



Bio-Formats Documentation

Release 5.2.3

The Open Microscopy Environment

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The following documentation is split into four parts. *About Bio-Formats* explains the goal of the software, discusses how it processes metadata, and provides other useful information such as version history and how to report bugs. *User Information* 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. You may find LOCI's article on [open source software in science](#)³ of interest.

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

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

³<http://loci.wisc.edu/software/oss>

There is a *guide for reporting bugs here*.

For help relating to opening images in ImageJ or FIJI or when using the command line tools, refer to the *users documentation*. You can also find tips on common issues with specific formats on the pages linked from the *supported formats table*.

Please [contact us](#)¹ if you have any questions or problems with Bio-Formats not addressed by referring to the documentation.

Other places where questions are commonly asked and/or bugs are reported include:

- [OME Trac](#)²
- [ome-devel mailing list](#)³ (searchable using google with 'site:lists.openmicroscopy.org.uk')
- [ome-users mailing list](#)⁴ (searchable using google with 'site:lists.openmicroscopy.org.uk')
- [ImageJ forum](#)⁵ (for ImageJ/Fiji issues)
- [ImageJ mailing list](#)⁶ (and [archive](#)⁷)
- [Fiji GitHub Issues](#)⁸
- [Confocal microscopy mailing list](#)⁹

¹<http://www.openmicroscopy.org/site/community/mailing-lists>

²<https://trac.openmicroscopy.org/ome>

³<http://lists.openmicroscopy.org.uk/pipermail/ome-devel>

⁴<http://lists.openmicroscopy.org.uk/pipermail/ome-users>

⁵<http://forum.imagej.net>

⁶<http://imagej.nih.gov/ij/list.html>

⁷<http://imagej.1557.n6.nabble.com/>

⁸<https://github.com/fiji/fiji/issues>

⁹<http://lists.umn.edu/cgi-bin/wa?A0=confocalmicroscopy>

BIO-FORMATS VERSIONS

Bio-Formats is now decoupled from OMERO with its own release schedule rather than being updated whenever a new version of OMERO¹ is released. We expect this to result in more frequent releases to get fixes out to the community faster.

See the *version history* for a list of major changes in each release.

2.1 Versioning policy

Bio-Formats does not yet conform to *strict semantic versioning*². The following set of rules describe the current policy (using RFC 2119³):

- The version number **MUST** take the form X.Y.Z where X, Y, and Z are non-negative integers, and **MUST NOT** contain leading zeroes. X is the major version, Y is the minor version and Z is the patch version.
- The patch version Z **MUST** be incremented if only backwards compatible bug fixes are introduced. A bug fix is defined as an internal change that fixes incorrect behavior.
- Either the minor version Y or the major version X **MUST** be incremented when backwards-incompatible changes (model-breaking API) are introduced to the public API. These version increases **MAY** also include patch level changes.
- Either the minor version or the major version **MUST** be incremented if the version of a non-OME/external dependency is updated.

The exception to this policy is serialization. Serialization functionality was implemented as a ReaderWrapper called Memoizer in Bio-Formats 5.0.0 and is exposed to the community via a public API. Currently:

- Major/minor/patch version bumps of Bio-Formats are not backwards-compatible with regard to serialization in that cached memo files written with a previous version may not be readable by later versions and may need to be rewritten.
- Consumers with code relying on Bio-Formats caching stability should not upgrade their Bio-Formats version for now.
- Changes breaking the serialization should be grouped together as much as possible in order to minimize the number of breakages per series.

See [this GitHub issue](#)⁴ for further details.

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

²<http://semver.org>

³<https://www.ietf.org/rfc/rfc2119.txt>

⁴<https://github.com/openmicroscopy/design/issues/55>

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.

4.1 Reporting a bug

4.1.1 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-Formats](#)⁶. If you are not sure which version you need, select the latest build of the Bio-Formats package bundle from the components table.

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>

⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

4.1.2 Common issues to check

- If your 12, 14 or 16-bit images look all black when you open them, typically the problem is 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. In ImageJ/Fiji, this is fixable by checking the “Autoscale” option; with the command line tools, the “-autoscale -fast” options should work.
- 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](#)⁷. The ‘file’ command should tell you:

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

- If you get an `OutOfMemory` or `NegativeArraySize` error message when attempting to open an SVS or JPEG-2000 file then the amount of pixel data in a single image plane exceeds the amount of memory allocated to the JVM (Java Virtual Machine) or 2 GB, respectively. For the former, you can increase the amount of memory allocated; in the latter case, you will need to open the image in sections. If you are using Bio-Formats as a library, this means using the `openBytes(int, int, int, int, int)` method in `loci.formats.IFormatReader`. If you are using Bio-Formats within ImageJ, you can use the *Crop on import* option.

Note that JPEG-2000 is a very efficient compression algorithm - thus the size of the file on disk will be substantially smaller than the amount of memory required to store the uncompressed pixel data. It is not uncommon for a JPEG-2000 or SVS file to occupy less than 200 MB on disk, and yet have over 2 GB of uncompressed pixel data.

