : Name²²¹⁴
- Pixels : BigEndian²²¹⁵
- Pixels : DimensionOrder²²¹⁶
- Pixels : ID²²¹⁷
- Pixels : Interleaved²²¹⁸

²²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²⁰⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : SignificantBits²²¹⁹
- Pixels : SizeC²²²⁰
- Pixels : SizeT²²²¹
- Pixels : SizeX²²²²
- Pixels : SizeY²²²³
- Pixels : SizeZ²²²⁴
- Pixels : Type²²²⁵
- Plane : TheC²²²⁶
- Plane : TheT²²²⁷
- Plane : TheZ²²²⁸

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](#)²²²⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Khoros XV format reader:

- Channel : ID²²³⁰
- Channel : SamplesPerPixel²²³¹
- Image : AcquisitionDate²²³²
- Image : ID²²³³
- Image : Name²²³⁴
- Pixels : BigEndian²²³⁵
- Pixels : DimensionOrder²²³⁶

²²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²²³⁷
- Pixels : Interleaved²²³⁸
- Pixels : SignificantBits²²³⁹
- Pixels : SizeC²²⁴⁰
- Pixels : SizeT²²⁴¹
- Pixels : SizeX²²⁴²
- Pixels : SizeY²²⁴³
- Pixels : SizeZ²²⁴⁴
- Pixels : Type²²⁴⁵
- Plane : TheC²²⁴⁶
- Plane : TheT²²⁴⁷
- Plane : TheZ²²⁴⁸

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 model²²⁴⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Kodak Molecular Imaging format reader:

- Channel : ID²²⁵⁰
- Channel : SamplesPerPixel²²⁵¹
- Image : AcquisitionDate²²⁵²
- Image : ID²²⁵³
- Image : InstrumentRef²²⁵⁴

²²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²⁴⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name²²⁵⁵
- ImagingEnvironment : Temperature²²⁵⁶
- Instrument : ID²²⁵⁷
- Microscope : Model²²⁵⁸
- Pixels : BigEndian²²⁵⁹
- Pixels : DimensionOrder²²⁶⁰
- Pixels : ID²²⁶¹
- Pixels : Interleaved²²⁶²
- Pixels : PhysicalSizeX²²⁶³
- Pixels : PhysicalSizeY²²⁶⁴
- Pixels : SignificantBits²²⁶⁵
- Pixels : SizeC²²⁶⁶
- Pixels : SizeT²²⁶⁷
- Pixels : SizeX²²⁶⁸
- Pixels : SizeY²²⁶⁹
- Pixels : SizeZ²²⁷⁰
- Pixels : Type²²⁷¹
- Plane : ExposureTime²²⁷²
- Plane : TheC²²⁷³
- Plane : TheT²²⁷⁴
- Plane : TheZ²²⁷⁵

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 model²²⁷⁶](#). Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²²⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

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 : ID²²⁷⁷
- Channel : SamplesPerPixel²²⁷⁸
- Image : AcquisitionDate²²⁷⁹
- Image : ID²²⁸⁰
- Image : Name²²⁸¹
- Image : ROIRef²²⁸²
- Pixels : BigEndian²²⁸³
- Pixels : DimensionOrder²²⁸⁴
- Pixels : ID²²⁸⁵
- Pixels : Interleaved²²⁸⁶
- Pixels : SignificantBits²²⁸⁷
- Pixels : SizeC²²⁸⁸
- Pixels : SizeT²²⁸⁹
- Pixels : SizeX²²⁹⁰
- Pixels : SizeY²²⁹¹
- Pixels : SizeZ²²⁹²
- Pixels : Type²²⁹³
- Plane : DeltaT²²⁹⁴
- Plane : ExposureTime²²⁹⁵
- Plane : TheC²²⁹⁶
- Plane : TheT²²⁹⁷
- Plane : TheZ²²⁹⁸

²²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

- Polygon : ID²²⁹⁹
- Polygon : Points²³⁰⁰
- ROI : ID²³⁰¹

Total supported: 25

Total unknown or missing: 450

19.2.64 InspectorReader

This page lists supported metadata fields for the Bio-Formats Lavisoin Inspector format reader.

These fields are from the [OME data model](#)²³⁰². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Lavisoin Inspector format reader:

- Channel : ID²³⁰³
- Channel : SamplesPerPixel²³⁰⁴
- Image : AcquisitionDate²³⁰⁵
- Image : ID²³⁰⁶
- Image : Name²³⁰⁷
- Pixels : BigEndian²³⁰⁸
- Pixels : DimensionOrder²³⁰⁹
- Pixels : ID²³¹⁰
- Pixels : Interleaved²³¹¹
- Pixels : SignificantBits²³¹²
- Pixels : SizeC²³¹³
- Pixels : SizeT²³¹⁴
- Pixels : SizeX²³¹⁵
- Pixels : SizeY²³¹⁶

²²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

²³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²³⁰²<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²³¹⁷
- Pixels : Type²³¹⁸
- Plane : TheC²³¹⁹
- Plane : TheT²³²⁰
- Plane : TheZ²³²¹

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](#)²³²². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : Color²³²³
- Channel : EmissionWavelength²³²⁴
- Channel : ExcitationWavelength²³²⁵
- Channel : ID²³²⁶
- Channel : Name²³²⁷
- Channel : PinholeSize²³²⁸
- Channel : SamplesPerPixel²³²⁹
- Detector : ID²³³⁰
- Detector : Offset²³³¹
- Detector : Type²³³²
- Detector : Voltage²³³³
- DetectorSettings : ID²³³⁴

²³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²³²²<http://www.openmicroscopy.org/site/support/ome-model/>

²³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

²³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Voltage

²³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

- Filter : ID²³³⁵
- Filter : Model²³³⁶
- Image : AcquisitionDate²³³⁷
- Image : Description²³³⁸
- Image : ID²³³⁹
- Image : InstrumentRef²³⁴⁰
- Image : Name²³⁴¹
- Instrument : ID²³⁴²
- LightPath : EmissionFilterRef²³⁴³
- Objective : Correction²³⁴⁴
- Objective : ID²³⁴⁵
- Objective : Immersion²³⁴⁶
- Objective : LensNA²³⁴⁷
- Objective : Model²³⁴⁸
- Objective : NominalMagnification²³⁴⁹
- Objective : SerialNumber²³⁵⁰
- ObjectiveSettings : ID²³⁵¹
- ObjectiveSettings : RefractiveIndex²³⁵²
- Pixels : BigEndian²³⁵³
- Pixels : DimensionOrder²³⁵⁴
- Pixels : ID²³⁵⁵
- Pixels : Interleaved²³⁵⁶
- Pixels : PhysicalSizeX²³⁵⁷
- Pixels : PhysicalSizeY²³⁵⁸
- Pixels : PhysicalSizeZ²³⁵⁹
- Pixels : SignificantBits²³⁶⁰

²³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

²³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC²³⁶¹
- Pixels : SizeT²³⁶²
- Pixels : SizeX²³⁶³
- Pixels : SizeY²³⁶⁴
- Pixels : SizeZ²³⁶⁵
- Pixels : TimeIncrement²³⁶⁶
- Pixels : Type²³⁶⁷
- Plane : DeltaT²³⁶⁸
- Plane : ExposureTime²³⁶⁹
- Plane : PositionX²³⁷⁰
- Plane : PositionY²³⁷¹
- Plane : TheC²³⁷²
- Plane : TheT²³⁷³
- Plane : TheZ²³⁷⁴
- StageLabel : Name²³⁷⁵
- StageLabel : Z²³⁷⁶
- TransmittanceRange : CutIn²³⁷⁷
- TransmittanceRange : CutOut²³⁷⁸

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](#)²³⁷⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

²³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name

²³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z

²³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

²³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

²³⁷⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Leica Image File Format format reader:

- Channel : Color²³⁸⁰
- Channel : ExcitationWavelength²³⁸¹
- Channel : ID²³⁸²
- Channel : LightSourceSettingsAttenuation²³⁸³
- Channel : LightSourceSettingsID²³⁸⁴
- Channel : Name²³⁸⁵
- Channel : PinholeSize²³⁸⁶
- Channel : SamplesPerPixel²³⁸⁷
- Detector : ID²³⁸⁸
- Detector : Model²³⁸⁹
- Detector : Offset²³⁹⁰
- Detector : Type²³⁹¹
- Detector : Zoom²³⁹²
- DetectorSettings : Gain²³⁹³
- DetectorSettings : ID²³⁹⁴
- DetectorSettings : Offset²³⁹⁵
- Filter : ID²³⁹⁶
- Filter : Model²³⁹⁷
- Image : AcquisitionDate²³⁹⁸
- Image : Description²³⁹⁹
- Image : ID²⁴⁰⁰
- Image : InstrumentRef²⁴⁰¹
- Image : Name²⁴⁰²
- Image : ROIRef²⁴⁰³

²³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Attenuation

²³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

²³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

²³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

²³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

- Instrument : ID²⁴⁰⁴
- Label : FontSize²⁴⁰⁵
- Label : ID²⁴⁰⁶
- Label : StrokeWidth²⁴⁰⁷
- Label : Text²⁴⁰⁸
- Label : X²⁴⁰⁹
- Label : Y²⁴¹⁰
- Laser : ID²⁴¹¹
- Laser : LaserMedium²⁴¹²
- Laser : Type²⁴¹³
- Laser : Wavelength²⁴¹⁴
- LightPath : EmissionFilterRef²⁴¹⁵
- Line : ID²⁴¹⁶
- Line : X1²⁴¹⁷
- Line : X2²⁴¹⁸
- Line : Y1²⁴¹⁹
- Line : Y2²⁴²⁰
- Microscope : Model²⁴²¹
- Microscope : Type²⁴²²
- Objective : Correction²⁴²³
- Objective : ID²⁴²⁴
- Objective : Immersion²⁴²⁵
- Objective : LensNA²⁴²⁶
- Objective : Model²⁴²⁷
- Objective : NominalMagnification²⁴²⁸
- Objective : SerialNumber²⁴²⁹

²⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

²⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

²⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

²⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_X

²⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_Y

²⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

²⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

²⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

²⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

²⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

²⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

²⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

²⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

- ObjectiveSettings : ID²⁴³⁰
- ObjectiveSettings : RefractiveIndex²⁴³¹
- Pixels : BigEndian²⁴³²
- Pixels : DimensionOrder²⁴³³
- Pixels : ID²⁴³⁴
- Pixels : Interleaved²⁴³⁵
- Pixels : PhysicalSizeX²⁴³⁶
- Pixels : PhysicalSizeY²⁴³⁷
- Pixels : PhysicalSizeZ²⁴³⁸
- Pixels : SignificantBits²⁴³⁹
- Pixels : SizeC²⁴⁴⁰
- Pixels : SizeT²⁴⁴¹
- Pixels : SizeX²⁴⁴²
- Pixels : SizeY²⁴⁴³
- Pixels : SizeZ²⁴⁴⁴
- Pixels : TimeIncrement²⁴⁴⁵
- Pixels : Type²⁴⁴⁶
- Plane : DeltaT²⁴⁴⁷
- Plane : ExposureTime²⁴⁴⁸
- Plane : PositionX²⁴⁴⁹
- Plane : PositionY²⁴⁵⁰
- Plane : PositionZ²⁴⁵¹
- Plane : TheC²⁴⁵²
- Plane : TheT²⁴⁵³
- Plane : TheZ²⁴⁵⁴
- Polygon : ID²⁴⁵⁵

²⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

²⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

- Polygon : Points²⁴⁵⁶
- ROI : ID²⁴⁵⁷
- Rectangle : Height²⁴⁵⁸
- Rectangle : ID²⁴⁵⁹
- Rectangle : Width²⁴⁶⁰
- Rectangle : X²⁴⁶¹
- Rectangle : Y²⁴⁶²
- TransmittanceRange : CutIn²⁴⁶³
- TransmittanceRange : CutOut²⁴⁶⁴

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 model](#)²⁴⁶⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Leica SCN format reader:

- Channel : ID²⁴⁶⁶
- Channel : IlluminationType²⁴⁶⁷
- Channel : SamplesPerPixel²⁴⁶⁸
- Image : AcquisitionDate²⁴⁶⁹
- Image : Description²⁴⁷⁰
- Image : ID²⁴⁷¹
- Image : InstrumentRef²⁴⁷²
- Image : Name²⁴⁷³

²⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

²⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

²⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

²⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

²⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

²⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

²⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

²⁴⁶⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

²⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Instrument : ID²⁴⁷⁴
- Objective : CalibratedMagnification²⁴⁷⁵
- Objective : ID²⁴⁷⁶
- Objective : LensNA²⁴⁷⁷
- Objective : NominalMagnification²⁴⁷⁸
- ObjectiveSettings : ID²⁴⁷⁹
- Pixels : BigEndian²⁴⁸⁰
- Pixels : DimensionOrder²⁴⁸¹
- Pixels : ID²⁴⁸²
- Pixels : Interleaved²⁴⁸³
- Pixels : PhysicalSizeX²⁴⁸⁴
- Pixels : PhysicalSizeY²⁴⁸⁵
- Pixels : PhysicalSizeZ²⁴⁸⁶
- Pixels : SignificantBits²⁴⁸⁷
- Pixels : SizeC²⁴⁸⁸
- Pixels : SizeT²⁴⁸⁹
- Pixels : SizeX²⁴⁹⁰
- Pixels : SizeY²⁴⁹¹
- Pixels : SizeZ²⁴⁹²
- Pixels : Type²⁴⁹³
- Plane : PositionX²⁴⁹⁴
- Plane : PositionY²⁴⁹⁵
- Plane : TheC²⁴⁹⁶
- Plane : TheT²⁴⁹⁷
- Plane : TheZ²⁴⁹⁸

Total supported: 33

Total unknown or missing: 442

- ²⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ²⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification
- ²⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID
- ²⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA
- ²⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification
- ²⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID
- ²⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ²⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ²⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ²⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ²⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ²⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ²⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ²⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ²⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ²⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ²⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ²⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ²⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ²⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ²⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ²⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ²⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ²⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ²⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)²⁴⁹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁵⁰⁰
- Channel : SamplesPerPixel²⁵⁰¹
- Image : AcquisitionDate²⁵⁰²
- Image : ID²⁵⁰³
- Image : InstrumentRef²⁵⁰⁴
- Image : Name²⁵⁰⁵
- Instrument : ID²⁵⁰⁶
- Objective : Correction²⁵⁰⁷
- Objective : ID²⁵⁰⁸
- Objective : Immersion²⁵⁰⁹
- Objective : WorkingDistance²⁵¹⁰
- Pixels : BigEndian²⁵¹¹
- Pixels : DimensionOrder²⁵¹²
- Pixels : ID²⁵¹³
- Pixels : Interleaved²⁵¹⁴
- Pixels : PhysicalSizeX²⁵¹⁵
- Pixels : PhysicalSizeY²⁵¹⁶
- Pixels : SignificantBits²⁵¹⁷

²⁴⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

²⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC²⁵¹⁸
- Pixels : SizeT²⁵¹⁹
- Pixels : SizeX²⁵²⁰
- Pixels : SizeY²⁵²¹
- Pixels : SizeZ²⁵²²
- Pixels : Type²⁵²³
- Plane : TheC²⁵²⁴
- Plane : TheT²⁵²⁵
- Plane : TheZ²⁵²⁶

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](#)²⁵²⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Li-Cor L2D format reader:

- Channel : ID²⁵²⁸
- Channel : LightSourceSettingsID²⁵²⁹
- Channel : SamplesPerPixel²⁵³⁰
- Image : AcquisitionDate²⁵³¹
- Image : Description²⁵³²
- Image : ID²⁵³³
- Image : InstrumentRef²⁵³⁴
- Image : Name²⁵³⁵

²⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Instrument : ID²⁵³⁶
- Laser : ID²⁵³⁷
- Laser : LaserMedium²⁵³⁸
- Laser : Type²⁵³⁹
- Laser : Wavelength²⁵⁴⁰
- Microscope : Model²⁵⁴¹
- Microscope : Type²⁵⁴²
- Pixels : BigEndian²⁵⁴³
- Pixels : DimensionOrder²⁵⁴⁴
- Pixels : ID²⁵⁴⁵
- Pixels : Interleaved²⁵⁴⁶
- Pixels : SignificantBits²⁵⁴⁷
- Pixels : SizeC²⁵⁴⁸
- Pixels : SizeT²⁵⁴⁹
- Pixels : SizeX²⁵⁵⁰
- Pixels : SizeY²⁵⁵¹
- Pixels : SizeZ²⁵⁵²
- Pixels : Type²⁵⁵³
- Plane : TheC²⁵⁵⁴
- Plane : TheT²⁵⁵⁵
- Plane : TheZ²⁵⁵⁶

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](#)²⁵⁵⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

²⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

²⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁵⁵⁷<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 Laboratory Imaging format reader:

- Channel : ID²⁵⁵⁸
- Channel : SamplesPerPixel²⁵⁵⁹
- Image : AcquisitionDate²⁵⁶⁰
- Image : ID²⁵⁶¹
- Image : Name²⁵⁶²
- Pixels : BigEndian²⁵⁶³
- Pixels : DimensionOrder²⁵⁶⁴
- Pixels : ID²⁵⁶⁵
- Pixels : Interleaved²⁵⁶⁶
- Pixels : SignificantBits²⁵⁶⁷
- Pixels : SizeC²⁵⁶⁸
- Pixels : SizeT²⁵⁶⁹
- Pixels : SizeX²⁵⁷⁰
- Pixels : SizeY²⁵⁷¹
- Pixels : SizeZ²⁵⁷²
- Pixels : Type²⁵⁷³
- Plane : TheC²⁵⁷⁴
- Plane : TheT²⁵⁷⁵
- Plane : TheZ²⁵⁷⁶