4.1.3 Sending a bug report

If you can still reproduce the bug after updating to the latest version of Bio-Formats, and your issue does not relate to anything listed above or noted on the relevant file format page, please send a bug report to the [OME Users mailing list](#)⁸. You can upload files to our [QA system](#)⁹ 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.

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

4.2 Version history

4.2.1 5.2.3 (2016 October 5)

Java bug fixes:

- **CZI**

⁷http://en.wikipedia.org/wiki/Resource_fork#The_Macintosh_file_system

⁸<http://lists.openmicroscopy.org.uk/mailman/listinfo/ome-users>

⁹<http://qa.openmicroscopy.org.uk/qa/upload/>

- fixed imageCount for RGB images
- **ICS writing**
 - fixed ordering of image dimensions
- **DeltaVision**
 - fixed reading of large time dimensions

Command-line tools improvements:

- `bftools.zip` now includes the version history as `NEWS.rst` (thanks to Gerhard Burger)

Code clean-up/improvements:

- switched to `String.indexOf(int)` in GPL-licensed reader code so that a simpler library method can be used
- strings now extended with characters where possible
- completed deprecation of `DataTools.sanitizeDouble()`
- deprecated unused OSGi and ome-tools bundle build targets

OME-XML changes/improvements:

- bumped schema version number to 2 (schema namespace left unchanged)
- added acquisition modes *BrightField*, *SweptFieldConfocal* and *SPIM*
- added parsing for Laser Scan Confocal and Swept Field Confocal

Documentation improvements:

- documented versioning policy
- clarified supported versions for Micro-Manager and Olympus ScanR files

4.2.2 5.2.2 (2016 September 13)

Java bug fixes and improvements:

- fixed a regression in which the DataTools number parsing API would not be thread-safe anymore
- **InCell**
 - improved handling of Analyzer 2000 datasets to find TIFF files
- **FV1000**
 - fixed preview names ordering
- **OME-TIFF**
 - enabled all BigTIFF extensions

- various code cleanup across the Java code
- added test coverage for all example codes in the developer documentations
- added tests covering the semantics of the INI parser

ImageJ bug fixes and improvements:

- fixed a bug in ImageJ when swapping dimensions of an image with multiple series of different dimensions
- added an option to the exporter to pad filename indexes with zeros

Command-line tools improvements:

- allowed the binaries to be symlinked (thanks to Gerhard Burger)
- added an option to `bfconvert` to pad filename indexes with zeros

4.2.3 5.2.1 (2016 August 25)

Java bug fixes:

- **Zeiss CZI**
 - fixed NumberFormatException when the position object is not null but the values of child are null
- **SimplePCI**
 - made IniParser less stringent to allow reading of imperfectly formatted TIFF description headers
- fixed stitching of file patterns in ImageJ to remove duplication of directory names in the file path
- added an option to bfconvert to allow creation of OME-TIFF without lookup tables
- addition of MetadataOnly elements containing no BinData or TiffData now handled via MetadataTools API in ImageInfo
- example code in developer docs is now tested via a new Maven module

4.2.4 5.2.0 (2016 August 18)

Java format support improvements are listed below.

†Denotes a major breaking change to the reader (typically modification of core metadata). Code changes or re-import may be necessary in ImageJ/FIJI and OMERO.

- added support (and public sample files) for *Becker & Hickl .spc FIFO* data
- added support for *Princeton Instruments .spe* data
- **bug fixes for many formats including:**
 - **CellSens VSI†**
 - * fixes for correctly reading dimensions
 - **FlowSight**
 - * fixes to infer channel count from channel names (thanks to Lee Kamentsky)
 - **Hamamatsu VMS†**
 - * fixed dimensions of full-resolution images
 - **ICS writing**
 - * fixed dimension population for split files
 - **Kodak BIP**
 - * fixed handling of CCD temperature stored in hexadecimal
 - **Leica LIF**
 - * fixed incorrect plane offsets for large multi-tile files
 - **LiFlim**
 - * fixed ExposureTime check and units usage
 - **Micro-Manager**
 - * fixed handling of large datasets saved as image stacks and split over multiple files
 - * added user documentation for file saving options
 - **MRC and Spider**
 - * fixed format type checking
 - **Nifti**
 - * fixed planeSize to prevent crashes when loading large files (thanks to Christian Niedworok)
 - * added support for gzipped compressed .nii.gz files (thanks to Eric Barnhill)

- * added public samples and updated documented supported file extensions
- **OME-TIFF**
 - * fixed `Plane` population errors
 - * fixed `NullPointerException` when closing reader for partial multi-file filesets
 - * reduced buffer size for `RandomAccessInputStreams` to improve performance
 - * deprecated `getMetadataStoreForConversion` and `getMetadataStoreForDisplay` methods
- **OME-XML**
 - * fixed metadata store
- **PicoQuant**
 - * updated reader to always buffer data
- PNG writing
- **SDT**
 - * performance improvements for loading of large files
- **Slidebook**
 - * `Slidebook6Reader` is now completely external and fully maintained by 3i (see <http://www.openmicroscopy.org/info/slidebook>) and is specified as such in the `readers.txt` configuration file
- **SVS**
 - * fixed `NumberFormatException`
- **Tiff**
 - * fixed integer overflow to read resolutions correctly
 - * fixed handling of tiled images with tile width less than 64
- **Zeiss CZI**
 - * fixed timestamp indexing when multiple separate channels are present
 - * improved slide support - slides are now detected as a complete full-resolution image (instead of each tile being a separate series) and pyramid sub-resolutions and label/overview images are also detected
- **Zeiss LSM**
 - * fixed `Plane` population errors
- **Zeiss ZVI†**
 - * reworked image ordering calculation to allow for tiles

Top-level Bio-Formats API changes:

- Java 1.7 is now the minimum supported version
- the native-lib-loader dependency has been bumped to version 2.1.4
- the xalan dependency has been bumped to version 2.7.2
- all the `ome.jxr` classes have been deprecated to make clear that there is no JPEG-XR support implemented in Bio-Formats as yet
- **the DataTools API has been extended to add a number of utility functions to:**
 - account for decimal separators in different locales
 - parse a `String` into `Double`, `Float`, `Integer` etc
 - handle `NumberFormatException` thrown when parsing `Unit` tests

- the Logging API has been updated to respect logging frameworks (log4j/logback) initialized via a binding-specific configuration file and to prevent `DebugTools.enableLogging(String)` from overriding initialized logger levels (see [Logging](#) for more information)
- helper methods have been added to `FormatTools` allowing a stage position to be formatted from an input `Double` and an input unit
- the Formats API has also been updated to add a new `validate` property to `MetadataOptions` and support for `MetadataOptions` has been moved to `FormatHandler` level to allow it to be used by both `Readers` and `Writers`
- initial work on [Reader discoverability](#)¹⁰ extended the `ClassList` API to allow the `readers.txt` configuration file to be annotated using key/value pairs to mark optional `Readers` and specify additional per-`Reader` options

Other general improvements include:

- improved performance of `getUsedFiles`
- fixes for `FilePatternBlock`, `AxisGuesser`, `FilePattern`
- fixes for the detection of CSV pattern blocks by `FilePatternBlock`
- `bioformats_package.jar` now includes `bio-formats-tools` as a dependency so `ImageConverter`, `ImageFaker` and `ImageInfo` classes are included in the bundle
- the JACE C++ implementation has been decoupled as it does not function with Java 1.8 (see [legacy repo](#)¹¹)
- **ImageJ fixes**
 - to allow reader delegation when a legacy reader is enabled but not working
 - to allow ROIs to be imported to the ImageJ ROI manager or added to a new overlay
- **MATLAB fixes**
 - improved integration with Octave (thanks to Carnë Draug)
 - added logging initialization
- **Command-line tools fixes**
 - upgrade check no longer run when passing `-version`
 - common methods refactoring
 - `showinf` improvements to preload format
 - `tiffcomment` now warns that it requires an `ImageDescription` tag to be present in the TIFF file
- added many automated tests and improved `FakeReader` testing framework
- **documentation improvements include:**
 - clarifying status of legacy Quicktime and ND2 readers
 - noting that the Gatan reader does not currently support stacks
 - more Java examples added to the developer documentation
 - new units page for developers

The Data Model version 2016-06 has been released to introduce [Folders](#)¹², and to simplify both the graphical aspects of the model and code generation. Full details are available in the [OME Model and Formats Documentation](#)¹³. OME-XML changes include:

- `Map` is now a `complexType` rather than an element and `MapPairs` has been dropped
- extended enum metadata has been introduced to better support units
- `Shape` and `LightSource` are now `complexType`s rather than elements
- `BinData` has been added to code generation to handle raw binary data
- **various code generation improvements to:**

¹⁰<https://github.com/openmicroscopy/design/issues/42>

¹¹<https://github.com/ome/bio-formats-jace>

¹²<http://blog.openmicroscopy.org/data-model/future-plans/2016/05/23/folders-upcoming/>

¹³<http://www.openmicroscopy.org/site/support/ome-model/schemas/june-2016.html>

- simplify and standardize the generation process
- remove a number of hard-coded exceptional cases allowing for easier maintenance and growth
- allow for genuine abstract model types and enable C++ model implementation
- updated OME-XML and OME-TIFF public sample files

The Bio-Formats C++ native implementation has been decoupled from the Java codebase and will be released as [OME-Files C++](#)¹⁴ from now on, with the exception of OME-XML which is still within Bio-Formats at present (there is a plan to decouple both the Java and the C++ versions of OME-XML in future).