Total supported: 19

Total unknown or missing: 456

- ²⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ²⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ²⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ²⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ²⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ²⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ²⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ²⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ²⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ²⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ²⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ²⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ²⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ²⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ²⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ²⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ²⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ²⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ²⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)²⁵⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁵⁷⁸
- Channel : Name²⁵⁷⁹
- Channel : SamplesPerPixel²⁵⁸⁰
- Image : AcquisitionDate²⁵⁸¹
- Image : Description²⁵⁸²
- Image : ID²⁵⁸³
- Image : Name²⁵⁸⁴
- ImagingEnvironment : Temperature²⁵⁸⁵
- Pixels : BigEndian²⁵⁸⁶
- Pixels : DimensionOrder²⁵⁸⁷
- Pixels : ID²⁵⁸⁸
- Pixels : Interleaved²⁵⁸⁹
- Pixels : PhysicalSizeX²⁵⁹⁰
- Pixels : PhysicalSizeY²⁵⁹¹
- Pixels : PhysicalSizeZ²⁵⁹²
- Pixels : SignificantBits²⁵⁹³
- Pixels : SizeC²⁵⁹⁴
- Pixels : SizeT²⁵⁹⁵

²⁵⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁵⁹⁶
- Pixels : SizeY²⁵⁹⁷
- Pixels : SizeZ²⁵⁹⁸
- Pixels : Type²⁵⁹⁹
- Plane : DeltaT²⁶⁰⁰
- Plane : ExposureTime²⁶⁰¹
- Plane : PositionX²⁶⁰²
- Plane : PositionY²⁶⁰³
- Plane : TheC²⁶⁰⁴
- Plane : TheT²⁶⁰⁵
- Plane : TheZ²⁶⁰⁶
- Plate : ColumnNamingConvention²⁶⁰⁷
- Plate : ID²⁶⁰⁸
- Plate : RowNamingConvention²⁶⁰⁹
- Well : Column²⁶¹⁰
- Well : ID²⁶¹¹
- Well : Row²⁶¹²
- WellSample : ID²⁶¹³
- WellSample : ImageRef²⁶¹⁴
- WellSample : Index²⁶¹⁵

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](#)²⁶¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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*:

- ²⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ²⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ²⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ²⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ²⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ²⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ²⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ²⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ²⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ²⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ²⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ²⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention
- ²⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID
- ²⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention
- ²⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column
- ²⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID
- ²⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row
- ²⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID
- ²⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID
- ²⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index
- ²⁶¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 : ID²⁶¹⁷
- Channel : LightSourceSettingsID²⁶¹⁸
- Channel : LightSourceSettingsWavelength²⁶¹⁹
- Channel : Name²⁶²⁰
- Channel : SamplesPerPixel²⁶²¹
- Detector : ID²⁶²²
- Detector : Type²⁶²³
- DetectorSettings : Binning²⁶²⁴
- DetectorSettings : Gain²⁶²⁵
- DetectorSettings : ID²⁶²⁶
- DetectorSettings : ReadOutRate²⁶²⁷
- Image : AcquisitionDate²⁶²⁸
- Image : Description²⁶²⁹
- Image : ID²⁶³⁰
- Image : InstrumentRef²⁶³¹
- Image : Name²⁶³²
- ImagingEnvironment : Temperature²⁶³³
- Instrument : ID²⁶³⁴
- Laser : ID²⁶³⁵
- Laser : LaserMedium²⁶³⁶
- Laser : Type²⁶³⁷
- Pixels : BigEndian²⁶³⁸
- Pixels : DimensionOrder²⁶³⁹

²⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

²⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength

²⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²⁶⁴⁰
- Pixels : Interleaved²⁶⁴¹
- Pixels : PhysicalSizeX²⁶⁴²
- Pixels : PhysicalSizeY²⁶⁴³
- Pixels : PhysicalSizeZ²⁶⁴⁴
- Pixels : SignificantBits²⁶⁴⁵
- Pixels : SizeC²⁶⁴⁶
- Pixels : SizeT²⁶⁴⁷
- Pixels : SizeX²⁶⁴⁸
- Pixels : SizeY²⁶⁴⁹
- Pixels : SizeZ²⁶⁵⁰
- Pixels : Type²⁶⁵¹
- Plane : DeltaT²⁶⁵²
- Plane : ExposureTime²⁶⁵³
- Plane : PositionX²⁶⁵⁴
- Plane : PositionY²⁶⁵⁵
- Plane : PositionZ²⁶⁵⁶
- Plane : TheC²⁶⁵⁷
- Plane : TheT²⁶⁵⁸
- Plane : TheZ²⁶⁵⁹

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 model²⁶⁶⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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*:

- ²⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ²⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ²⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ²⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ²⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ²⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ²⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ²⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ²⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ²⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ²⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ²⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ²⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT
- ²⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ²⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX
- ²⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY
- ²⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ
- ²⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ²⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ²⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ²⁶⁶⁰<http://www.openmicroscopy.org/site/support/ome-model/>

- 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 : Color²⁶⁶¹
- Channel : ID²⁶⁶²
- Channel : Name²⁶⁶³
- Channel : SamplesPerPixel²⁶⁶⁴
- Ellipse : ID²⁶⁶⁵
- Ellipse : RadiusX²⁶⁶⁶
- Ellipse : RadiusY²⁶⁶⁷
- Ellipse : Text²⁶⁶⁸
- Ellipse : TheT²⁶⁶⁹
- Ellipse : TheZ²⁶⁷⁰
- Ellipse : X²⁶⁷¹
- Ellipse : Y²⁶⁷²
- Experiment : Description²⁶⁷³
- Experiment : ID²⁶⁷⁴
- Experiment : Type²⁶⁷⁵
- Image : AcquisitionDate²⁶⁷⁶
- Image : ExperimentRef²⁶⁷⁷
- Image : ID²⁶⁷⁸
- Image : InstrumentRef²⁶⁷⁹
- Image : Name²⁶⁸⁰
- Image : ROIRef²⁶⁸¹
- Instrument : ID²⁶⁸²
- Mask : FillColor²⁶⁸³

²⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

²⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

²⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

²⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

²⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

²⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

²⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

²⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

²⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

²⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Description

²⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

²⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

²⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimentRef_ID

²⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

²⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FillColor

- Mask : Height²⁶⁸⁴
- Mask : ID²⁶⁸⁵
- Mask : StrokeColor²⁶⁸⁶
- Mask : Width²⁶⁸⁷
- Mask : X²⁶⁸⁸
- Mask : Y²⁶⁸⁹
- Objective : ID²⁶⁹⁰
- Objective : Model²⁶⁹¹
- Objective : NominalMagnification²⁶⁹²
- Pixels : BigEndian²⁶⁹³
- Pixels : DimensionOrder²⁶⁹⁴
- Pixels : ID²⁶⁹⁵
- Pixels : Interleaved²⁶⁹⁶
- Pixels : PhysicalSizeX²⁶⁹⁷
- Pixels : PhysicalSizeY²⁶⁹⁸
- Pixels : SignificantBits²⁶⁹⁹
- Pixels : SizeC²⁷⁰⁰
- Pixels : SizeT²⁷⁰¹
- Pixels : SizeX²⁷⁰²
- Pixels : SizeY²⁷⁰³
- Pixels : SizeZ²⁷⁰⁴
- Pixels : Type²⁷⁰⁵
- Plane : ExposureTime²⁷⁰⁶
- Plane : TheC²⁷⁰⁷
- Plane : TheT²⁷⁰⁸
- Plane : TheZ²⁷⁰⁹

²⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Height

²⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

²⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeColor

²⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width

²⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X

²⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y

²⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

²⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

- Plate : ColumnNamingConvention²⁷¹⁰
- Plate : ExternalIdentifier²⁷¹¹
- Plate : ID²⁷¹²
- Plate : Name²⁷¹³
- Plate : RowNamingConvention²⁷¹⁴
- PlateAcquisition : ID²⁷¹⁵
- PlateAcquisition : MaximumFieldCount²⁷¹⁶
- PlateAcquisition : WellSampleRef²⁷¹⁷
- ROI : ID²⁷¹⁸
- Well : Column²⁷¹⁹
- Well : ID²⁷²⁰
- Well : Row²⁷²¹
- WellSample : ID²⁷²²
- WellSample : ImageRef²⁷²³
- WellSample : Index²⁷²⁴

Total supported: 64

Total unknown or missing: 411

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](#)²⁷²⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁷²⁶
- Channel : Name²⁷²⁷

²⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

²⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

²⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

²⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

²⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

²⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

²⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

²⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

²⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

²⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

²⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

²⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

²⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

²⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

²⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

²⁷²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

- Channel : SamplesPerPixel²⁷²⁸
- Detector : ID²⁷²⁹
- Detector : Manufacturer²⁷³⁰
- Detector : Model²⁷³¹
- Detector : SerialNumber²⁷³²
- Detector : Type²⁷³³
- DetectorSettings : Binning²⁷³⁴
- DetectorSettings : Gain²⁷³⁵
- DetectorSettings : ID²⁷³⁶
- DetectorSettings : Voltage²⁷³⁷
- Image : AcquisitionDate²⁷³⁸
- Image : Description²⁷³⁹
- Image : ID²⁷⁴⁰
- Image : InstrumentRef²⁷⁴¹
- Image : Name²⁷⁴²
- ImagingEnvironment : Temperature²⁷⁴³
- Instrument : ID²⁷⁴⁴
- Pixels : BigEndian²⁷⁴⁵
- Pixels : DimensionOrder²⁷⁴⁶
- Pixels : ID²⁷⁴⁷
- Pixels : Interleaved²⁷⁴⁸
- Pixels : PhysicalSizeX²⁷⁴⁹
- Pixels : PhysicalSizeY²⁷⁵⁰
- Pixels : PhysicalSizeZ²⁷⁵¹
- Pixels : SignificantBits²⁷⁵²
- Pixels : SizeC²⁷⁵³

²⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

²⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²⁷⁵⁴
- Pixels : SizeX²⁷⁵⁵
- Pixels : SizeY²⁷⁵⁶
- Pixels : SizeZ²⁷⁵⁷
- Pixels : Type²⁷⁵⁸
- Plane : DeltaT²⁷⁵⁹
- Plane : ExposureTime²⁷⁶⁰
- Plane : TheC²⁷⁶¹
- Plane : TheT²⁷⁶²
- Plane : TheZ²⁷⁶³

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 model](#)²⁷⁶⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 MINC MRI format reader:

- Channel : ID²⁷⁶⁵
- Channel : SamplesPerPixel²⁷⁶⁶
- Image : AcquisitionDate²⁷⁶⁷
- Image : Description²⁷⁶⁸
- Image : ID²⁷⁶⁹
- Image : Name²⁷⁷⁰
- Pixels : BigEndian²⁷⁷¹

²⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

²⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁷⁶⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²⁷⁷²
- Pixels : ID²⁷⁷³
- Pixels : Interleaved²⁷⁷⁴
- Pixels : PhysicalSizeX²⁷⁷⁵
- Pixels : PhysicalSizeY²⁷⁷⁶
- Pixels : PhysicalSizeZ²⁷⁷⁷
- Pixels : SignificantBits²⁷⁷⁸
- Pixels : SizeC²⁷⁷⁹
- Pixels : SizeT²⁷⁸⁰
- Pixels : SizeX²⁷⁸¹
- Pixels : SizeY²⁷⁸²
- Pixels : SizeZ²⁷⁸³
- Pixels : Type²⁷⁸⁴
- Plane : TheC²⁷⁸⁵
- Plane : TheT²⁷⁸⁶
- Plane : TheZ²⁷⁸⁷

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 model²⁷⁸⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁷⁸⁹

²⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁷⁸⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel²⁷⁹⁰
- Image : AcquisitionDate²⁷⁹¹
- Image : ID²⁷⁹²
- Image : Name²⁷⁹³
- Pixels : BigEndian²⁷⁹⁴
- Pixels : DimensionOrder²⁷⁹⁵
- Pixels : ID²⁷⁹⁶
- Pixels : Interleaved²⁷⁹⁷
- Pixels : SignificantBits²⁷⁹⁸
- Pixels : SizeC²⁷⁹⁹
- Pixels : SizeT²⁸⁰⁰
- Pixels : SizeX²⁸⁰¹
- Pixels : SizeY²⁸⁰²
- Pixels : SizeZ²⁸⁰³
- Pixels : Type²⁸⁰⁴
- Plane : TheC²⁸⁰⁵
- Plane : TheT²⁸⁰⁶
- Plane : TheZ²⁸⁰⁷

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](#)²⁸⁰⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

²⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸⁰⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Multiple Network Graphics format reader:

- Channel : ID²⁸⁰⁹
- Channel : SamplesPerPixel²⁸¹⁰
- Image : AcquisitionDate²⁸¹¹
- Image : ID²⁸¹²
- Image : Name²⁸¹³
- Pixels : BigEndian²⁸¹⁴
- Pixels : DimensionOrder²⁸¹⁵
- Pixels : ID²⁸¹⁶
- Pixels : Interleaved²⁸¹⁷
- Pixels : SignificantBits²⁸¹⁸
- Pixels : SizeC²⁸¹⁹
- Pixels : SizeT²⁸²⁰
- Pixels : SizeX²⁸²¹
- Pixels : SizeY²⁸²²
- Pixels : SizeZ²⁸²³
- Pixels : Type²⁸²⁴
- Plane : TheC²⁸²⁵
- Plane : TheT²⁸²⁶
- Plane : TheZ²⁸²⁷

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 model²⁸²⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
²⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
²⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
²⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
²⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
²⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
²⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
²⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
²⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
²⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
²⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
²⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
²⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
²⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
²⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
²⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
²⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
²⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
²⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
²⁸²⁸<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 Molecular Imaging format reader:

- Channel : ID²⁸²⁹
- Channel : SamplesPerPixel²⁸³⁰
- Image : AcquisitionDate²⁸³¹
- Image : ID²⁸³²
- Image : Name²⁸³³
- Pixels : BigEndian²⁸³⁴
- Pixels : DimensionOrder²⁸³⁵
- Pixels : ID²⁸³⁶
- Pixels : Interleaved²⁸³⁷
- Pixels : PhysicalSizeX²⁸³⁸
- Pixels : PhysicalSizeY²⁸³⁹
- Pixels : SignificantBits²⁸⁴⁰
- Pixels : SizeC²⁸⁴¹
- Pixels : SizeT²⁸⁴²
- Pixels : SizeX²⁸⁴³
- Pixels : SizeY²⁸⁴⁴
- Pixels : SizeZ²⁸⁴⁵
- Pixels : Type²⁸⁴⁶
- Plane : TheC²⁸⁴⁷
- Plane : TheT²⁸⁴⁸
- Plane : TheZ²⁸⁴⁹

Total supported: 21

Total unknown or missing: 454

²⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
²⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
²⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
²⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
²⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
²⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
²⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
²⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
²⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
²⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
²⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
²⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
²⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
²⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
²⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
²⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
²⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
²⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
²⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
²⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
²⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)²⁸⁵⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁸⁵¹
- Channel : SamplesPerPixel²⁸⁵²
- Image : AcquisitionDate²⁸⁵³
- Image : ID²⁸⁵⁴
- Image : Name²⁸⁵⁵
- Pixels : BigEndian²⁸⁵⁶
- Pixels : DimensionOrder²⁸⁵⁷
- Pixels : ID²⁸⁵⁸
- Pixels : Interleaved²⁸⁵⁹
- Pixels : PhysicalSizeX²⁸⁶⁰
- Pixels : PhysicalSizeY²⁸⁶¹
- Pixels : PhysicalSizeZ²⁸⁶²
- Pixels : SignificantBits²⁸⁶³
- Pixels : SizeC²⁸⁶⁴
- Pixels : SizeT²⁸⁶⁵
- Pixels : SizeX²⁸⁶⁶
- Pixels : SizeY²⁸⁶⁷
- Pixels : SizeZ²⁸⁶⁸
- Pixels : Type²⁸⁶⁹

²⁸⁵⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC²⁸⁷⁰
- Plane : TheT²⁸⁷¹
- Plane : TheZ²⁸⁷²

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](#)²⁸⁷³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁸⁷⁴
- Channel : SamplesPerPixel²⁸⁷⁵
- Image : AcquisitionDate²⁸⁷⁶
- Image : ID²⁸⁷⁷
- Image : Name²⁸⁷⁸
- Pixels : BigEndian²⁸⁷⁹
- Pixels : DimensionOrder²⁸⁸⁰
- Pixels : ID²⁸⁸¹
- Pixels : Interleaved²⁸⁸²
- Pixels : SignificantBits²⁸⁸³
- Pixels : SizeC²⁸⁸⁴
- Pixels : SizeT²⁸⁸⁵
- Pixels : SizeX²⁸⁸⁶
- Pixels : SizeY²⁸⁸⁷

²⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²⁸⁸⁸
- Pixels : Type²⁸⁸⁹
- Plane : TheC²⁸⁹⁰
- Plane : TheT²⁸⁹¹
- Plane : TheZ²⁸⁹²

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](#)²⁸⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID²⁸⁹⁴
- Channel : SamplesPerPixel²⁸⁹⁵
- Image : AcquisitionDate²⁸⁹⁶
- Image : Description²⁸⁹⁷
- Image : ID²⁸⁹⁸
- Image : Name²⁸⁹⁹
- Pixels : BigEndian²⁹⁰⁰
- Pixels : DimensionOrder²⁹⁰¹
- Pixels : ID²⁹⁰²
- Pixels : Interleaved²⁹⁰³
- Pixels : PhysicalSizeX²⁹⁰⁴
- Pixels : PhysicalSizeY²⁹⁰⁵

²⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁸⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : PhysicalSizeZ²⁹⁰⁶
- Pixels : SignificantBits²⁹⁰⁷
- Pixels : SizeC²⁹⁰⁸
- Pixels : SizeT²⁹⁰⁹
- Pixels : SizeX²⁹¹⁰
- Pixels : SizeY²⁹¹¹
- Pixels : SizeZ²⁹¹²
- Pixels : TimeIncrement²⁹¹³
- Pixels : Type²⁹¹⁴
- Plane : TheC²⁹¹⁵
- Plane : TheT²⁹¹⁶
- Plane : TheZ²⁹¹⁷

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](#)²⁹¹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : AcquisitionMode²⁹¹⁹
- Channel : EmissionWavelength²⁹²⁰
- Channel : ExcitationWavelength²⁹²¹
- Channel : ID²⁹²²
- Channel : Name²⁹²³

²⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

²⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁹¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

²⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

- Channel : PinholeSize²⁹²⁴
- Channel : SamplesPerPixel²⁹²⁵
- Detector : ID²⁹²⁶
- Detector : Model²⁹²⁷
- Detector : Type²⁹²⁸
- DetectorSettings : Binning²⁹²⁹
- DetectorSettings : Gain²⁹³⁰
- DetectorSettings : ID²⁹³¹
- DetectorSettings : ReadOutRate²⁹³²
- DetectorSettings : Voltage²⁹³³
- Image : AcquisitionDate²⁹³⁴
- Image : ID²⁹³⁵
- Image : InstrumentRef²⁹³⁶
- Image : Name²⁹³⁷
- ImagingEnvironment : Temperature²⁹³⁸
- Instrument : ID²⁹³⁹
- Objective : CalibratedMagnification²⁹⁴⁰
- Objective : Correction²⁹⁴¹
- Objective : ID²⁹⁴²
- Objective : Immersion²⁹⁴³
- Objective : LensNA²⁹⁴⁴
- Objective : Model²⁹⁴⁵
- ObjectiveSettings : ID²⁹⁴⁶
- ObjectiveSettings : RefractiveIndex²⁹⁴⁷
- Pixels : BigEndian²⁹⁴⁸
- Pixels : DimensionOrder²⁹⁴⁹

²⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

²⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

²⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

²⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

²⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

²⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

²⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

²⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

²⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

²⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

²⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

²⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

²⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²⁹⁵⁰
- Pixels : Interleaved²⁹⁵¹
- Pixels : PhysicalSizeX²⁹⁵²
- Pixels : PhysicalSizeY²⁹⁵³
- Pixels : PhysicalSizeZ²⁹⁵⁴
- Pixels : SignificantBits²⁹⁵⁵
- Pixels : SizeC²⁹⁵⁶
- Pixels : SizeT²⁹⁵⁷
- Pixels : SizeX²⁹⁵⁸
- Pixels : SizeY²⁹⁵⁹
- Pixels : SizeZ²⁹⁶⁰
- Pixels : Type²⁹⁶¹
- Plane : ExposureTime²⁹⁶²
- Plane : PositionX²⁹⁶³
- Plane : PositionY²⁹⁶⁴
- Plane : PositionZ²⁹⁶⁵
- Plane : TheC²⁹⁶⁶
- Plane : TheT²⁹⁶⁷
- Plane : TheZ²⁹⁶⁸

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](#)²⁹⁶⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

²⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

²⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

²⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

²⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

²⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

²⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

²⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

²⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

²⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

²⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

²⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

²⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

²⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

²⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

²⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

²⁹⁶⁹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Nikon TIFF format reader:

- Channel : EmissionWavelength²⁹⁷⁰
- Channel : ExcitationWavelength²⁹⁷¹
- Channel : ID²⁹⁷²
- Channel : PinholeSize²⁹⁷³
- Channel : SamplesPerPixel²⁹⁷⁴
- Detector : Gain²⁹⁷⁵
- Detector : ID²⁹⁷⁶
- Detector : Type²⁹⁷⁷
- Dichroic : ID²⁹⁷⁸
- Dichroic : Model²⁹⁷⁹
- Filter : ID²⁹⁸⁰
- Filter : Model²⁹⁸¹
- Image : AcquisitionDate²⁹⁸²
- Image : Description²⁹⁸³
- Image : ID²⁹⁸⁴
- Image : InstrumentRef²⁹⁸⁵
- Image : Name²⁹⁸⁶
- Instrument : ID²⁹⁸⁷
- Laser : ID²⁹⁸⁸
- Laser : LaserMedium²⁹⁸⁹
- Laser : Model²⁹⁹⁰
- Laser : Type²⁹⁹¹
- Laser : Wavelength²⁹⁹²
- Objective : Correction²⁹⁹³

²⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

²⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

²⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

²⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

²⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

²⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

²⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

²⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

²⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

²⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

²⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

²⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

²⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

²⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

²⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

²⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

²⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

²⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

²⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

- Objective : ID²⁹⁹⁴
- Objective : Immersion²⁹⁹⁵
- Objective : LensNA²⁹⁹⁶
- Objective : NominalMagnification²⁹⁹⁷
- Objective : WorkingDistance²⁹⁹⁸
- ObjectiveSettings : ID²⁹⁹⁹
- Pixels : BigEndian³⁰⁰⁰
- Pixels : DimensionOrder³⁰⁰¹
- Pixels : ID³⁰⁰²
- Pixels : Interleaved³⁰⁰³
- Pixels : PhysicalSizeX³⁰⁰⁴
- Pixels : PhysicalSizeY³⁰⁰⁵
- Pixels : PhysicalSizeZ³⁰⁰⁶
- Pixels : SignificantBits³⁰⁰⁷
- Pixels : SizeC³⁰⁰⁸
- Pixels : SizeT³⁰⁰⁹
- Pixels : SizeX³⁰¹⁰
- Pixels : SizeY³⁰¹¹
- Pixels : SizeZ³⁰¹²
- Pixels : Type³⁰¹³
- Plane : TheC³⁰¹⁴
- Plane : TheT³⁰¹⁵
- Plane : TheZ³⁰¹⁶

Total supported: 47

Total unknown or missing: 428

-
- ²⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID
 - ²⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion
 - ²⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA
 - ²⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification
 - ²⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance
 - ²⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID
 - ³⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
 - ³⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
 - ³⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
 - ³⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
 - ³⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ³⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ³⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
 - ³⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
 - ³⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
 - ³⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
 - ³⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
 - ³⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
 - ³⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
 - ³⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
 - ³⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
 - ³⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
 - ³⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)³⁰¹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : AcquisitionMode³⁰¹⁸
- Channel : Color³⁰¹⁹
- Channel : EmissionWavelength³⁰²⁰
- Channel : ExcitationWavelength³⁰²¹
- Channel : ID³⁰²²
- Channel : Name³⁰²³
- Channel : PinholeSize³⁰²⁴
- Channel : SamplesPerPixel³⁰²⁵
- Detector : ID³⁰²⁶
- Detector : Model³⁰²⁷
- Detector : Type³⁰²⁸
- DetectorSettings : Binning³⁰²⁹
- DetectorSettings : Gain³⁰³⁰
- DetectorSettings : ID³⁰³¹
- DetectorSettings : ReadOutRate³⁰³²
- DetectorSettings : Voltage³⁰³³
- Image : AcquisitionDate³⁰³⁴
- Image : ID³⁰³⁵
- Image : InstrumentRef³⁰³⁶

³⁰¹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

³⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

³⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

³⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

³⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

³⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

³⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name³⁰³⁷
- ImagingEnvironment : Temperature³⁰³⁸
- Instrument : ID³⁰³⁹
- Objective : CalibratedMagnification³⁰⁴⁰
- Objective : Correction³⁰⁴¹
- Objective : ID³⁰⁴²
- Objective : Immersion³⁰⁴³
- Objective : LensNA³⁰⁴⁴
- Objective : Model³⁰⁴⁵
- ObjectiveSettings : ID³⁰⁴⁶
- ObjectiveSettings : RefractiveIndex³⁰⁴⁷
- Pixels : BigEndian³⁰⁴⁸
- Pixels : DimensionOrder³⁰⁴⁹
- Pixels : ID³⁰⁵⁰
- Pixels : Interleaved³⁰⁵¹
- Pixels : PhysicalSizeX³⁰⁵²
- Pixels : PhysicalSizeY³⁰⁵³
- Pixels : PhysicalSizeZ³⁰⁵⁴
- Pixels : SignificantBits³⁰⁵⁵
- Pixels : SizeC³⁰⁵⁶
- Pixels : SizeT³⁰⁵⁷
- Pixels : SizeX³⁰⁵⁸
- Pixels : SizeY³⁰⁵⁹
- Pixels : SizeZ³⁰⁶⁰
- Pixels : Type³⁰⁶¹
- Plane : DeltaT³⁰⁶²

³⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

³⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

- Plane : ExposureTime³⁰⁶³
- Plane : PositionX³⁰⁶⁴
- Plane : PositionY³⁰⁶⁵
- Plane : PositionZ³⁰⁶⁶
- Plane : TheC³⁰⁶⁷
- Plane : TheT³⁰⁶⁸
- Plane : TheZ³⁰⁶⁹

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](#)³⁰⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁰⁷¹
- Channel : SamplesPerPixel³⁰⁷²
- Image : AcquisitionDate³⁰⁷³
- Image : ID³⁰⁷⁴
- Image : Name³⁰⁷⁵
- Pixels : BigEndian³⁰⁷⁶
- Pixels : DimensionOrder³⁰⁷⁷
- Pixels : ID³⁰⁷⁸
- Pixels : Interleaved³⁰⁷⁹
- Pixels : PhysicalSizeX³⁰⁸⁰

³⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁰⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY³⁰⁸¹
- Pixels : PhysicalSizeZ³⁰⁸²
- Pixels : SignificantBits³⁰⁸³
- Pixels : SizeC³⁰⁸⁴
- Pixels : SizeT³⁰⁸⁵
- Pixels : SizeX³⁰⁸⁶
- Pixels : SizeY³⁰⁸⁷
- Pixels : SizeZ³⁰⁸⁸
- Pixels : Type³⁰⁸⁹
- Plane : TheC³⁰⁹⁰
- Plane : TheT³⁰⁹¹
- Plane : TheZ³⁰⁹²

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 model³⁰⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Olympus APL format reader:

- Channel : ID³⁰⁹⁴
- Channel : SamplesPerPixel³⁰⁹⁵
- Image : AcquisitionDate³⁰⁹⁶
- Image : ID³⁰⁹⁷
- Image : Name³⁰⁹⁸

³⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁰⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³⁰⁹⁹
- Pixels : DimensionOrder³¹⁰⁰
- Pixels : ID³¹⁰¹
- Pixels : Interleaved³¹⁰²
- Pixels : PhysicalSizeX³¹⁰³
- Pixels : PhysicalSizeY³¹⁰⁴
- Pixels : SignificantBits³¹⁰⁵
- Pixels : SizeC³¹⁰⁶
- Pixels : SizeT³¹⁰⁷
- Pixels : SizeX³¹⁰⁸
- Pixels : SizeY³¹⁰⁹
- Pixels : SizeZ³¹¹⁰
- Pixels : Type³¹¹¹
- Plane : TheC³¹¹²
- Plane : TheT³¹¹³
- Plane : TheZ³¹¹⁴

Total supported: 21

Total unknown or missing: 454

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](#)³¹¹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength³¹¹⁶

³⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³¹¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

- Channel : ExcitationWavelength³¹¹⁷
- Channel : ID³¹¹⁸
- Channel : IlluminationType³¹¹⁹
- Channel : LightSourceSettingsID³¹²⁰
- Channel : LightSourceSettingsWavelength³¹²¹
- Channel : Name³¹²²
- Channel : SamplesPerPixel³¹²³
- Detector : Gain³¹²⁴
- Detector : ID³¹²⁵
- Detector : Type³¹²⁶
- Detector : Voltage³¹²⁷
- DetectorSettings : ID³¹²⁸
- Dichroic : ID³¹²⁹
- Dichroic : Model³¹³⁰
- Ellipse : FontSize³¹³¹
- Ellipse : ID³¹³²
- Ellipse : RadiusX³¹³³
- Ellipse : RadiusY³¹³⁴
- Ellipse : StrokeWidth³¹³⁵
- Ellipse : TheT³¹³⁶
- Ellipse : TheZ³¹³⁷
- Ellipse : Transform³¹³⁸
- Ellipse : X³¹³⁹
- Ellipse : Y³¹⁴⁰
- Filter : ID³¹⁴¹
- Filter : Model³¹⁴²

³¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

³¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_ID

³¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSourceSettings_Wavelength

³¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

³¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Voltage

³¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

³¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

³¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

³¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

³¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

³¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

³¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

- Image : AcquisitionDate³¹⁴³
- Image : ID³¹⁴⁴
- Image : InstrumentRef³¹⁴⁵
- Image : Name³¹⁴⁶
- Image : ROIRef³¹⁴⁷
- Instrument : ID³¹⁴⁸
- Laser : ID³¹⁴⁹
- Laser : LaserMedium³¹⁵⁰
- Laser : Type³¹⁵¹
- Laser : Wavelength³¹⁵²
- LightPath : DichroicRef³¹⁵³
- LightPath : EmissionFilterRef³¹⁵⁴
- Line : FontSize³¹⁵⁵
- Line : ID³¹⁵⁶
- Line : StrokeWidth³¹⁵⁷
- Line : TheT³¹⁵⁸
- Line : TheZ³¹⁵⁹
- Line : Transform³¹⁶⁰
- Line : X1³¹⁶¹
- Line : X2³¹⁶²
- Line : Y1³¹⁶³
- Line : Y2³¹⁶⁴
- Objective : Correction³¹⁶⁵
- Objective : ID³¹⁶⁶
- Objective : Immersion³¹⁶⁷
- Objective : LensNA³¹⁶⁸

³¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

³¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

³¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

³¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Type

³¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

³¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

³¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

³¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

³¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

³¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

³¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

³¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

- Objective : Model³¹⁶⁹
- Objective : NominalMagnification³¹⁷⁰
- Objective : WorkingDistance³¹⁷¹
- ObjectiveSettings : ID³¹⁷²
- Pixels : BigEndian³¹⁷³
- Pixels : DimensionOrder³¹⁷⁴
- Pixels : ID³¹⁷⁵
- Pixels : Interleaved³¹⁷⁶
- Pixels : PhysicalSizeX³¹⁷⁷
- Pixels : PhysicalSizeY³¹⁷⁸
- Pixels : PhysicalSizeZ³¹⁷⁹
- Pixels : SignificantBits³¹⁸⁰
- Pixels : SizeC³¹⁸¹
- Pixels : SizeT³¹⁸²
- Pixels : SizeX³¹⁸³
- Pixels : SizeY³¹⁸⁴
- Pixels : SizeZ³¹⁸⁵
- Pixels : TimeIncrement³¹⁸⁶
- Pixels : Type³¹⁸⁷
- Plane : DeltaT³¹⁸⁸
- Plane : PositionX³¹⁸⁹
- Plane : PositionY³¹⁹⁰
- Plane : PositionZ³¹⁹¹
- Plane : TheC³¹⁹²
- Plane : TheT³¹⁹³
- Plane : TheZ³¹⁹⁴

³¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

³¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

- Point : `FontSize`³¹⁹⁵
- Point : `ID`³¹⁹⁶
- Point : `StrokeWidth`³¹⁹⁷
- Point : `TheT`³¹⁹⁸
- Point : `TheZ`³¹⁹⁹
- Point : `X`³²⁰⁰
- Point : `Y`³²⁰¹
- Polygon : `FontSize`³²⁰²
- Polygon : `ID`³²⁰³
- Polygon : `Points`³²⁰⁴
- Polygon : `StrokeWidth`³²⁰⁵
- Polygon : `TheT`³²⁰⁶
- Polygon : `TheZ`³²⁰⁷
- Polygon : `Transform`³²⁰⁸
- Polyline : `FontSize`³²⁰⁹
- Polyline : `ID`³²¹⁰
- Polyline : `Points`³²¹¹
- Polyline : `StrokeWidth`³²¹²
- Polyline : `TheT`³²¹³
- Polyline : `TheZ`³²¹⁴
- Polyline : `Transform`³²¹⁵
- ROI : `ID`³²¹⁶
- Rectangle : `FontSize`³²¹⁷
- Rectangle : `Height`³²¹⁸
- Rectangle : `ID`³²¹⁹
- Rectangle : `StrokeWidth`³²²⁰

³¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_X

³²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Point_Y

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#Polygon_Points

³²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

³²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

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#Polyline_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#ROI_ID

³²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

³²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

³²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

³²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

- Rectangle : TheT³²²¹
- Rectangle : TheZ³²²²
- Rectangle : Transform³²²³
- Rectangle : Width³²²⁴
- Rectangle : X³²²⁵
- Rectangle : Y³²²⁶
- TransmittanceRange : CutIn³²²⁷
- TransmittanceRange : CutOut³²²⁸

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 model](#)³²²⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³²³⁰
- Channel : Name³²³¹
- Channel : SamplesPerPixel³²³²
- Detector : ID³²³³
- Detector : Manufacturer³²³⁴
- Detector : Model³²³⁵
- Detector : Type³²³⁶
- DetectorSettings : Gain³²³⁷
- DetectorSettings : ID³²³⁸