The following components have had their licensing updated to Simplified (2-clause) BSD:

- XSL transforms
- specification code
- xsd-fu Python code

4.2.5 5.1.10 (2016 May 9)

Java bug fixes:

- fixed warnings being thrown for ImageJ and other non-FIJI users on Windows (these warnings were triggered by the removal of the 3i Slidebook DLLs from the source code repository in Bio-Formats 5.1.9 and should now only be triggered when opening Slidebook files without the update site enabled - <http://www.openmicroscopy.org/info/slidebook>)
- a fix in the ImageJ plugin for files grouped using the “Dimensions” option
- a fix for writing TIFF files in tiles

4.2.6 5.1.9 (2016 April 14)

- **Java bug fixes, including:**
 - **SDT**
 - * fixed width padding calculation for single-pixel image
 - **Deltavision**
 - * fixed the parsing of the new date format
 - * added support for parsing and storing the working distance in native units
 - **Micromanager**
 - * cleaned up JSON metadata parsing
 - **Olympus Fluoview**
 - * fixed null pointer exceptions while parsing metadata
 - **Leica LIF**
 - * fixed large multi-tiled files from having incorrect plane offsets after the 2GB mark
 - **EM formats (MRC and Spider)**
 - * added native length support for EM readers
 - **Gatan**
 - * fixed erroneous metadata parsing
 - * added support for parsing and storing the physical sizes in native units
 - **OME-TIFF**
 - * improved handling of OME-TIFF multi-file fileset’s with partial metadata blocks

¹⁴<http://downloads.openmicroscopy.org/ome-files-cpp/>

- **Nikon ND2**
 - * fixed the parsing of emission wavelength
- **Olympus CellR (APL)**
 - * fixed multiple parsing issues with the mtb file
- **SlideBook**
 - * removed slidebook dlls from Bio-Formats repository
 - * <http://www.openmicroscopy.org/info/slidebook>
- **Zeiss CZI**
 - * fixed parsing of files with multiple mosaics and positions
- **Documentation updates, including:**
 - improved documentation for the export of BigTIFFs in ImageJ
- **C++:**
 - no changes.

4.2.7 5.1.8 (2016 February 15)

- **Java bug fixes, including:**
 - **FEI TIFF**
 - * fixed stage position parsing and whitespace handling (thanks to Antoine Vandecreme)
 - **Pyramid TIFF**
 - * fixed tile reading when a cache (.bfmemo) file is present
 - **MicroManager**
 - * updated to parse JSON data from tags 50839 and 51123
 - * fixed to detect *_metadata.txt files in addition to metadata.txt files
 - * fixed to handle datasets with each stack in a single file
 - **OME-XML**
 - * updated to make .ome.xml an official extension
 - **OME-TIFF**
 - * fixed to ignore invalid BinaryOnly elements
 - **TIFF**
 - * fixed caching of BigTIFF files
 - **Slidebook**
 - * fixed handling of montages in Slidebook6Reader (thanks to Richard Myers)
 - Performance improvement for writing files to disk (thanks to Stephane Dallongeville)
 - **Build system**
 - * fixed Maven POMs to reduce calls to artifacts.openmicroscopy.org
 - * fixed bioformats_package.jar to include the loci.formats.tools package
- **Documentation updates, including:**
 - updated format pages to include links to example data
 - clarified description of Qu for MATLAB (thanks to Carnë Draug)
 - added installation instructions for Octave (thanks to Carnë Draug)

- **C++:**
 - Bugfixes to the OME-TIFF writer to correct use of the metadata store with multiple series
 - Ensure file and writer state consistency upon close failure

4.2.8 5.1.7 (2015 December 7)

- **Java bug fixes, including:**
 - Prevent physical pixel sizes from being rounded to 0, for all formats
 - **Metamorph**
 - * fixed calculation of Z step size
 - * fixed detection of post-processed dual camera acquisitions (thanks to Mark Kittisopikul)
 - **OME-XML**
 - * fixed XML validation when an ‘xmlns’ value is not present (thanks to Bjoern Thiel)
 - **MINC**
 - * fixed endianness of image data
 - **Andor/Fluoview TIFF**
 - * fixed calculation of Z step size
 - **MATLAB**
 - * improved performance by reducing static classpath checks (thanks to Mark Kittisopikul)
 - **Gatan**
 - * fixed physical size parsing in non-English locales
 - **Automated testing**
 - * fixed handling of non-default physical size and plane position units
- **Documentation updates, including:**
 - updated MapAnnotation example to show linkage of annotations to images
- **C++:**
 - no changes, released to keep version numbers in sync with Bio-Formats Java

4.2.9 5.1.6 (2015 November 16)

- **Java bug fixes, including:**
 - **Updated to use native units for following formats:**
 - * IMOD
 - * Analyze
 - * Unisoku
 - * Olympus CellR (APL)
 - **Metamorph TIFF**
 - * fixed handling of multi-line descriptions
 - * added support for dual camera acquisitions
 - **Zeiss LMS**
 - * fixed exception in type detection
 - **Zeiss CZI**