³²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheT

³²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_TheZ

³²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

³²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

³²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

³²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

³²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

³²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

³²²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

- DetectorSettings : Offset³²³⁹
- DetectorSettings : ReadOutRate³²⁴⁰
- DetectorSettings : Voltage³²⁴¹
- Image : AcquisitionDate³²⁴²
- Image : Description³²⁴³
- Image : ID³²⁴⁴
- Image : InstrumentRef³²⁴⁵
- Image : Name³²⁴⁶
- ImagingEnvironment : Temperature³²⁴⁷
- Instrument : ID³²⁴⁸
- Objective : CalibratedMagnification³²⁴⁹
- Objective : Correction³²⁵⁰
- Objective : ID³²⁵¹
- Objective : Immersion³²⁵²
- Objective : LensNA³²⁵³
- Objective : Model³²⁵⁴
- ObjectiveSettings : ID³²⁵⁵
- Pixels : BigEndian³²⁵⁶
- Pixels : DimensionOrder³²⁵⁷
- Pixels : ID³²⁵⁸
- Pixels : Interleaved³²⁵⁹
- Pixels : PhysicalSizeX³²⁶⁰
- Pixels : PhysicalSizeY³²⁶¹
- Pixels : PhysicalSizeZ³²⁶²
- Pixels : SignificantBits³²⁶³
- Pixels : SizeC³²⁶⁴

³²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

³²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ReadOutRate

³²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Voltage

³²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

³²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

³²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT³²⁶⁵
- Pixels : SizeX³²⁶⁶
- Pixels : SizeY³²⁶⁷
- Pixels : SizeZ³²⁶⁸
- Pixels : TimeIncrement³²⁶⁹
- Pixels : Type³²⁷⁰
- Plane : DeltaT³²⁷¹
- Plane : ExposureTime³²⁷²
- Plane : PositionX³²⁷³
- Plane : PositionY³²⁷⁴
- Plane : PositionZ³²⁷⁵
- Plane : TheC³²⁷⁶
- Plane : TheT³²⁷⁷
- Plane : TheZ³²⁷⁸

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 model³²⁷⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³²⁸⁰
- Channel : Name³²⁸¹
- Channel : SamplesPerPixel³²⁸²

³²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³²⁷⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³²⁸³
- Image : ID³²⁸⁴
- Image : Name³²⁸⁵
- Pixels : BigEndian³²⁸⁶
- Pixels : DimensionOrder³²⁸⁷
- Pixels : ID³²⁸⁸
- Pixels : Interleaved³²⁸⁹
- Pixels : PhysicalSizeX³²⁹⁰
- Pixels : PhysicalSizeY³²⁹¹
- Pixels : SignificantBits³²⁹²
- Pixels : SizeC³²⁹³
- Pixels : SizeT³²⁹⁴
- Pixels : SizeX³²⁹⁵
- Pixels : SizeY³²⁹⁶
- Pixels : SizeZ³²⁹⁷
- Pixels : Type³²⁹⁸
- Plane : DeltaT³²⁹⁹
- Plane : ExposureTime³³⁰⁰
- Plane : PositionX³³⁰¹
- Plane : PositionY³³⁰²
- Plane : TheC³³⁰³
- Plane : TheT³³⁰⁴
- Plane : TheZ³³⁰⁵
- Plate : ColumnNamingConvention³³⁰⁶
- Plate : Columns³³⁰⁷
- Plate : ID³³⁰⁸

³²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ColumnNamingConvention

³³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns

³³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

- Plate : Name³³⁰⁹
- Plate : RowNamingConvention³³¹⁰
- Plate : Rows³³¹¹
- PlateAcquisition : ID³³¹²
- PlateAcquisition : MaximumFieldCount³³¹³
- PlateAcquisition : WellSampleRef³³¹⁴
- Well : Column³³¹⁵
- Well : ID³³¹⁶
- Well : Row³³¹⁷
- WellSample : ID³³¹⁸
- WellSample : ImageRef³³¹⁹
- WellSample : Index³³²⁰
- WellSample : PositionX³³²¹
- WellSample : PositionY³³²²

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 model³³²³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³³²⁴
- Channel : Name³³²⁵
- Channel : SamplesPerPixel³³²⁶

³³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

³³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_RowNamingConvention

³³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows

³³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

³³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

³³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

³³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

³³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

³³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

³³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

³³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

³³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

³³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionX

³³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_PositionY

³³²³<http://www.openmicroscopy.org/site/support/ome-model/>

³³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID³³²⁷
- Detector : Model³³²⁸
- Detector : Type³³²⁹
- DetectorSettings : ID³³³⁰
- Image : AcquisitionDate³³³¹
- Image : ID³³³²
- Image : InstrumentRef³³³³
- Image : Name³³³⁴
- Instrument : ID³³³⁵
- Objective : Correction³³³⁶
- Objective : ID³³³⁷
- Objective : Immersion³³³⁸
- Objective : NominalMagnification³³³⁹
- ObjectiveSettings : ID³³⁴⁰
- Pixels : BigEndian³³⁴¹
- Pixels : DimensionOrder³³⁴²
- Pixels : ID³³⁴³
- Pixels : Interleaved³³⁴⁴
- Pixels : PhysicalSizeX³³⁴⁵
- Pixels : PhysicalSizeY³³⁴⁶
- Pixels : SignificantBits³³⁴⁷
- Pixels : SizeC³³⁴⁸
- Pixels : SizeT³³⁴⁹
- Pixels : SizeX³³⁵⁰
- Pixels : SizeY³³⁵¹
- Pixels : SizeZ³³⁵²

³³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³³⁵³
- Plane : TheC³³⁵⁴
- Plane : TheT³³⁵⁵
- Plane : TheZ³³⁵⁶

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](#)³³⁵⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³³⁵⁸
- Channel : SamplesPerPixel³³⁵⁹
- Image : AcquisitionDate³³⁶⁰
- Image : ID³³⁶¹
- Image : Name³³⁶²
- Pixels : BigEndian³³⁶³
- Pixels : DimensionOrder³³⁶⁴
- Pixels : ID³³⁶⁵
- Pixels : Interleaved³³⁶⁶
- Pixels : SignificantBits³³⁶⁷
- Pixels : SizeC³³⁶⁸
- Pixels : SizeT³³⁶⁹
- Pixels : SizeX³³⁷⁰

³³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁵⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY³³⁷¹
- Pixels : SizeZ³³⁷²
- Pixels : Type³³⁷³
- Plane : TheC³³⁷⁴
- Plane : TheT³³⁷⁵
- Plane : TheZ³³⁷⁶

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](#)³³⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³³⁷⁸
- Channel : SamplesPerPixel³³⁷⁹
- Image : AcquisitionDate³³⁸⁰
- Image : ID³³⁸¹
- Image : Name³³⁸²
- Pixels : BigEndian³³⁸³
- Pixels : DimensionOrder³³⁸⁴
- Pixels : ID³³⁸⁵
- Pixels : Interleaved³³⁸⁶
- Pixels : SignificantBits³³⁸⁷
- Pixels : SizeC³³⁸⁸

³³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT³³⁸⁹
- Pixels : SizeX³³⁹⁰
- Pixels : SizeY³³⁹¹
- Pixels : SizeZ³³⁹²
- Pixels : Type³³⁹³
- Plane : TheC³³⁹⁴
- Plane : TheT³³⁹⁵
- Plane : TheZ³³⁹⁶

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](#)³³⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³³⁹⁸
- Channel : SamplesPerPixel³³⁹⁹
- Image : AcquisitionDate³⁴⁰⁰
- Image : Description³⁴⁰¹
- Image : ID³⁴⁰²
- Image : Name³⁴⁰³
- Pixels : BigEndian³⁴⁰⁴
- Pixels : DimensionOrder³⁴⁰⁵
- Pixels : ID³⁴⁰⁶

³³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³³⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁴⁰⁷
- Pixels : PhysicalSizeX³⁴⁰⁸
- Pixels : PhysicalSizeY³⁴⁰⁹
- Pixels : SignificantBits³⁴¹⁰
- Pixels : SizeC³⁴¹¹
- Pixels : SizeT³⁴¹²
- Pixels : SizeX³⁴¹³
- Pixels : SizeY³⁴¹⁴
- Pixels : SizeZ³⁴¹⁵
- Pixels : Type³⁴¹⁶
- Plane : TheC³⁴¹⁷
- Plane : TheT³⁴¹⁸
- Plane : TheZ³⁴¹⁹

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](#)³⁴²⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 PCO-RAW format reader:

- Channel : ID³⁴²¹
- Channel : SamplesPerPixel³⁴²²
- Detector : ID³⁴²³
- Detector : SerialNumber³⁴²⁴

³⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴²⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

- DetectorSettings : Binning³⁴²⁵
- DetectorSettings : ID³⁴²⁶
- Image : AcquisitionDate³⁴²⁷
- Image : Description³⁴²⁸
- Image : ID³⁴²⁹
- Image : Name³⁴³⁰
- Instrument : ID³⁴³¹
- Pixels : BigEndian³⁴³²
- Pixels : DimensionOrder³⁴³³
- Pixels : ID³⁴³⁴
- Pixels : Interleaved³⁴³⁵
- Pixels : SignificantBits³⁴³⁶
- Pixels : SizeC³⁴³⁷
- Pixels : SizeT³⁴³⁸
- Pixels : SizeX³⁴³⁹
- Pixels : SizeY³⁴⁴⁰
- Pixels : SizeZ³⁴⁴¹
- Pixels : Type³⁴⁴²
- Plane : ExposureTime³⁴⁴³
- Plane : TheC³⁴⁴⁴
- Plane : TheT³⁴⁴⁵
- Plane : TheZ³⁴⁴⁶

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](#)³⁴⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME

- ³⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning
- ³⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID
- ³⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ³⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description
- ³⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ³⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ³⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID
- ³⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ³⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime
- ³⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ³⁴⁴⁷<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 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 : ID³⁴⁴⁸
- Channel : SamplesPerPixel³⁴⁴⁹
- Image : AcquisitionDate³⁴⁵⁰
- Image : ID³⁴⁵¹
- Image : Name³⁴⁵²
- Pixels : BigEndian³⁴⁵³
- Pixels : DimensionOrder³⁴⁵⁴
- Pixels : ID³⁴⁵⁵
- Pixels : Interleaved³⁴⁵⁶
- Pixels : SignificantBits³⁴⁵⁷
- Pixels : SizeC³⁴⁵⁸
- Pixels : SizeT³⁴⁵⁹
- Pixels : SizeX³⁴⁶⁰
- Pixels : SizeY³⁴⁶¹
- Pixels : SizeZ³⁴⁶²
- Pixels : Type³⁴⁶³
- Plane : TheC³⁴⁶⁴
- Plane : TheT³⁴⁶⁵
- Plane : TheZ³⁴⁶⁶

Total supported: 19

Total unknown or missing: 456

³⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)³⁴⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁴⁶⁸
- Channel : SamplesPerPixel³⁴⁶⁹
- Image : AcquisitionDate³⁴⁷⁰
- Image : ID³⁴⁷¹
- Image : Name³⁴⁷²
- Pixels : BigEndian³⁴⁷³
- Pixels : DimensionOrder³⁴⁷⁴
- Pixels : ID³⁴⁷⁵
- Pixels : Interleaved³⁴⁷⁶
- Pixels : PhysicalSizeX³⁴⁷⁷
- Pixels : PhysicalSizeY³⁴⁷⁸
- Pixels : SignificantBits³⁴⁷⁹
- Pixels : SizeC³⁴⁸⁰
- Pixels : SizeT³⁴⁸¹
- Pixels : SizeX³⁴⁸²
- Pixels : SizeY³⁴⁸³
- Pixels : SizeZ³⁴⁸⁴
- Pixels : Type³⁴⁸⁵

³⁴⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : PositionX³⁴⁸⁶
- Plane : PositionY³⁴⁸⁷
- Plane : TheC³⁴⁸⁸
- Plane : TheT³⁴⁸⁹
- Plane : TheZ³⁴⁹⁰

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 model](#)³⁴⁹¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁴⁹²
- Channel : Name³⁴⁹³
- Channel : SamplesPerPixel³⁴⁹⁴
- Experimenter : ID³⁴⁹⁵
- Experimenter : LastName³⁴⁹⁶
- Image : AcquisitionDate³⁴⁹⁷
- Image : ExperimenterRef³⁴⁹⁸
- Image : ID³⁴⁹⁹
- Image : Name³⁵⁰⁰
- Pixels : BigEndian³⁵⁰¹
- Pixels : DimensionOrder³⁵⁰²
- Pixels : ID³⁵⁰³

³⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁴⁹¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

³⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

³⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ExperimenterRef_ID

³⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁵⁰⁴
- Pixels : PhysicalSizeX³⁵⁰⁵
- Pixels : PhysicalSizeY³⁵⁰⁶
- Pixels : SignificantBits³⁵⁰⁷
- Pixels : SizeC³⁵⁰⁸
- Pixels : SizeT³⁵⁰⁹
- Pixels : SizeX³⁵¹⁰
- Pixels : SizeY³⁵¹¹
- Pixels : SizeZ³⁵¹²
- Pixels : Type³⁵¹³
- Plane : PositionX³⁵¹⁴
- Plane : PositionY³⁵¹⁵
- Plane : PositionZ³⁵¹⁶
- Plane : TheC³⁵¹⁷
- Plane : TheT³⁵¹⁸
- Plane : TheZ³⁵¹⁹
- Plate : Columns³⁵²⁰
- Plate : Description³⁵²¹
- Plate : ExternalIdentifier³⁵²²
- Plate : ID³⁵²³
- Plate : Name³⁵²⁴
- Plate : Rows³⁵²⁵
- PlateAcquisition : ID³⁵²⁶
- PlateAcquisition : MaximumFieldCount³⁵²⁷
- PlateAcquisition : WellSampleRef³⁵²⁸
- Well : Column³⁵²⁹

³⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Columns

³⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Description

³⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ExternalIdentifier

³⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_ID

³⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Name

³⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Plate_Rows

³⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_ID

³⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#PlateAcquisition_MaximumFieldCount

³⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSampleRef_ID

³⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Column

- Well : ID³⁵³⁰
- Well : Row³⁵³¹
- WellSample : ID³⁵³²
- WellSample : ImageRef³⁵³³
- WellSample : Index³⁵³⁴

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 model](#)³⁵³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : EmissionWavelength³⁵³⁶
- Channel : ExcitationWavelength³⁵³⁷
- Channel : ID³⁵³⁸
- Channel : SamplesPerPixel³⁵³⁹
- Image : AcquisitionDate³⁵⁴⁰
- Image : ID³⁵⁴¹
- Image : InstrumentRef³⁵⁴²
- Image : Name³⁵⁴³
- Instrument : ID³⁵⁴⁴
- Pixels : BigEndian³⁵⁴⁵
- Pixels : DimensionOrder³⁵⁴⁶
- Pixels : ID³⁵⁴⁷

³⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_ID

³⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#Well_Row

³⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_ID

³⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImageRef_ID

³⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/SPW_xsd.html#WellSample_Index

³⁵³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

³⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

³⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁵⁴⁸
- Pixels : PhysicalSizeX³⁵⁴⁹
- Pixels : PhysicalSizeY³⁵⁵⁰
- Pixels : SignificantBits³⁵⁵¹
- Pixels : SizeC³⁵⁵²
- Pixels : SizeT³⁵⁵³
- Pixels : SizeX³⁵⁵⁴
- Pixels : SizeY³⁵⁵⁵
- Pixels : SizeZ³⁵⁵⁶
- Pixels : Type³⁵⁵⁷
- Plane : DeltaT³⁵⁵⁸
- Plane : ExposureTime³⁵⁵⁹
- Plane : PositionX³⁵⁶⁰
- Plane : PositionY³⁵⁶¹
- Plane : PositionZ³⁵⁶²
- Plane : TheC³⁵⁶³
- Plane : TheT³⁵⁶⁴
- Plane : TheZ³⁵⁶⁵

Total supported: 30

Total unknown or missing: 445

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](#)³⁵⁶⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

³⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁵⁶⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Portable Gray Map format reader:

- Channel : ID³⁵⁶⁷
- Channel : SamplesPerPixel³⁵⁶⁸
- Image : AcquisitionDate³⁵⁶⁹
- Image : ID³⁵⁷⁰
- Image : Name³⁵⁷¹
- Pixels : BigEndian³⁵⁷²
- Pixels : DimensionOrder³⁵⁷³
- Pixels : ID³⁵⁷⁴
- Pixels : Interleaved³⁵⁷⁵
- Pixels : SignificantBits³⁵⁷⁶
- Pixels : SizeC³⁵⁷⁷
- Pixels : SizeT³⁵⁷⁸
- Pixels : SizeX³⁵⁷⁹
- Pixels : SizeY³⁵⁸⁰
- Pixels : SizeZ³⁵⁸¹
- Pixels : Type³⁵⁸²
- Plane : TheC³⁵⁸³
- Plane : TheT³⁵⁸⁴
- Plane : TheZ³⁵⁸⁵

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 model³⁵⁸⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

³⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
³⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
³⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
³⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
³⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
³⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
³⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
³⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
³⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
³⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
³⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
³⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
³⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
³⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
³⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
³⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
³⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
³⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
³⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
³⁵⁸⁶<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 Adobe Photoshop format reader:**

- Channel : ID³⁵⁸⁷
- Channel : SamplesPerPixel³⁵⁸⁸
- Image : AcquisitionDate³⁵⁸⁹
- Image : ID³⁵⁹⁰
- Image : Name³⁵⁹¹
- Pixels : BigEndian³⁵⁹²
- Pixels : DimensionOrder³⁵⁹³
- Pixels : ID³⁵⁹⁴
- Pixels : Interleaved³⁵⁹⁵
- Pixels : SignificantBits³⁵⁹⁶
- Pixels : SizeC³⁵⁹⁷
- Pixels : SizeT³⁵⁹⁸
- Pixels : SizeX³⁵⁹⁹
- Pixels : SizeY³⁶⁰⁰
- Pixels : SizeZ³⁶⁰¹
- Pixels : Type³⁶⁰²
- Plane : TheC³⁶⁰³
- Plane : TheT³⁶⁰⁴
- Plane : TheZ³⁶⁰⁵

Total supported: 19**Total unknown or missing: 456**³⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID³⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel³⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate³⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID³⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name³⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian³⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder³⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID³⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved³⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits³⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC³⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT³⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX³⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY³⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ³⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type³⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC³⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT³⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

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](#)³⁶⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁶⁰⁷
- Channel : SamplesPerPixel³⁶⁰⁸
- Image : AcquisitionDate³⁶⁰⁹
- Image : ID³⁶¹⁰
- Image : Name³⁶¹¹
- Pixels : BigEndian³⁶¹²
- Pixels : DimensionOrder³⁶¹³
- Pixels : ID³⁶¹⁴
- Pixels : Interleaved³⁶¹⁵
- Pixels : SignificantBits³⁶¹⁶
- Pixels : SizeC³⁶¹⁷
- Pixels : SizeT³⁶¹⁸
- Pixels : SizeX³⁶¹⁹
- Pixels : SizeY³⁶²⁰
- Pixels : SizeZ³⁶²¹
- Pixels : Type³⁶²²
- Plane : TheC³⁶²³
- Plane : TheT³⁶²⁴

³⁶⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁶²⁵

Total supported: 19

Total unknown or missing: 456

19.2.102 PictReader

This page lists supported metadata fields for the Bio-Formats PICT format reader.

These fields are from the [OME data model](#)³⁶²⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁶²⁷
- Channel : SamplesPerPixel³⁶²⁸
- Image : AcquisitionDate³⁶²⁹
- Image : ID³⁶³⁰
- Image : Name³⁶³¹
- Pixels : BigEndian³⁶³²
- Pixels : DimensionOrder³⁶³³
- Pixels : ID³⁶³⁴
- Pixels : Interleaved³⁶³⁵
- Pixels : SignificantBits³⁶³⁶
- Pixels : SizeC³⁶³⁷
- Pixels : SizeT³⁶³⁸
- Pixels : SizeX³⁶³⁹
- Pixels : SizeY³⁶⁴⁰
- Pixels : SizeZ³⁶⁴¹
- Pixels : Type³⁶⁴²

³⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶²⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁶⁴³
- Plane : TheT³⁶⁴⁴
- Plane : TheZ³⁶⁴⁵

Total supported: 19

Total unknown or missing: 456

19.2.103 APNGReader

This page lists supported metadata fields for the Bio-Formats Animated PNG format reader.

These fields are from the [OME data model](#)³⁶⁴⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁶⁴⁷
- Channel : SamplesPerPixel³⁶⁴⁸
- Image : AcquisitionDate³⁶⁴⁹
- Image : ID³⁶⁵⁰
- Image : Name³⁶⁵¹
- Pixels : BigEndian³⁶⁵²
- Pixels : DimensionOrder³⁶⁵³
- Pixels : ID³⁶⁵⁴
- Pixels : Interleaved³⁶⁵⁵
- Pixels : SignificantBits³⁶⁵⁶
- Pixels : SizeC³⁶⁵⁷
- Pixels : SizeT³⁶⁵⁸
- Pixels : SizeX³⁶⁵⁹
- Pixels : SizeY³⁶⁶⁰

³⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶⁴⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ³⁶⁶¹
- Pixels : Type³⁶⁶²
- Plane : TheC³⁶⁶³
- Plane : TheT³⁶⁶⁴
- Plane : TheZ³⁶⁶⁵

Total supported: 19

Total unknown or missing: 456

19.2.104 PrairieReader

This page lists supported metadata fields for the Bio-Formats Prairie TIFF format reader.

These fields are from the [OME data model](#)³⁶⁶⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁶⁶⁷
- Channel : Name³⁶⁶⁸
- Channel : SamplesPerPixel³⁶⁶⁹
- Detector : ID³⁶⁷⁰
- Detector : Type³⁶⁷¹
- Detector : Zoom³⁶⁷²
- DetectorSettings : Gain³⁶⁷³
- DetectorSettings : ID³⁶⁷⁴
- DetectorSettings : Offset³⁶⁷⁵
- Image : AcquisitionDate³⁶⁷⁶
- Image : ID³⁶⁷⁷
- Image : InstrumentRef³⁶⁷⁸

³⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁶⁶⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

³⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

³⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

³⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Offset

³⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name³⁶⁷⁹
- Instrument : ID³⁶⁸⁰
- Laser : ID³⁶⁸¹
- Laser : Power³⁶⁸²
- Microscope : Model³⁶⁸³
- Objective : Correction³⁶⁸⁴
- Objective : ID³⁶⁸⁵
- Objective : Immersion³⁶⁸⁶
- Objective : LensNA³⁶⁸⁷
- Objective : Manufacturer³⁶⁸⁸
- Objective : NominalMagnification³⁶⁸⁹
- ObjectiveSettings : ID³⁶⁹⁰
- Pixels : BigEndian³⁶⁹¹
- Pixels : DimensionOrder³⁶⁹²
- Pixels : ID³⁶⁹³
- Pixels : Interleaved³⁶⁹⁴
- Pixels : PhysicalSizeX³⁶⁹⁵
- Pixels : PhysicalSizeY³⁶⁹⁶
- Pixels : SignificantBits³⁶⁹⁷
- Pixels : SizeC³⁶⁹⁸
- Pixels : SizeT³⁶⁹⁹
- Pixels : SizeX³⁷⁰⁰
- Pixels : SizeY³⁷⁰¹
- Pixels : SizeZ³⁷⁰²
- Pixels : TimeIncrement³⁷⁰³
- Pixels : Type³⁷⁰⁴

³⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

³⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

³⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

³⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

³⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

³⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : DeltaT³⁷⁰⁵
- Plane : PositionX³⁷⁰⁶
- Plane : PositionY³⁷⁰⁷
- Plane : PositionZ³⁷⁰⁸
- Plane : TheC³⁷⁰⁹
- Plane : TheT³⁷¹⁰
- Plane : TheZ³⁷¹¹

Total supported: 45

Total unknown or missing: 430

19.2.105 QuesantReader

This page lists supported metadata fields for the Bio-Formats Quesant AFM format reader.

These fields are from the [OME data model](#)³⁷¹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁷¹³
- Channel : SamplesPerPixel³⁷¹⁴
- Image : AcquisitionDate³⁷¹⁵
- Image : Description³⁷¹⁶
- Image : ID³⁷¹⁷
- Image : Name³⁷¹⁸
- Pixels : BigEndian³⁷¹⁹
- Pixels : DimensionOrder³⁷²⁰
- Pixels : ID³⁷²¹
- Pixels : Interleaved³⁷²²

³⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

³⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

³⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

³⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

³⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁷¹²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX³⁷²³
- Pixels : PhysicalSizeY³⁷²⁴
- Pixels : SignificantBits³⁷²⁵
- Pixels : SizeC³⁷²⁶
- Pixels : SizeT³⁷²⁷
- Pixels : SizeX³⁷²⁸
- Pixels : SizeY³⁷²⁹
- Pixels : SizeZ³⁷³⁰
- Pixels : Type³⁷³¹
- Plane : TheC³⁷³²
- Plane : TheT³⁷³³
- Plane : TheZ³⁷³⁴

Total supported: 22

Total unknown or missing: 453

19.2.106 NativeQTimeReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the OME data model³⁷³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 QuickTime format reader:

- Channel : ID³⁷³⁶
- Channel : SamplesPerPixel³⁷³⁷
- Image : AcquisitionDate³⁷³⁸
- Image : ID³⁷³⁹
- Image : Name³⁷⁴⁰

³⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁷³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³⁷⁴¹
- Pixels : DimensionOrder³⁷⁴²
- Pixels : ID³⁷⁴³
- Pixels : Interleaved³⁷⁴⁴
- Pixels : SignificantBits³⁷⁴⁵
- Pixels : SizeC³⁷⁴⁶
- Pixels : SizeT³⁷⁴⁷
- Pixels : SizeX³⁷⁴⁸
- Pixels : SizeY³⁷⁴⁹
- Pixels : SizeZ³⁷⁵⁰
- Pixels : Type³⁷⁵¹
- Plane : TheC³⁷⁵²
- Plane : TheT³⁷⁵³
- Plane : TheZ³⁷⁵⁴

Total supported: 19

Total unknown or missing: 456

19.2.107 RHKReader

This page lists supported metadata fields for the Bio-Formats RHK Technologies format reader.

These fields are from the OME data model³⁷⁵⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁷⁵⁶
- Channel : SamplesPerPixel³⁷⁵⁷
- Image : AcquisitionDate³⁷⁵⁸

³⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁷⁵⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description³⁷⁵⁹
- Image : ID³⁷⁶⁰
- Image : Name³⁷⁶¹
- Pixels : BigEndian³⁷⁶²
- Pixels : DimensionOrder³⁷⁶³
- Pixels : ID³⁷⁶⁴
- Pixels : Interleaved³⁷⁶⁵
- Pixels : PhysicalSizeX³⁷⁶⁶
- Pixels : PhysicalSizeY³⁷⁶⁷
- Pixels : SignificantBits³⁷⁶⁸
- Pixels : SizeC³⁷⁶⁹
- Pixels : SizeT³⁷⁷⁰
- Pixels : SizeX³⁷⁷¹
- Pixels : SizeY³⁷⁷²
- Pixels : SizeZ³⁷⁷³
- Pixels : Type³⁷⁷⁴
- Plane : TheC³⁷⁷⁵
- Plane : TheT³⁷⁷⁶
- Plane : TheZ³⁷⁷⁷

Total supported: 22

Total unknown or missing: 453

19.2.108 SBIGReader

This page lists supported metadata fields for the Bio-Formats SBIG format reader.

These fields are from the [OME data model](#)³⁷⁷⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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%).

³⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁷⁷⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats SBIG format reader:

- Channel : ID³⁷⁷⁹
- Channel : SamplesPerPixel³⁷⁸⁰
- Image : AcquisitionDate³⁷⁸¹
- Image : Description³⁷⁸²
- Image : ID³⁷⁸³
- Image : Name³⁷⁸⁴
- Pixels : BigEndian³⁷⁸⁵
- Pixels : DimensionOrder³⁷⁸⁶
- Pixels : ID³⁷⁸⁷
- Pixels : Interleaved³⁷⁸⁸
- Pixels : PhysicalSizeX³⁷⁸⁹
- Pixels : PhysicalSizeY³⁷⁹⁰
- Pixels : SignificantBits³⁷⁹¹
- Pixels : SizeC³⁷⁹²
- Pixels : SizeT³⁷⁹³
- Pixels : SizeX³⁷⁹⁴
- Pixels : SizeY³⁷⁹⁵
- Pixels : SizeZ³⁷⁹⁶
- Pixels : Type³⁷⁹⁷
- Plane : TheC³⁷⁹⁸
- Plane : TheT³⁷⁹⁹
- Plane : TheZ³⁸⁰⁰

Total supported: 22

Total unknown or missing: 453

- ³⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID
- ³⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel
- ³⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate
- ³⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description
- ³⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
- ³⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ³⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ³⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ³⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ³⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ³⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ³⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ³⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ³⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ³⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ³⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ³⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ³⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ³⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ³⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ³⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ³⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.109 SeikoReader

This page lists supported metadata fields for the Bio-Formats Seiko format reader.

These fields are from the [OME data model](#)³⁸⁰¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁸⁰²
- Channel : SamplesPerPixel³⁸⁰³
- Image : AcquisitionDate³⁸⁰⁴
- Image : Description³⁸⁰⁵
- Image : ID³⁸⁰⁶
- Image : Name³⁸⁰⁷
- Pixels : BigEndian³⁸⁰⁸
- Pixels : DimensionOrder³⁸⁰⁹
- Pixels : ID³⁸¹⁰
- Pixels : Interleaved³⁸¹¹
- Pixels : PhysicalSizeX³⁸¹²
- Pixels : PhysicalSizeY³⁸¹³
- Pixels : SignificantBits³⁸¹⁴
- Pixels : SizeC³⁸¹⁵
- Pixels : SizeT³⁸¹⁶
- Pixels : SizeX³⁸¹⁷
- Pixels : SizeY³⁸¹⁸
- Pixels : SizeZ³⁸¹⁹
- Pixels : Type³⁸²⁰

³⁸⁰¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁸²¹
- Plane : TheT³⁸²²
- Plane : TheZ³⁸²³

Total supported: 22

Total unknown or missing: 453

19.2.110 PCIReader

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

These fields are from the [OME data model](#)³⁸²⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁸²⁵
- Channel : SamplesPerPixel³⁸²⁶
- Detector : ID³⁸²⁷
- Detector : Type³⁸²⁸
- DetectorSettings : Binning³⁸²⁹
- DetectorSettings : ID³⁸³⁰
- Image : AcquisitionDate³⁸³¹
- Image : ID³⁸³²
- Image : InstrumentRef³⁸³³
- Image : Name³⁸³⁴
- Instrument : ID³⁸³⁵
- Pixels : BigEndian³⁸³⁶
- Pixels : DimensionOrder³⁸³⁷
- Pixels : ID³⁸³⁸

³⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸²⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁸³⁹
- Pixels : PhysicalSizeX³⁸⁴⁰
- Pixels : PhysicalSizeY³⁸⁴¹
- Pixels : SignificantBits³⁸⁴²
- Pixels : SizeC³⁸⁴³
- Pixels : SizeT³⁸⁴⁴
- Pixels : SizeX³⁸⁴⁵
- Pixels : SizeY³⁸⁴⁶
- Pixels : SizeZ³⁸⁴⁷
- Pixels : TimeIncrement³⁸⁴⁸
- Pixels : Type³⁸⁴⁹
- Plane : DeltaT³⁸⁵⁰
- Plane : TheC³⁸⁵¹
- Plane : TheT³⁸⁵²
- Plane : TheZ³⁸⁵³

Total supported: 29

Total unknown or missing: 446

19.2.111 SimplePCITiffReader

This page lists supported metadata fields for the Bio-Formats SimplePCI TIFF format reader.

These fields are from the [OME data model](#)³⁸⁵⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁸⁵⁵
- Channel : SamplesPerPixel³⁸⁵⁶

³⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

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_DeltaT

³⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID³⁸⁵⁷
- Detector : Model³⁸⁵⁸
- Detector : Type³⁸⁵⁹
- DetectorSettings : Binning³⁸⁶⁰
- DetectorSettings : ID³⁸⁶¹
- Image : AcquisitionDate³⁸⁶²
- Image : Description³⁸⁶³
- Image : ID³⁸⁶⁴
- Image : InstrumentRef³⁸⁶⁵
- Image : Name³⁸⁶⁶
- Instrument : ID³⁸⁶⁷
- Objective : ID³⁸⁶⁸
- Objective : Immersion³⁸⁶⁹
- Objective : NominalMagnification³⁸⁷⁰
- Pixels : BigEndian³⁸⁷¹
- Pixels : DimensionOrder³⁸⁷²
- Pixels : ID³⁸⁷³
- Pixels : Interleaved³⁸⁷⁴
- Pixels : PhysicalSizeX³⁸⁷⁵
- Pixels : PhysicalSizeY³⁸⁷⁶
- Pixels : SignificantBits³⁸⁷⁷
- Pixels : SizeC³⁸⁷⁸
- Pixels : SizeT³⁸⁷⁹
- Pixels : SizeX³⁸⁸⁰
- Pixels : SizeY³⁸⁸¹
- Pixels : SizeZ³⁸⁸²

³⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

³⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

³⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

³⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

³⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

³⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

³⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

³⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

³⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

³⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

³⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³⁸⁸³
- Plane : ExposureTime³⁸⁸⁴
- Plane : TheC³⁸⁸⁵
- Plane : TheT³⁸⁸⁶
- Plane : TheZ³⁸⁸⁷

Total supported: 33

Total unknown or missing: 442

19.2.112 SMCameraReader

This page lists supported metadata fields for the Bio-Formats SM Camera format reader.

These fields are from the [OME data model](#)³⁸⁸⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁸⁸⁹
- Channel : SamplesPerPixel³⁸⁹⁰
- Image : AcquisitionDate³⁸⁹¹
- Image : ID³⁸⁹²
- Image : Name³⁸⁹³
- Pixels : BigEndian³⁸⁹⁴
- Pixels : DimensionOrder³⁸⁹⁵
- Pixels : ID³⁸⁹⁶
- Pixels : Interleaved³⁸⁹⁷
- Pixels : SignificantBits³⁸⁹⁸
- Pixels : SizeC³⁸⁹⁹
- Pixels : SizeT³⁹⁰⁰

³⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

³⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁸⁸⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

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_ID

³⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁹⁰¹
- Pixels : SizeY³⁹⁰²
- Pixels : SizeZ³⁹⁰³
- Pixels : Type³⁹⁰⁴
- Plane : TheC³⁹⁰⁵
- Plane : TheT³⁹⁰⁶
- Plane : TheZ³⁹⁰⁷

Total supported: 19

Total unknown or missing: 456

19.2.113 SpiderReader

This page lists supported metadata fields for the Bio-Formats SPIDER format reader.