- * fixed detection of line scan Airyscan data
- **Slidebook**
 - * fixed calculation of physical Z size
- **ImageJ plugins**
 - * fixed handling of non-default units
 - * fixed setting of preferences via macros
- **Automated testing**
 - * fixed handling of non-default units for physical sizes and timings
- **C++ changes, including:**
 - allow relocatable installation on Windows
 - reduce time required for debug builds
- **Documentation updates, including:**
 - addition of “Multiple Images” column to the supported formats table
 - addition of a MapAnnotation example

4.2.10 5.1.5 (2015 October 12)

- **Java bug fixes, including:**
 - **ImageJ plugins**
 - * fixed use of “Group files...” and “Open files individually” options
 - * fixed placement of ROIs
 - * fixed size of the “About Plugins > Bio-Formats Plugins” window
 - **xsd-fu (code generation)**
 - * removed OMERO-specific logic
 - **Metamorph**
 - * fixed physical Z size calculation
 - **Gatan DM3/DM4**
 - * fixed physical pixel size parsing
 - **BMP**
 - * added support for RLE compression
 - **DICOM**
 - * updated to respect the WINDOW_CENTER tag
 - * fixed image dimensions when multiple sets of width and height values are present
 - **Fluoview and Andor TIFF**
 - * fixed physical Z size calculation
 - **Inspector OBF**
 - * updated to parse OME-XML metadata (thanks to Bjoern Thiel)
- **C++ changes:**
 - TIFF strip/tile row and column calculations corrected to compute the correct row and column count
 - Several compiler warnings removed (false positive warnings in third-party headers disabled, and additional warnings fixed)
 - It is now possible to build with Boost 1.59 and compile with a C++14 compiler

- The source release is now provided in both tar.xz and zip formats
- **Documentation updates, including:**
 - **substantial updates to the format pages**
 - * improved linking of reader/writer classes to each format page
 - * improved supported metadata pages for each format
 - * updated format page formatting for clarity
 - * added developer documentation for adding and modifying format pages

4.2.11 5.1.4 (2015 September 7)

- **Bug fixes, including:**
 - **Command line tools**
 - * fixed display of usage information
 - **Automated testing**
 - * fixed problems with symlinked data on Windows
 - * added unit tests for checking physical pixel size creation
 - **Cellomics**
 - * fixed reading of sparse plates
 - **SlideBook**
 - * fixed a few lingering issues with native library packaging
 - **SimplePCI/HCImage TIFF**
 - * fixed bit depth parsing for files from newer versions of HCImage
 - **SimplePCI/HCImage .cxd**
 - * fixed image dimensions to allow for extra padding bytes
 - **Leica LIF**
 - * improved reading of image descriptions
 - **ICS**
 - * fixed to use correct units for timestamps and physical pixel sizes
 - **MicroManager**
 - * fixed to use correct units for timestamps
 - **Gatan .dm3/.dm4**
 - * fixed problems with reading double-precision metadata values
 - **Hamamatsu NDPI**
 - * fixed reading of mask images
 - **Leica .Jei**
 - * fixed reading of bit depth and endianness for datasets that were modified after acquisition
 - **FEI TIFF**
 - * updated to read metadata from files produced by FEI Titan systems
 - **QuickTime**
 - * fixed to handle planes with no stored pixels
 - **Leica .scn**

- * fixed reading of files that contain fewer images than expected
- **Zeiss .czi**
 - * fixed channel colors when an alpha value is not recorded
 - * fixed handling of pre-stitched image tiles
- **SDT**
 - * added support for Zip-compressed images
- **Nikon .nd2**
 - * fixed to read image dimensions from new non-XML metadata
- **OME-XML**
 - * fixed writing of integer metadata values
- **Native C++ updates:**
 - completed support for building on Windows
- **Documentation updates, including:**
 - updated instructions for running automated data tests
 - clarified JVM versions currently supported

4.2.12 5.1.3 (2015 July 21)

- **Native C++ updates:**
 - Added cmake superbuild to build core dependencies (zlib, bzip2, png, icu, xerces, boost)
 - Progress on support for Windows
- **Bug fixes, including:**
 - Fixed segfault in the *showinf* tool used with the C++ bindings
 - Allow reading from https URLs
 - **ImageJ**
 - * improved performance of displaying ROIs
 - **Command line tools**
 - * fixed bfconvert to correctly create datasets with multiple files
 - **Metamorph**
 - * improved detection of time series
 - * fixed .nd datasets with variable Z and T counts in each channel
 - * fixed .nd datasets that contain invalid TIFF/STK files
 - * fixed dimensions when the number of planes does not match the recorded Z, C, and T sizes
 - **SlideBook**
 - * improved native library detection (thanks to Richard Myers)
 - **JPEG**
 - * fixed decompression of lossless files with multiple channels (thanks to Aaron Avery)
 - **Inspector OBF**
 - * updated to support version 2 files (thanks to Bjoern Thiel)
 - **Inspector MSR**
 - * improved detection of Z stacks

- **PerkinElmer Opera Flex**
 - * improved handling of multiple acquisitions of the same plate
- **Zeiss CZI**
 - * fixed error when opening single-file datasets whose names contained “(” and ”)”
- **TIFF**
 - * improved speed of reading files with many tiles
- **AVI**
 - * updated to read frame index (idx1) tables
- **Nikon ND2**
 - * fixed channel counts for files with more than 3 channels
- **PNG**
 - * fixed decoding of interlaced images with a width or height that is not a multiple of 8
- **PSD**
 - * improved reading of compressed images
- **Documentation improvements, including:**
 - updated instructions for writing a new file format reader
 - updated usage information for command line tools
 - new Javadocs for the *MetadataStore* and *MetadataRetrieve* interfaces

4.2.13 5.1.2 (2015 May 28)

- Added OME-TIFF writing support to the native C++ implementation
- OME-TIFF export: switch to BigTIFF if .ome.tf2, .ome.tf8, or .ome.btf extensions are used
- Improved MATLAB developer documentation
- Added SlideBook reader that uses the SDK from 3I (thanks to Richard Myers and 3I - Intelligent Imaging Innovations¹⁵)
- Preliminary work to make MATLAB toolbox work with Octave
- **Many bug fixes, including:**
 - **ImageJ**
 - * fixed regression in `getPlanePosition*` macro extension methods
 - * fixed display of composite color virtual stacks
 - **Nikon ND2**
 - * improved parsing of plane position and timestamp data
 - **TIFF**
 - * reduced memory required to read color lookup tables
 - **Zeiss LSM**
 - * improved parsing of 16-bit color lookup tables
 - **Zeiss CZI**
 - * fixed ordering of original metadata table
 - * fixed reading of large pre-stitched tiled images
 - **AIM**

¹⁵<https://www.intelligent-imaging.com>

- * fixed handling of truncated files
- **Metamorph/MetaXpress TIFF**
 - * improved UIC1 metadata tag parsing

4.2.14 5.1.1 (2015 April 28)

- Add TIFF writing support to the native C++ implementation
- Fixed remaining functional differences between Windows and Mac/Linux
- Improved performance of ImageJ plugin when working with ROIs
- TIFF export: switch to BigTIFF if .tf2, .tf8, or .btf extensions are used
- **Many bug fixes, including:**
 - fixed upgrade checking to more accurately report when a new version is available
 - **Zeiss CZI**
 - * fixed ordering of multiposition data
 - * improved support for RGB and fused images
 - **Nikon ND2**
 - * improved ordering of multiposition data
 - **Leica LIF**
 - * improved metadata validity checks
 - * improved excitation wavelength detection
 - **Metamorph STK/TIFF**
 - * record lens numerical aperture
 - * fixed millisecond values in timestamps
 - **Gatan DM3**
 - * correctly detect signed pixel data
 - **Imaris HDF**
 - * fix channel count detection
 - **ICS export**
 - * fix writing of files larger than 2GB

4.2.15 5.1.0 (2015 April 2)

- Improvements to performance with network file systems
- Improvements to developer documentation
- Initial version of *native C++ implementation*¹⁶
- Improved support for opening and saving ROI data with ImageJ
- Added support for *CellH5* data (thanks to Christoph Sommer)
- Added support for *Perkin Elmer Nuance* data (thanks to Lee Kamentsky)
- Added support for *Amnis FlowSight* data (thanks to Lee Kamentsky and Sebastien Simard)
- Added support for *Veeco AFM* data
- Added support for *Zeiss .lms* data (not to be confused with .lsm)

¹⁶<http://www.openmicroscopy.org/site/support/bio-formats5.1/developers/cpp/overview.html>

- Added support for *I2I* data
- Added support for writing Vaa3D data (thanks to Brian Long)
- Updated to [OME schema 2015-01](http://www.openmicroscopy.org/site/support/ome-model/schemas/january-2015.html)¹⁷
- Update RandomAccessInputStream and RandomAccessOutputStream to read and write bits
- **Many bug fixes, including:**
 - **Leica SCN**
 - * fix pixel data decompression
 - * fix handling of files with multiple channels
 - * parse magnification and physical pixel size data
 - **Olympus/CellSens .vsi**
 - * more thorough parsing of metadata
 - * improved reading of thumbnails and multi-resolution images
 - **NDPI**
 - * fix reading of files larger than 4GB
 - * parse magnification data
 - **Zeiss CZI**
 - * improve parsing of plane position coordinates
 - **Inveon**
 - * fix reading of files larger than 2 GB
 - **Nikon ND2**
 - * many improvements to dimension detection
 - * many improvements to metadata parsing accuracy
 - * update original metadata table to include PFS data
 - **Gatan DM3**
 - * fix encoding when parsing metadata
 - * fix physical pixel size parsing
 - **Metamorph**
 - * fix off-by-one in metadata parsing
 - * fix number parsing to be independent of the system locale
 - **JPEG**
 - * parse EXIF data, if present (thanks to Paul Van Schayck)
 - **OME-XML/OME-TIFF**
 - * fix handling of missing image data
 - **PrairieView**
 - * improved support for version 5.2 data (thanks to Curtis Rueden)
 - **DICOM**
 - * fix dimensions for multi-file datasets
 - * fix pixel data decoding for files with multiple images
 - **PNG**
 - * reduce memory required to read large images