These fields are from the [OME data model](#)³⁹⁰⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 SPIDER format reader:

- Channel : ID³⁹⁰⁹
- Channel : SamplesPerPixel³⁹¹⁰
- Image : AcquisitionDate³⁹¹¹
- Image : ID³⁹¹²
- Image : Name³⁹¹³
- Pixels : BigEndian³⁹¹⁴
- Pixels : DimensionOrder³⁹¹⁵
- Pixels : ID³⁹¹⁶
- Pixels : Interleaved³⁹¹⁷
- Pixels : PhysicalSizeX³⁹¹⁸

³⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹⁰⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY³⁹¹⁹
- Pixels : SignificantBits³⁹²⁰
- Pixels : SizeC³⁹²¹
- Pixels : SizeT³⁹²²
- Pixels : SizeX³⁹²³
- Pixels : SizeY³⁹²⁴
- Pixels : SizeZ³⁹²⁵
- Pixels : Type³⁹²⁶
- Plane : TheC³⁹²⁷
- Plane : TheT³⁹²⁸
- Plane : TheZ³⁹²⁹

Total supported: 21

Total unknown or missing: 454

19.2.114 TargaReader

This page lists supported metadata fields for the Bio-Formats Truevision Targa format reader.

These fields are from the [OME data model](#)³⁹³⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁹³¹
- Channel : SamplesPerPixel³⁹³²
- Image : AcquisitionDate³⁹³³
- Image : Description³⁹³⁴
- Image : ID³⁹³⁵
- Image : Name³⁹³⁶

³⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³⁹³⁷
- Pixels : DimensionOrder³⁹³⁸
- Pixels : ID³⁹³⁹
- Pixels : Interleaved³⁹⁴⁰
- Pixels : SignificantBits³⁹⁴¹
- Pixels : SizeC³⁹⁴²
- Pixels : SizeT³⁹⁴³
- Pixels : SizeX³⁹⁴⁴
- Pixels : SizeY³⁹⁴⁵
- Pixels : SizeZ³⁹⁴⁶
- Pixels : Type³⁹⁴⁷
- Plane : TheC³⁹⁴⁸
- Plane : TheT³⁹⁴⁹
- Plane : TheZ³⁹⁵⁰

Total supported: 20

Total unknown or missing: 455

19.2.115 TextReader

This page lists supported metadata fields for the Bio-Formats Text format reader.

These fields are from the OME data model³⁹⁵¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁹⁵²
- Channel : SamplesPerPixel³⁹⁵³
- Image : AcquisitionDate³⁹⁵⁴

³⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹⁵¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID³⁹⁵⁵
- Image : Name³⁹⁵⁶
- Pixels : BigEndian³⁹⁵⁷
- Pixels : DimensionOrder³⁹⁵⁸
- Pixels : ID³⁹⁵⁹
- Pixels : Interleaved³⁹⁶⁰
- Pixels : SignificantBits³⁹⁶¹
- Pixels : SizeC³⁹⁶²
- Pixels : SizeT³⁹⁶³
- Pixels : SizeX³⁹⁶⁴
- Pixels : SizeY³⁹⁶⁵
- Pixels : SizeZ³⁹⁶⁶
- Pixels : Type³⁹⁶⁷
- Plane : TheC³⁹⁶⁸
- Plane : TheT³⁹⁶⁹
- Plane : TheZ³⁹⁷⁰

Total supported: 19

Total unknown or missing: 456

19.2.116 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](#)³⁹⁷¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID³⁹⁷²

³⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹⁷¹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel³⁹⁷³
- Image : AcquisitionDate³⁹⁷⁴
- Image : Description³⁹⁷⁵
- Image : ID³⁹⁷⁶
- Image : Name³⁹⁷⁷
- Pixels : BigEndian³⁹⁷⁸
- Pixels : DimensionOrder³⁹⁷⁹
- Pixels : ID³⁹⁸⁰
- Pixels : Interleaved³⁹⁸¹
- Pixels : PhysicalSizeZ³⁹⁸²
- Pixels : SignificantBits³⁹⁸³
- Pixels : SizeC³⁹⁸⁴
- Pixels : SizeT³⁹⁸⁵
- Pixels : SizeX³⁹⁸⁶
- Pixels : SizeY³⁹⁸⁷
- Pixels : SizeZ³⁹⁸⁸
- Pixels : TimeIncrement³⁹⁸⁹
- Pixels : Type³⁹⁹⁰
- Plane : TheC³⁹⁹¹
- Plane : TheT³⁹⁹²
- Plane : TheZ³⁹⁹³

Total supported: 22

Total unknown or missing: 453

19.2.117 TillVisionReader

This page lists supported metadata fields for the Bio-Formats TillVision format reader.

These fields are from the [OME data model](#)³⁹⁹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

³⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

³⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

³⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

³⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

³⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

³⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

³⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

³⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

³⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

³⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

³⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

³⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

³⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

³⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

³⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

³⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

³⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

³⁹⁹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

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 : ID³⁹⁹⁵
- Channel : SamplesPerPixel³⁹⁹⁶
- Experiment : ID³⁹⁹⁷
- Experiment : Type³⁹⁹⁸
- Image : AcquisitionDate³⁹⁹⁹
- Image : ID⁴⁰⁰⁰
- Image : Name⁴⁰⁰¹
- Pixels : BigEndian⁴⁰⁰²
- Pixels : DimensionOrder⁴⁰⁰³
- Pixels : ID⁴⁰⁰⁴
- Pixels : Interleaved⁴⁰⁰⁵
- Pixels : SignificantBits⁴⁰⁰⁶
- Pixels : SizeC⁴⁰⁰⁷
- Pixels : SizeT⁴⁰⁰⁸
- Pixels : SizeX⁴⁰⁰⁹
- Pixels : SizeY⁴⁰¹⁰
- Pixels : SizeZ⁴⁰¹¹
- Pixels : Type⁴⁰¹²
- Plane : ExposureTime⁴⁰¹³
- Plane : TheC⁴⁰¹⁴
- Plane : TheT⁴⁰¹⁵
- Plane : TheZ⁴⁰¹⁶

³⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

³⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_ID

³⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experiment_Type

³⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁴⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

Total supported: 22

Total unknown or missing: 453

19.2.118 TopometrixReader

This page lists supported metadata fields for the Bio-Formats TopoMetrix format reader.

These fields are from the [OME data model](#)⁴⁰¹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴⁰¹⁸
- Channel : SamplesPerPixel⁴⁰¹⁹
- Image : AcquisitionDate⁴⁰²⁰
- Image : Description⁴⁰²¹
- Image : ID⁴⁰²²
- Image : Name⁴⁰²³
- Pixels : BigEndian⁴⁰²⁴
- Pixels : DimensionOrder⁴⁰²⁵
- Pixels : ID⁴⁰²⁶
- Pixels : Interleaved⁴⁰²⁷
- Pixels : PhysicalSizeX⁴⁰²⁸
- Pixels : PhysicalSizeY⁴⁰²⁹
- Pixels : SignificantBits⁴⁰³⁰
- Pixels : SizeC⁴⁰³¹
- Pixels : SizeT⁴⁰³²
- Pixels : SizeX⁴⁰³³
- Pixels : SizeY⁴⁰³⁴

⁴⁰¹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁴⁰³⁵
- Pixels : Type⁴⁰³⁶
- Plane : TheC⁴⁰³⁷
- Plane : TheT⁴⁰³⁸
- Plane : TheZ⁴⁰³⁹

Total supported: 22

Total unknown or missing: 453

19.2.119 TrestleReader

This page lists supported metadata fields for the Bio-Formats Trestle format reader.

These fields are from the [OME data model](#)⁴⁰⁴⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Trestle format reader:

- Channel : ID⁴⁰⁴¹
- Channel : SamplesPerPixel⁴⁰⁴²
- Image : AcquisitionDate⁴⁰⁴³
- Image : ID⁴⁰⁴⁴
- Image : Name⁴⁰⁴⁵
- Image : ROIRef⁴⁰⁴⁶
- Mask : Height⁴⁰⁴⁷
- Mask : ID⁴⁰⁴⁸
- Mask : Width⁴⁰⁴⁹
- Mask : X⁴⁰⁵⁰
- Mask : Y⁴⁰⁵¹
- Pixels : BigEndian⁴⁰⁵²

⁴⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁴⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁴⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Height

⁴⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Width

⁴⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_X

⁴⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Mask_Y

⁴⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁴⁰⁵³
- Pixels : ID⁴⁰⁵⁴
- Pixels : Interleaved⁴⁰⁵⁵
- Pixels : SignificantBits⁴⁰⁵⁶
- Pixels : SizeC⁴⁰⁵⁷
- Pixels : SizeT⁴⁰⁵⁸
- Pixels : SizeX⁴⁰⁵⁹
- Pixels : SizeY⁴⁰⁶⁰
- Pixels : SizeZ⁴⁰⁶¹
- Pixels : Type⁴⁰⁶²
- Plane : TheC⁴⁰⁶³
- Plane : TheT⁴⁰⁶⁴
- Plane : TheZ⁴⁰⁶⁵
- ROI : ID⁴⁰⁶⁶

Total supported: 26

Total unknown or missing: 449

19.2.120 UBMReader

This page lists supported metadata fields for the Bio-Formats UBM format reader.

These fields are from the [OME data model](#)⁴⁰⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴⁰⁶⁸
- Channel : SamplesPerPixel⁴⁰⁶⁹
- Image : AcquisitionDate⁴⁰⁷⁰

⁴⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁴⁰⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID⁴⁰⁷¹
- Image : Name⁴⁰⁷²
- Pixels : BigEndian⁴⁰⁷³
- Pixels : DimensionOrder⁴⁰⁷⁴
- Pixels : ID⁴⁰⁷⁵
- Pixels : Interleaved⁴⁰⁷⁶
- Pixels : SignificantBits⁴⁰⁷⁷
- Pixels : SizeC⁴⁰⁷⁸
- Pixels : SizeT⁴⁰⁷⁹
- Pixels : SizeX⁴⁰⁸⁰
- Pixels : SizeY⁴⁰⁸¹
- Pixels : SizeZ⁴⁰⁸²
- Pixels : Type⁴⁰⁸³
- Plane : TheC⁴⁰⁸⁴
- Plane : TheT⁴⁰⁸⁵
- Plane : TheZ⁴⁰⁸⁶

Total supported: 19

Total unknown or missing: 456

19.2.121 UnisokuReader

This page lists supported metadata fields for the Bio-Formats Unisoku STM format reader.

These fields are from the [OME data model](#)⁴⁰⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴⁰⁸⁸

⁴⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID
⁴⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
⁴⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
⁴⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
⁴⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
⁴⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
⁴⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
⁴⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
⁴⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
⁴⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
⁴⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
⁴⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
⁴⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
⁴⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
⁴⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
⁴⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
⁴⁰⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>
⁴⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel⁴⁰⁸⁹
- Image : AcquisitionDate⁴⁰⁹⁰
- Image : Description⁴⁰⁹¹
- Image : ID⁴⁰⁹²
- Image : Name⁴⁰⁹³
- Pixels : BigEndian⁴⁰⁹⁴
- Pixels : DimensionOrder⁴⁰⁹⁵
- Pixels : ID⁴⁰⁹⁶
- Pixels : Interleaved⁴⁰⁹⁷
- Pixels : PhysicalSizeX⁴⁰⁹⁸
- Pixels : PhysicalSizeY⁴⁰⁹⁹
- Pixels : SignificantBits⁴¹⁰⁰
- Pixels : SizeC⁴¹⁰¹
- Pixels : SizeT⁴¹⁰²
- Pixels : SizeX⁴¹⁰³
- Pixels : SizeY⁴¹⁰⁴
- Pixels : SizeZ⁴¹⁰⁵
- Pixels : Type⁴¹⁰⁶
- Plane : TheC⁴¹⁰⁷
- Plane : TheT⁴¹⁰⁸
- Plane : TheZ⁴¹⁰⁹

Total supported: 22

Total unknown or missing: 453

19.2.122 VarianFDFReader

This page lists supported metadata fields for the Bio-Formats Varian FDF format reader.

These fields are from the [OME data model](#)⁴¹¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁴⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

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 : ID⁴¹¹¹
- Channel : SamplesPerPixel⁴¹¹²
- Image : AcquisitionDate⁴¹¹³
- Image : ID⁴¹¹⁴
- Image : Name⁴¹¹⁵
- Pixels : BigEndian⁴¹¹⁶
- Pixels : DimensionOrder⁴¹¹⁷
- Pixels : ID⁴¹¹⁸
- Pixels : Interleaved⁴¹¹⁹
- Pixels : PhysicalSizeX⁴¹²⁰
- Pixels : PhysicalSizeY⁴¹²¹
- Pixels : PhysicalSizeZ⁴¹²²
- Pixels : SignificantBits⁴¹²³
- Pixels : SizeC⁴¹²⁴
- Pixels : SizeT⁴¹²⁵
- Pixels : SizeX⁴¹²⁶
- Pixels : SizeY⁴¹²⁷
- Pixels : SizeZ⁴¹²⁸
- Pixels : Type⁴¹²⁹
- Plane : PositionX⁴¹³⁰
- Plane : PositionY⁴¹³¹
- Plane : PositionZ⁴¹³²

⁴¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

- Plane : TheC⁴¹³³
- Plane : TheT⁴¹³⁴
- Plane : TheZ⁴¹³⁵

Total supported: 25

Total unknown or missing: 450

19.2.123 VGSAMReader

This page lists supported metadata fields for the Bio-Formats VG SAM format reader.

These fields are from the [OME data model](#)⁴¹³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 VG SAM format reader:

- Channel : ID⁴¹³⁷
- Channel : SamplesPerPixel⁴¹³⁸
- Image : AcquisitionDate⁴¹³⁹
- Image : ID⁴¹⁴⁰
- Image : Name⁴¹⁴¹
- Pixels : BigEndian⁴¹⁴²
- Pixels : DimensionOrder⁴¹⁴³
- Pixels : ID⁴¹⁴⁴
- Pixels : Interleaved⁴¹⁴⁵
- Pixels : SignificantBits⁴¹⁴⁶
- Pixels : SizeC⁴¹⁴⁷
- Pixels : SizeT⁴¹⁴⁸
- Pixels : SizeX⁴¹⁴⁹
- Pixels : SizeY⁴¹⁵⁰

⁴¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁴¹⁵¹
- Pixels : Type⁴¹⁵²
- Plane : TheC⁴¹⁵³
- Plane : TheT⁴¹⁵⁴
- Plane : TheZ⁴¹⁵⁵

Total supported: 19

Total unknown or missing: 456

19.2.124 VisitechReader

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

These fields are from the [OME data model](#)⁴¹⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Visitech XYS format reader:

- Channel : ID⁴¹⁵⁷
- Channel : SamplesPerPixel⁴¹⁵⁸
- Image : AcquisitionDate⁴¹⁵⁹
- Image : ID⁴¹⁶⁰
- Image : Name⁴¹⁶¹
- Pixels : BigEndian⁴¹⁶²
- Pixels : DimensionOrder⁴¹⁶³
- Pixels : ID⁴¹⁶⁴
- Pixels : Interleaved⁴¹⁶⁵
- Pixels : SignificantBits⁴¹⁶⁶
- Pixels : SizeC⁴¹⁶⁷
- Pixels : SizeT⁴¹⁶⁸

⁴¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁴¹⁶⁹
- Pixels : SizeY⁴¹⁷⁰
- Pixels : SizeZ⁴¹⁷¹
- Pixels : Type⁴¹⁷²
- Plane : TheC⁴¹⁷³
- Plane : TheT⁴¹⁷⁴
- Plane : TheZ⁴¹⁷⁵

Total supported: 19

Total unknown or missing: 456

19.2.125 VelocityClippingReader

This page lists supported metadata fields for the Bio-Formats Velocity Library Clipping format reader.

These fields are from the [OME data model](#)⁴¹⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴¹⁷⁷
- Channel : SamplesPerPixel⁴¹⁷⁸
- Image : AcquisitionDate⁴¹⁷⁹
- Image : ID⁴¹⁸⁰
- Image : Name⁴¹⁸¹
- Pixels : BigEndian⁴¹⁸²
- Pixels : DimensionOrder⁴¹⁸³
- Pixels : ID⁴¹⁸⁴
- Pixels : Interleaved⁴¹⁸⁵
- Pixels : SignificantBits⁴¹⁸⁶

⁴¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁴¹⁸⁷
- Pixels : SizeT⁴¹⁸⁸
- Pixels : SizeX⁴¹⁸⁹
- Pixels : SizeY⁴¹⁹⁰
- Pixels : SizeZ⁴¹⁹¹
- Pixels : Type⁴¹⁹²
- Plane : TheC⁴¹⁹³
- Plane : TheT⁴¹⁹⁴
- Plane : TheZ⁴¹⁹⁵

Total supported: 19

Total unknown or missing: 456

19.2.126 VolocityReader

This page lists supported metadata fields for the Bio-Formats Volocity Library format reader.