¹⁷<http://www.openmicroscopy.org/site/support/ome-model/schemas/january-2015.html>

- **Inspector OBF**
 - * fix support for version 5 data (thanks to Bjoern Thiel)
- **PCORAW**
 - * fix reading of files larger than 4 GB
- **AIM**
 - * fix reading of files larger than 4 GB
- **MRC**
 - * add support for signed 8-bit data
- Fix build errors in MIPAV plugin
- **ImageJ**
 - * fix export from a script/macro
 - * fix windowless export
 - * allow exporting from any open image window
 - * allow the “Group files with similar names” and “Swap dimensions” options to be used from a script/macro
- **bfconvert**
 - * fix writing each channel, Z section, and/or timepoint to a separate file
 - * add options for configuring the tile size to be used when saving images

4.2.16 5.0.8 (2015 February 10)

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

4.2.17 5.0.7 (2015 February 5)

- **Several bug fixes, including:**
 - ND filter parsing for DeltaVision
 - Timepoint count and original metadata parsing for Metamorph
 - Build issues when Genshi or Git are missing
 - LZW image decoding

4.2.18 5.0.6 (2014 November 11)

- **Several bug fixes, including:**
 - Pixel sign for DICOM images
 - Image dimensions for Zeiss CZI and Nikon ND2
 - Support for Leica LIF files produced by LAS AF 4.0 and later

4.2.19 5.0.5 (2014 September 23)

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

4.2.20 5.0.4 (2014 September 3)

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

4.2.21 5.0.3 (2014 August 7)

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

4.2.22 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

4.2.23 5.0.1 (2014 Apr 7)

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

4.2.24 5.0.0 (2014 Feb 25)

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

4.2.25 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 Imspector*
 - *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

4.2.26 5.0.0-beta1 (2013 June 20)

- Updated to 2013-06 OME-XML schema¹⁸
- 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 Imspector*
- **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

4.2.27 4.4.10 (2014 Jan 15)

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

¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

4.2.28 4.4.9 (2013 Oct 16)

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

4.2.29 4.4.8 (2013 May 2)

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

4.2.30 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.

4.2.31 4.4.6 (2013 February 11)

- Many bug fixes
- Further documentation improvements

4.2.32 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

4.2.33 4.4.4 (2012 September 24)

- Many bug fixes

4.2.34 4.4.2 (2012 August 22)

- Security fix for OMERO plugins for ImageJ

4.2.35 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

4.2.36 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

4.2.37 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

4.2.38 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

4.2.39 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

4.2.40 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: <https://trac.openmicroscopy.org>
- 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

4.2.41 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

4.2.42 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

4.2.43 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

4.2.44 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

4.2.45 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

4.2.46 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

4.2.47 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

4.2.48 2008 August 30

- Fixed bugs in many file format readers
- Fixed several bugs with swapping dimensions
- Added support for Olympus CellIR/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

4.2.49 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

4.2.50 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

4.2.51 2008 Feb 12

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

4.2.52 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

4.2.53 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

4.2.54 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

4.2.55 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

4.2.56 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

4.2.57 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

4.2.58 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

4.2.59 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

4.2.60 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

4.2.61 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

4.2.62 2007 July 2

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

4.2.63 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

4.2.64 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

4.2.65 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

4.2.66 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

4.2.67 2007 Mar 16

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

4.2.68 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

4.2.69 2007 Feb 28

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

4.2.70 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

4.2.71 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

4.2.72 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

4.2.73 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

4.2.74 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

4.2.75 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

4.2.76 2006 Oct 31

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

4.2.77 2006 Oct 30

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

4.2.78 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

4.2.79 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

4.2.80 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

4.2.81 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

4.2.82 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 ImageJ wiki.

5.1.3 Upgrading

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

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<https://imagej.nih.gov/ij/index.html>

²http://downloads.openmicroscopy.org/latest/bio-formats5.2/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://imagej.net/Bio-Formats>

⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

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.