These fields are from the [OME data model](#)⁴¹⁹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Volocity Library format reader:

- Channel : ID⁴¹⁹⁷
- Channel : Name⁴¹⁹⁸
- Channel : SamplesPerPixel⁴¹⁹⁹
- Detector : ID⁴²⁰⁰
- Detector : Model⁴²⁰¹
- DetectorSettings : ID⁴²⁰²
- Image : AcquisitionDate⁴²⁰³
- Image : Description⁴²⁰⁴

⁴¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴¹⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

- Image : ID⁴²⁰⁵
- Image : InstrumentRef⁴²⁰⁶
- Image : Name⁴²⁰⁷
- Instrument : ID⁴²⁰⁸
- Objective : Correction⁴²⁰⁹
- Objective : ID⁴²¹⁰
- Objective : Immersion⁴²¹¹
- Objective : NominalMagnification⁴²¹²
- ObjectiveSettings : ID⁴²¹³
- Pixels : BigEndian⁴²¹⁴
- Pixels : DimensionOrder⁴²¹⁵
- Pixels : ID⁴²¹⁶
- Pixels : Interleaved⁴²¹⁷
- Pixels : PhysicalSizeX⁴²¹⁸
- Pixels : PhysicalSizeY⁴²¹⁹
- Pixels : PhysicalSizeZ⁴²²⁰
- Pixels : SignificantBits⁴²²¹
- Pixels : SizeC⁴²²²
- Pixels : SizeT⁴²²³
- Pixels : SizeX⁴²²⁴
- Pixels : SizeY⁴²²⁵
- Pixels : SizeZ⁴²²⁶
- Pixels : Type⁴²²⁷
- Plane : DeltaT⁴²²⁸
- Plane : PositionX⁴²²⁹
- Plane : PositionY⁴²³⁰

⁴²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁴²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁴²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

- Plane : PositionZ⁴²³¹
- Plane : TheC⁴²³²
- Plane : TheT⁴²³³
- Plane : TheZ⁴²³⁴

Total supported: 38

Total unknown or missing: 437

19.2.127 WATOPReader

This page lists supported metadata fields for the Bio-Formats WA Technology TOP format reader.

These fields are from the [OME data model](#)⁴²³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴²³⁶
- Channel : SamplesPerPixel⁴²³⁷
- Image : AcquisitionDate⁴²³⁸
- Image : Description⁴²³⁹
- Image : ID⁴²⁴⁰
- Image : Name⁴²⁴¹
- Pixels : BigEndian⁴²⁴²
- Pixels : DimensionOrder⁴²⁴³
- Pixels : ID⁴²⁴⁴
- Pixels : Interleaved⁴²⁴⁵
- Pixels : PhysicalSizeX⁴²⁴⁶
- Pixels : PhysicalSizeY⁴²⁴⁷
- Pixels : SignificantBits⁴²⁴⁸

⁴²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴²³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁴²⁴⁹
- Pixels : SizeT⁴²⁵⁰
- Pixels : SizeX⁴²⁵¹
- Pixels : SizeY⁴²⁵²
- Pixels : SizeZ⁴²⁵³
- Pixels : Type⁴²⁵⁴
- Plane : TheC⁴²⁵⁵
- Plane : TheT⁴²⁵⁶
- Plane : TheZ⁴²⁵⁷

Total supported: 22

Total unknown or missing: 453

19.2.128 BMPReader

This page lists supported metadata fields for the Bio-Formats Windows Bitmap format reader.

These fields are from the [OME data model](#)⁴²⁵⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴²⁵⁹
- Channel : SamplesPerPixel⁴²⁶⁰
- Image : AcquisitionDate⁴²⁶¹
- Image : ID⁴²⁶²
- Image : Name⁴²⁶³
- Pixels : BigEndian⁴²⁶⁴
- Pixels : DimensionOrder⁴²⁶⁵
- Pixels : ID⁴²⁶⁶

⁴²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴²⁵⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁴²⁶⁷
- Pixels : PhysicalSizeX⁴²⁶⁸
- Pixels : PhysicalSizeY⁴²⁶⁹
- Pixels : SignificantBits⁴²⁷⁰
- Pixels : SizeC⁴²⁷¹
- Pixels : SizeT⁴²⁷²
- Pixels : SizeX⁴²⁷³
- Pixels : SizeY⁴²⁷⁴
- Pixels : SizeZ⁴²⁷⁵
- Pixels : Type⁴²⁷⁶
- Plane : TheC⁴²⁷⁷
- Plane : TheT⁴²⁷⁸
- Plane : TheZ⁴²⁷⁹

Total supported: 21

Total unknown or missing: 454

19.2.129 WizReader

This page lists supported metadata fields for the Bio-Formats Woolz format reader.

These fields are from the [OME data model](#)⁴²⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : ID⁴²⁸¹
- Channel : SamplesPerPixel⁴²⁸²
- Image : AcquisitionDate⁴²⁸³
- Image : ID⁴²⁸⁴

⁴²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴²⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

- Image : Name⁴²⁸⁵
- Pixels : BigEndian⁴²⁸⁶
- Pixels : DimensionOrder⁴²⁸⁷
- Pixels : ID⁴²⁸⁸
- Pixels : Interleaved⁴²⁸⁹
- Pixels : PhysicalSizeX⁴²⁹⁰
- Pixels : PhysicalSizeY⁴²⁹¹
- Pixels : PhysicalSizeZ⁴²⁹²
- Pixels : SignificantBits⁴²⁹³
- Pixels : SizeC⁴²⁹⁴
- Pixels : SizeT⁴²⁹⁵
- Pixels : SizeX⁴²⁹⁶
- Pixels : SizeY⁴²⁹⁷
- Pixels : SizeZ⁴²⁹⁸
- Pixels : Type⁴²⁹⁹
- Plane : TheC⁴³⁰⁰
- Plane : TheT⁴³⁰¹
- Plane : TheZ⁴³⁰²
- StageLabel : Name⁴³⁰³
- StageLabel : X⁴³⁰⁴
- StageLabel : Y⁴³⁰⁵
- StageLabel : Z⁴³⁰⁶

Total supported: 26

Total unknown or missing: 449

19.2.130 ZeissTIFFReader

This page lists supported metadata fields for the Bio-Formats Zeiss AxioVision TIFF format reader.

These fields are from the [OME data model](#)⁴³⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME

- ⁴²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name
- ⁴²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian
- ⁴²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder
- ⁴²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID
- ⁴²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved
- ⁴²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁴²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁴²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ⁴²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits
- ⁴²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC
- ⁴²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT
- ⁴²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX
- ⁴²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY
- ⁴²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ
- ⁴²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type
- ⁴³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC
- ⁴³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT
- ⁴³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ
- ⁴³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Name
- ⁴³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_X
- ⁴³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Y
- ⁴³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#StageLabel_Z
- ⁴³⁰⁷<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 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 : ID⁴³⁰⁸
- Channel : SamplesPerPixel⁴³⁰⁹
- Image : AcquisitionDate⁴³¹⁰
- Image : ID⁴³¹¹
- Image : Name⁴³¹²
- Pixels : BigEndian⁴³¹³
- Pixels : DimensionOrder⁴³¹⁴
- Pixels : ID⁴³¹⁵
- Pixels : Interleaved⁴³¹⁶
- Pixels : SignificantBits⁴³¹⁷
- Pixels : SizeC⁴³¹⁸
- Pixels : SizeT⁴³¹⁹
- Pixels : SizeX⁴³²⁰
- Pixels : SizeY⁴³²¹
- Pixels : SizeZ⁴³²²
- Pixels : Type⁴³²³
- Plane : TheC⁴³²⁴
- Plane : TheT⁴³²⁵
- Plane : TheZ⁴³²⁶

Total supported: 19

Total unknown or missing: 456

⁴³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

19.2.131 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](#)⁴³²⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 Vision Image (ZVI) format reader:

- Channel : ID⁴³²⁸
- Channel : SamplesPerPixel⁴³²⁹
- Image : AcquisitionDate⁴³³⁰
- Image : ID⁴³³¹
- Image : Name⁴³³²
- Pixels : BigEndian⁴³³³
- Pixels : DimensionOrder⁴³³⁴
- Pixels : ID⁴³³⁵
- Pixels : Interleaved⁴³³⁶
- Pixels : SignificantBits⁴³³⁷
- Pixels : SizeC⁴³³⁸
- Pixels : SizeT⁴³³⁹
- Pixels : SizeX⁴³⁴⁰
- Pixels : SizeY⁴³⁴¹
- Pixels : SizeZ⁴³⁴²
- Pixels : Type⁴³⁴³
- Plane : TheC⁴³⁴⁴
- Plane : TheT⁴³⁴⁵

⁴³²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁴³⁴⁶

Total supported: 19

Total unknown or missing: 456

19.2.132 ZeissCZIReader

This page lists supported metadata fields for the Bio-Formats Zeiss CZI format reader.

These fields are from the [OME data model](#)⁴³⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 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 : LotNumber⁴³⁴⁸
- Arc : Manufacturer⁴³⁴⁹
- Arc : Model⁴³⁵⁰
- Arc : Power⁴³⁵¹
- Arc : SerialNumber⁴³⁵²
- Channel : AcquisitionMode⁴³⁵³
- Channel : Color⁴³⁵⁴
- Channel : EmissionWavelength⁴³⁵⁵
- Channel : ExcitationWavelength⁴³⁵⁶
- Channel : FilterSetRef⁴³⁵⁷
- Channel : Fluor⁴³⁵⁸
- Channel : ID⁴³⁵⁹
- Channel : IlluminationType⁴³⁶⁰
- Channel : Name⁴³⁶¹
- Channel : PinholeSize⁴³⁶²
- Channel : SamplesPerPixel⁴³⁶³

⁴³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴³⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_AcquisitionMode

⁴³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁴³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_EmissionWavelength

⁴³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ExcitationWavelength

⁴³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSetRef_ID

⁴³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Fluor

⁴³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_IlluminationType

⁴³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

⁴³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : AmplificationGain⁴³⁶⁴
- Detector : Gain⁴³⁶⁵
- Detector : ID⁴³⁶⁶
- Detector : LotNumber⁴³⁶⁷
- Detector : Manufacturer⁴³⁶⁸
- Detector : Model⁴³⁶⁹
- Detector : Offset⁴³⁷⁰
- Detector : SerialNumber⁴³⁷¹
- Detector : Type⁴³⁷²
- Detector : Zoom⁴³⁷³
- DetectorSettings : Binning⁴³⁷⁴
- DetectorSettings : Gain⁴³⁷⁵
- DetectorSettings : ID⁴³⁷⁶
- Dichroic : ID⁴³⁷⁷
- Dichroic : LotNumber⁴³⁷⁸
- Dichroic : Manufacturer⁴³⁷⁹
- Dichroic : Model⁴³⁸⁰
- Dichroic : SerialNumber⁴³⁸¹
- Ellipse : ID⁴³⁸²
- Ellipse : RadiusX⁴³⁸³
- Ellipse : RadiusY⁴³⁸⁴
- Ellipse : Text⁴³⁸⁵
- Ellipse : X⁴³⁸⁶
- Ellipse : Y⁴³⁸⁷
- Experimenter : Email⁴³⁸⁸
- Experimenter : FirstName⁴³⁸⁹

⁴³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_AmplificationGain

⁴³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁴³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Offset

⁴³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁴³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

⁴³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁴³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Gain

⁴³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

⁴³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

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/ROI_xsd.html#Shape_ID

⁴³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

⁴³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

⁴³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

⁴³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

⁴³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Email

⁴³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_FirstName

- Experimenter : ID⁴³⁹⁰
- Experimenter : Institution⁴³⁹¹
- Experimenter : LastName⁴³⁹²
- Experimenter : MiddleName⁴³⁹³
- Experimenter : UserName⁴³⁹⁴
- Filament : LotNumber⁴³⁹⁵
- Filament : Manufacturer⁴³⁹⁶
- Filament : Model⁴³⁹⁷
- Filament : Power⁴³⁹⁸
- Filament : SerialNumber⁴³⁹⁹
- Filter : FilterWheel⁴⁴⁰⁰
- Filter : ID⁴⁴⁰¹
- Filter : LotNumber⁴⁴⁰²
- Filter : Manufacturer⁴⁴⁰³
- Filter : Model⁴⁴⁰⁴
- Filter : SerialNumber⁴⁴⁰⁵
- Filter : Type⁴⁴⁰⁶
- FilterSet : DichroicRef⁴⁴⁰⁷
- FilterSet : EmissionFilterRef⁴⁴⁰⁸
- FilterSet : ExcitationFilterRef⁴⁴⁰⁹
- FilterSet : ID⁴⁴¹⁰
- FilterSet : LotNumber⁴⁴¹¹
- FilterSet : Manufacturer⁴⁴¹²
- FilterSet : Model⁴⁴¹³
- FilterSet : SerialNumber⁴⁴¹⁴
- Image : AcquisitionDate⁴⁴¹⁵

⁴³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁴³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_Institution

⁴³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_LastName

⁴³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_MiddleName

⁴³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

⁴³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_FilterWheel

⁴⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

⁴⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_Type

⁴⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

⁴⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterSet_ID

⁴⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description⁴⁴¹⁶
- Image : ExperimenterRef⁴⁴¹⁷
- Image : ID⁴⁴¹⁸
- Image : InstrumentRef⁴⁴¹⁹
- Image : Name⁴⁴²⁰
- Image : ROIRef⁴⁴²¹
- ImagingEnvironment : AirPressure⁴⁴²²
- ImagingEnvironment : CO2Percent⁴⁴²³
- ImagingEnvironment : Humidity⁴⁴²⁴
- ImagingEnvironment : Temperature⁴⁴²⁵
- Instrument : ID⁴⁴²⁶
- Laser : LotNumber⁴⁴²⁷
- Laser : Manufacturer⁴⁴²⁸
- Laser : Model⁴⁴²⁹
- Laser : Power⁴⁴³⁰
- Laser : SerialNumber⁴⁴³¹
- LightEmittingDiode : LotNumber⁴⁴³²
- LightEmittingDiode : Manufacturer⁴⁴³³
- LightEmittingDiode : Model⁴⁴³⁴
- LightEmittingDiode : Power⁴⁴³⁵
- LightEmittingDiode : SerialNumber⁴⁴³⁶
- Line : ID⁴⁴³⁷
- Line : Text⁴⁴³⁸
- Line : X1⁴⁴³⁹
- Line : X2⁴⁴⁴⁰
- Line : Y1⁴⁴⁴¹

⁴⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ExperimenterRef_ID

⁴⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

⁴⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁴⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_AirPressure

⁴⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_CO2Percent

⁴⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Humidity

⁴⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ImagingEnvironment_Temperature

⁴⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_Power

⁴⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

⁴⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

⁴⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

- Line : Y2⁴⁴⁴²
- Microscope : LotNumber⁴⁴⁴³
- Microscope : Manufacturer⁴⁴⁴⁴
- Microscope : Model⁴⁴⁴⁵
- Microscope : SerialNumber⁴⁴⁴⁶
- Microscope : Type⁴⁴⁴⁷
- Objective : CalibratedMagnification⁴⁴⁴⁸
- Objective : Correction⁴⁴⁴⁹
- Objective : ID⁴⁴⁵⁰
- Objective : Immersion⁴⁴⁵¹
- Objective : Iris⁴⁴⁵²
- Objective : LensNA⁴⁴⁵³
- Objective : LotNumber⁴⁴⁵⁴
- Objective : Manufacturer⁴⁴⁵⁵
- Objective : Model⁴⁴⁵⁶
- Objective : NominalMagnification⁴⁴⁵⁷
- Objective : SerialNumber⁴⁴⁵⁸
- Objective : WorkingDistance⁴⁴⁵⁹
- ObjectiveSettings : CorrectionCollar⁴⁴⁶⁰
- ObjectiveSettings : ID⁴⁴⁶¹
- ObjectiveSettings : Medium⁴⁴⁶²
- ObjectiveSettings : RefractiveIndex⁴⁴⁶³
- Pixels : BigEndian⁴⁴⁶⁴
- Pixels : DimensionOrder⁴⁴⁶⁵
- Pixels : ID⁴⁴⁶⁶
- Pixels : Interleaved⁴⁴⁶⁷

⁴⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

⁴⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Microscope_Type

⁴⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_CalibratedMagnification

⁴⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

⁴⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Iris

⁴⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁴⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁴⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁴⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_WorkingDistance

⁴⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar

⁴⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_Medium

⁴⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

⁴⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX⁴⁴⁶⁸
- Pixels : PhysicalSizeY⁴⁴⁶⁹
- Pixels : PhysicalSizeZ⁴⁴⁷⁰
- Pixels : SignificantBits⁴⁴⁷¹
- Pixels : SizeC⁴⁴⁷²
- Pixels : SizeT⁴⁴⁷³
- Pixels : SizeX⁴⁴⁷⁴
- Pixels : SizeY⁴⁴⁷⁵
- Pixels : SizeZ⁴⁴⁷⁶
- Pixels : Type⁴⁴⁷⁷
- Plane : DeltaT⁴⁴⁷⁸
- Plane : ExposureTime⁴⁴⁷⁹
- Plane : PositionX⁴⁴⁸⁰
- Plane : PositionY⁴⁴⁸¹
- Plane : PositionZ⁴⁴⁸²
- Plane : TheC⁴⁴⁸³
- Plane : TheT⁴⁴⁸⁴
- Plane : TheZ⁴⁴⁸⁵
- Polygon : ID⁴⁴⁸⁶
- Polygon : Points⁴⁴⁸⁷
- Polygon : Text⁴⁴⁸⁸
- Polyline : ID⁴⁴⁸⁹
- Polyline : Points⁴⁴⁹⁰
- Polyline : Text⁴⁴⁹¹
- ROI : Description⁴⁴⁹²
- ROI : ID⁴⁴⁹³

⁴⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁴⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_ExposureTime

⁴⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

⁴⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

⁴⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

⁴⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Description

⁴⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

- ROI : Name⁴⁴⁹⁴
- Rectangle : Height⁴⁴⁹⁵
- Rectangle : ID⁴⁴⁹⁶
- Rectangle : Text⁴⁴⁹⁷
- Rectangle : Width⁴⁴⁹⁸
- Rectangle : X⁴⁴⁹⁹
- Rectangle : Y⁴⁵⁰⁰
- TransmittanceRange : CutIn⁴⁵⁰¹
- TransmittanceRange : CutInTolerance⁴⁵⁰²
- TransmittanceRange : CutOut⁴⁵⁰³
- TransmittanceRange : CutOutTolerance⁴⁵⁰⁴
- TransmittanceRange : Transmittance⁴⁵⁰⁵

Total supported: 158

Total unknown or missing: 317

19.2.133 ZeissLSMReader

This page lists supported metadata fields for the Bio-Formats Zeiss Laser-Scanning Microscopy format reader.

These fields are from the OME data model⁴⁵⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you 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 : Color⁴⁵⁰⁷
- Channel : ID⁴⁵⁰⁸
- Channel : Name⁴⁵⁰⁹
- Channel : PinholeSize⁴⁵¹⁰
- Channel : SamplesPerPixel⁴⁵¹¹

⁴⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_Name

⁴⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁴⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁴⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

⁴⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁴⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutInTolerance

⁴⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

⁴⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOutTolerance

⁴⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_Transmittance

⁴⁵⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Color

⁴⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_ID

⁴⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_Name

⁴⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_PinholeSize

⁴⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : AmplificationGain⁴⁵¹²
- Detector : Gain⁴⁵¹³
- Detector : ID⁴⁵¹⁴
- Detector : Type⁴⁵¹⁵
- Detector : Zoom⁴⁵¹⁶
- DetectorSettings : Binning⁴⁵¹⁷
- DetectorSettings : ID⁴⁵¹⁸
- Dichroic : ID⁴⁵¹⁹
- Dichroic : Model⁴⁵²⁰
- Ellipse : FontSize⁴⁵²¹
- Ellipse : ID⁴⁵²²
- Ellipse : RadiusX⁴⁵²³
- Ellipse : RadiusY⁴⁵²⁴
- Ellipse : StrokeWidth⁴⁵²⁵
- Ellipse : Transform⁴⁵²⁶
- Ellipse : X⁴⁵²⁷
- Ellipse : Y⁴⁵²⁸
- Experimenter : ID⁴⁵²⁹
- Experimenter : UserName⁴⁵³⁰
- Filter : ID⁴⁵³¹
- Filter : Model⁴⁵³²
- Filter : Type⁴⁵³³
- Image : AcquisitionDate⁴⁵³⁴
- Image : Description⁴⁵³⁵
- Image : ID⁴⁵³⁶
- Image : InstrumentRef⁴⁵³⁷

⁴⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_AmplificationGain

⁴⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Gain

⁴⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_ID

⁴⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Type

⁴⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Detector_Zoom

⁴⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_Binning

⁴⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DetectorSettings_ID

⁴⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Dichroic_ID

⁴⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusX

⁴⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_RadiusY

⁴⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Transform

⁴⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_X

⁴⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Ellipse_Y

⁴⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_ID

⁴⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Experimenter_UserName

⁴⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_ID

⁴⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Filter_Type

⁴⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Description

⁴⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_ID

⁴⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#InstrumentRef_ID

- Image : Name⁴⁵³⁸
- Image : ROIRef⁴⁵³⁹
- Instrument : ID⁴⁵⁴⁰
- Label : FontSize⁴⁵⁴¹
- Label : ID⁴⁵⁴²
- Label : StrokeWidth⁴⁵⁴³
- Label : Text⁴⁵⁴⁴
- Label : X⁴⁵⁴⁵
- Label : Y⁴⁵⁴⁶
- Laser : ID⁴⁵⁴⁷
- Laser : LaserMedium⁴⁵⁴⁸
- Laser : Model⁴⁵⁴⁹
- Laser : Type⁴⁵⁵⁰
- Laser : Wavelength⁴⁵⁵¹
- LightPath : DichroicRef⁴⁵⁵²
- LightPath : EmissionFilterRef⁴⁵⁵³
- Line : FontSize⁴⁵⁵⁴
- Line : ID⁴⁵⁵⁵
- Line : StrokeWidth⁴⁵⁵⁶
- Line : X1⁴⁵⁵⁷
- Line : X2⁴⁵⁵⁸
- Line : Y1⁴⁵⁵⁹
- Line : Y2⁴⁵⁶⁰
- Objective : Correction⁴⁵⁶¹
- Objective : ID⁴⁵⁶²
- Objective : Immersion⁴⁵⁶³

⁴⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Image_Name

⁴⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROIRef_ID

⁴⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Instrument_ID

⁴⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_Text

⁴⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_X

⁴⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Label_Y

⁴⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#LightSource_ID

⁴⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_LaserMedium

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/ome_xsd.html#Laser_Type

⁴⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Laser_Wavelength

⁴⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#DichroicRef_ID

⁴⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#FilterRef_ID

⁴⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X1

⁴⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_X2

⁴⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y1

⁴⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Line_Y2

⁴⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Correction

⁴⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_ID

⁴⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Immersion

- Objective : Iris⁴⁵⁶⁴
- Objective : LensNA⁴⁵⁶⁵
- Objective : NominalMagnification⁴⁵⁶⁶
- ObjectiveSettings : ID⁴⁵⁶⁷
- Pixels : BigEndian⁴⁵⁶⁸
- Pixels : DimensionOrder⁴⁵⁶⁹
- Pixels : ID⁴⁵⁷⁰
- Pixels : Interleaved⁴⁵⁷¹
- Pixels : PhysicalSizeX⁴⁵⁷²
- Pixels : PhysicalSizeY⁴⁵⁷³
- Pixels : PhysicalSizeZ⁴⁵⁷⁴
- Pixels : SignificantBits⁴⁵⁷⁵
- Pixels : SizeC⁴⁵⁷⁶
- Pixels : SizeT⁴⁵⁷⁷
- Pixels : SizeX⁴⁵⁷⁸
- Pixels : SizeY⁴⁵⁷⁹
- Pixels : SizeZ⁴⁵⁸⁰
- Pixels : TimeIncrement⁴⁵⁸¹
- Pixels : Type⁴⁵⁸²
- Plane : DeltaT⁴⁵⁸³
- Plane : PositionX⁴⁵⁸⁴
- Plane : PositionY⁴⁵⁸⁵
- Plane : PositionZ⁴⁵⁸⁶
- Plane : TheC⁴⁵⁸⁷
- Plane : TheT⁴⁵⁸⁸
- Plane : TheZ⁴⁵⁸⁹

⁴⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_Iris

⁴⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_LensNA

⁴⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Objective_NominalMagnification

⁴⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_BigEndian

⁴⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_ID

⁴⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Interleaved

⁴⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeC

⁴⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeT

⁴⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeX

⁴⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeY

⁴⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_SizeZ

⁴⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_TimeIncrement

⁴⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Pixels_Type

⁴⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_DeltaT

⁴⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionX

⁴⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionY

⁴⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_PositionZ

⁴⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheC

⁴⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheT

⁴⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#Plane_TheZ

- Polygon : FontSize⁴⁵⁹⁰
- Polygon : ID⁴⁵⁹¹
- Polygon : Points⁴⁵⁹²
- Polygon : StrokeWidth⁴⁵⁹³
- Polyline : FontSize⁴⁵⁹⁴
- Polyline : ID⁴⁵⁹⁵
- Polyline : Points⁴⁵⁹⁶
- Polyline : StrokeWidth⁴⁵⁹⁷
- ROI : ID⁴⁵⁹⁸
- Rectangle : FontSize⁴⁵⁹⁹
- Rectangle : Height⁴⁶⁰⁰
- Rectangle : ID⁴⁶⁰¹
- Rectangle : StrokeWidth⁴⁶⁰²
- Rectangle : Width⁴⁶⁰³
- Rectangle : X⁴⁶⁰⁴
- Rectangle : Y⁴⁶⁰⁵
- TransmittanceRange : CutIn⁴⁶⁰⁶
- TransmittanceRange : CutOut⁴⁶⁰⁷

Total supported: 101

Total unknown or missing: 374

⁴⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polygon_Points

⁴⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Polyline_Points

⁴⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#ROI_ID

⁴⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_FontSize

⁴⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Height

⁴⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_ID

⁴⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Shape_StrokeWidth

⁴⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Width

⁴⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_X

⁴⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ROI_xsd.html#Rectangle_Y

⁴⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutIn

⁴⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2013-06/ome_xsd.html#TransmittanceRange_CutOut

Symbols

.1sc, 113
 .2, 174
 .2fl, 188
 .3, 174
 .4, 174
 .acff, 193
 .afi, 108
 .afm, 179
 .aim, 104
 .al3d, 105
 .am, 106
 .amiramesh, 106
 .apl, 165
 .arf, 111
 .avi, 110
 .bip, 148
 .bmp, 132, 195
 .c01, 119
 .cfg, 178
 .cr2, 118
 .crw, 118
 .cxd, 183
 .czi, 198
 .dat, 144, 168, 190
 .dcm, 121
 .dicom, 121
 .dm2, 127
 .dm3, 126
 .dti, 191
 .dv, 120
 .eps, 123
 .epsi, 123
 .exp, 112
 .fdf, 191
 .fff, 133
 .ffr, 188
 .fits, 126
 .flex, 124
 .fli, 149
 .frm, 140
 .gel, 106
 .gif, 128
 .grey, 106
 .hdr, 107, 142, 162, 190
 .hed, 135
 .his, 129
 .htd, 110
 .html, 192
 .hx, 106
 .ics, 132
 .ids, 132
 .img, 107, 117, 125, 135, 144, 162
 .ims, 116
 .inr, 141
 .ipl, 142
 .ipm, 143
 .ipw, 134
 .jp2, 145
 .jpg, 132, 145, 189
 .jpk, 146
 .jpx, 147
 .l2d, 153
 .labels, 106
 .lei, 150
 .lif, 151
 .liff, 137
 .lim, 154
 .lsm, 199
 .mdb, 199
 .mea, 124
 .mnc, 157
 .mng, 159
 .mod, 136
 .mov, 179
 .mrc, 160
 .mrw, 158
 .msr, 139, 149
 .mtb, 165
 .mvd2, 193
 .naf, 129
 .nd, 155
 .nd2, 164
 .ndpi, 130
 .nef, 161
 .nhdr, 164
 .nrrd, 164
 .obf, 139
 .obsep, 165
 .oib, 166
 .oif, 166
 .ome, 170
 .ome.tiff, 169
 .par, 144
 .pcoraw, 171
 .pcx, 172
 .pds, 173
 .pgm, 175

.pic, 114
 .pict, 177
 .png, 108, 177
 .pnl, 110
 .pr3, 189
 .ps, 123
 .psd, 175
 .r3d, 120
 .raw, 114, 138, 164
 .rec, 171
 .res, 124
 .scn, 115, 152, 153
 .sdt, 113
 .seq, 134
 .sld, 103, 189
 .sm2, 181
 .sm3, 181
 .spi, 185
 .stk, 155, 185
 .stp, 159
 .svs, 108, 109
 .sxm, 153
 .tfr, 188
 .tga, 185
 .tif, 104, 112, 120, 132, 138, 140, 150, 153, 156, 157, 161, 165, 167, 168, 174, 176, 178, 187, 189
 .tiff, 125, 155, 162, 163, 168, 173, 176, 184, 196
 .tnb, 165
 .top, 171
 .txt, 132, 157, 164, 186
 .v, 122
 .vms, 131
 .vsi, 119
 .vws, 188
 .wat, 194
 .wlz, 196
 .xdce, 140
 .xml, 114, 120, 157, 168, 173, 178, 196
 .xqd, 182
 .xqf, 182
 .xv, 147
 .xys, 192
 .zfp, 188
 .zfr, 188
 .zvi, 197
 3i SlideBook, 103

A

Adobe Photoshop PSD, 175
 AIM, 104
 Alicona 3D, 105
 Amersham Biosciences Gel, 106
 Amira Mesh, 106
 Analyze 7.5, 107
 Andor Bio-Imaging Division (ABD) TIFF, 104
 Animated PNG, 108
 Aperio AFI, 108
 Aperio SVS TIFF, 109
 Applied Precision CellWorX, 110
 AVI (Audio Video Interleave), 110
 Axon Raw Format, 111

B

BD Pathway, 112
 Becker & Hickl SPCImage, 113
 bfconvert, 37
 Bio-Rad Gel, 113
 Bio-Rad PIC, 114
 Bio-Rad SCN, 115
 Bitplane Imaris, 116
 Bruker MRI, 117
 BSD, 103
 Burleigh, 117

C

Canon DNG, 118
 Cellomics, 119
 cellSens VSI, 119
 CellVoyager, 120
 CLASSPATH, 60

D

DeltaVision, 120
 DICOM, 121

E

ECAT7, 122
 environment variable
 CLASSPATH, 60
 EPS (Encapsulated PostScript), 123
 Evotec/PerkinElmer Opera Flex, 124
 Export, 103

F

FEI, 125
 FEI TIFF, 125
 FITS (Flexible Image Transport System), 126
 formatlist, 37

G

Gatan Digital Micrograph, 126
 Gatan Digital Micrograph 2, 127
 GIF (Graphics Interchange Format), 128

H

Hamamatsu Aquacosmos NAF, 129
 Hamamatsu HIS, 129
 Hamamatsu ndpi, 130
 Hamamatsu VMS, 131
 Hitachi S-4800, 132

I

ICS (Image Cytometry Standard), 132
 ijview, 37
 Imacon, 133
 ImagePro Sequence, 134
 ImagePro Workspace, 134
 IMAGIC, 135
 IMOD, 136
 Improvion Openlab LIFF, 137
 Improvion Openlab Raw, 138
 Improvion TIFF, 138

Inspector OBF, 139
 InCell 1000, 140
 InCell 3000, 140
 INR, 141
 Inveon, 142
 IPLab, 142
 IPLab-Mac, 143
 itkRGBSCIFIOImageTest, **48**
 itkSCIFIOImageInfoTest, **48**
 itkSCIFIOImageIOTest, **48**
 itkVectorImageSCIFIOImageIOTest, **48**

J

JEOL, 144
 JPEG, 145
 JPEG 2000, 145
 JPK, 146
 JPX, 147

K

Khoros VIFF (Visualization Image File Format) Bitmap, 147
 Kodak BIP, 148

L

Lambert Instruments FLIM, 149
 LaVision Inspector, 149
 Leica LAS AF LIF (Leica Image File Format), 151
 Leica LCS LEI, 150
 Leica SCN, 152
 LEO, 153
 Li-Cor L2D, 153
 LIM (Laboratory Imaging/Nikon), 154

M

Metadata, **103**
 MetaMorph 7.5 TIFF, 155
 MetaMorph Stack (STK), 155
 MIAS (Maia Scientific), 156
 Micro-Manager, 157
 MINC MRI, 157
 Minolta MRW, 158
 MNG (Multiple-image Network Graphics), 159
 Molecular Imaging, 159
 MRC (Medical Research Council), 160

N

NEF (Nikon Electronic Format), 161
 NIFTI, 162
 Nikon Elements TIFF, 162
 Nikon EZ-C1 TIFF, 163
 Nikon NIS-Elements ND2, 164
 NRRD (Nearly Raw Raster Data), 164

O

Olympus CellR/APL, 165
 Olympus FluoView FV1000, 166
 Olympus FluoView TIFF, 167
 Olympus ScanR, 168
 Olympus SIS TIFF, 168
 OME-TIFF, 169

OME-XML, 170
 Openness, **103**
 Oxford Instruments, 171

P

PCORAW, 171
 PCX (PC Paintbrush), 172
 Perkin Elmer Densitometer, 173
 PerkinElmer Operetta, 173
 PerkinElmer UltraView, 174
 PGM (Portable Gray Map), 175
 Photoshop TIFF, 176
 PICT (Macintosh Picture), 177
 Pixels, **102**
 PNG (Portable Network Graphics), 177
 Prairie Technologies TIFF, 178
 Presence, **103**

Q

Quesant, 179
 QuickTime Movie, 179

R

Ratings legend and definitions, **102**
 RHK, 181

S

SBIG, 182
 Seiko, 182
 showinf, **37**
 SimplePCI & HImage, 183
 SimplePCI & HImage TIFF, 184
 SM Camera, 184
 SPIDER, 185

T

Targa, 185
 Text, 186
 TIFF (Tagged Image File Format), 187
 tiffcomment, **37**
 TillPhotonics TillVision, 188
 Topometrix, 188
 Trestle, 189

U

UBM, 189
 Unisoku, 190
 Utility, **103**

V

Varian FDF, 191
 VG SAM, 191
 VisiTech XYs, 192
 Volocity, 193
 Volocity Library Clipping, 193

W

WA-TOP, 194
 Windows Bitmap, 195
 Woolz, 196

X

xmlindent, [37](#)

xmlvalid, [37](#)

Z

Zeiss AxioVision TIFF, [196](#)

Zeiss AxioVision ZVI (Zeiss Vision Image), [197](#)

Zeiss CZI, [198](#)

Zeiss LSM (Laser Scanning Microscope) 510/710, [199](#)