5.1.5 Usage tips

- “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 common cause of problems having multiple copies of `bioformats_package.jar` in you ImageJ plugins folder, or a copy of `bioformats_package.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 you downloaded the latest version and whatever error message or odd behavior you are seeing has been reported as fixed, it is worth removing all copies of `bioformats_package.jar` (and `loci_tools.jar` or any other Bio-Formats jars) and download a fresh version.
- The Bio-Formats Exporter plugin's file chooser will automatically add the first listed file extension to the file name if a specific file format is selected in the `Files of Type` box (e.g. `.ome.tif` for OME-TIFF). This can prevent BigTIFF and OME BigTIFF files from being created, as the `.btf` or `.ome.btf` file extension will be overwritten. To ensure that the desired extension is used, select *All files* or *All supported file types* in the `Files of type` box, as an extension will not be automatically added in those cases.

⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/basicMetadata.txt>

⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/planeTimings.txt>

¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/recursiveTiffConvert.txt>

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/bfOpenAsHyperstack.txt>

¹²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/zvi2HyperStack.txt>

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/dvSplitTimePoints.txt>

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/macros/batchTiffConvert.txt>

¹⁵https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/Read_Image.java

¹⁶https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utils/Mass_Importer.java

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. 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*.

The Fiji documentation has been combined with the ImageJ wiki; for further details on Bio-Formats in Fiji, see the [Bio-Formats ImageJ page](#)¹⁸.

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.

Manual upgrade

Manually updating your Fiji installation should not be necessary but if you need to do so, the steps are detailed below. Note that although we assume you will be upgrading to the latest release version, all previous versions of Bio-Formats are available from <http://downloads.openmicroscopy.org/bio-formats/> so you can revert to an earlier version using this guide if you need to.

1. Fiji must first be fully updated
2. Close Fiji
3. Open the Fiji installation folder (typically named ‘Fiji.app’)
4. Remove `bio-formats_plugins.jar` from the ‘plugins’ sub-folder
5. Remove all of the `.jars` from the ‘jars/bio-formats’ sub-folder:
 - `jai_imageio.jar`
 - `formats-gpl.jar`
 - `formats-common.jar`
 - `turbojpeg.jar`
 - `ome-xml.jar`
 - `formats-bsd.jar`
 - `ome-poi.jar`
 - `specification.jar`
 - `mdbtools-java.jar`
 - `metakit.jar`
 - `formats-api.jar`
6. Download `bio-formats_plugins.jar` (from the latest release <http://downloads.openmicroscopy.org/bio-formats/>) and place it in the ‘plugins’ sub-folder
7. Download each of the following (from the latest release <http://downloads.openmicroscopy.org/bio-formats/>) and place them in the ‘jars/bio-formats’ sub-folder:
 - `jai_imageio.jar`
 - `formats-gpl.jar`
 - `formats-common.jar`
 - `turbojpeg.jar`

¹⁷<http://fiji.sc/>

¹⁸<http://imagej.net/Bio-Formats>

- ome-xml.jar
 - formats-bsd.jar
 - ome-poi.jar
 - specification.jar
 - mdbtools-java.jar
 - metakit.jar
 - formats-api.jar
8. To Check Version of Bio-Formats *Select Help > About Plugins > Bio-Formats Plugins...* Check that the version of Bio-Formats matches the freshly downloaded version.
 9. Start Fiji and open any Image file using *Plugins > Bio-Formats > Bio-Formats Importer*

Note: It is vital to perform all of those steps in order; omitting even one will cause a problem. In particular, make sure that the old files are fully removed; it is not sufficient to add the new files to any sub-directory without removing the old files first.

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 140 proprietary life sciences formats and standardizes their acquisition metadata into the common *OME data model*. It will also extract and set basic metadata values such as *spatial calibration*¹⁹ if they are available in the file.
- The **Bio-Formats Exporter** is a plugin for exporting data to disk. It can save to the open *OME-TIFF*²⁰ file format, as well as several movie formats (e.g. QuickTime, AVI) and graphics formats (e.g. PNG, JPEG).
- The **Bio-Formats Remote Importer** is a plugin for importing data from a remote URL. It is likely to be less robust than working with files on disk, so we recommend downloading your data to disk and using the regular Bio-Formats Importer whenever possible.
- The **Bio-Formats Windowless Importer** is a version of the Bio-Formats Importer plugin that runs with the last used settings to avoid any additional dialogs beyond the file chooser. If you always use the same import settings, you may wish to use the windowless importer to save time (Learn more *here*).
- The **Bio-Formats Macro Extensions** plugin prints out the set of commands that can be used to create macro extensions. The commands and the instructions for using them are printed to the ImageJ log window.
- The **Stack Slicer** plugin is a helper plugin used by the Bio-Formats Importer. It can also be used to split a stack across channels, focal planes or time points.
- The **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 updates to the plugins. We recommend you update to the newest Trunk 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.

¹⁹<http://fiji.sc/SpatialCalibration>

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

If you are also using the OMERO plugin for ImageJ, you may find the set-up guide on the new [user help site](http://help.openmicroscopy.org/imagej.html)²¹ useful for getting you started with both plugins at the same time.

Once you [download](http://rsbweb.nih.gov/ij/download.html)²² and install ImageJ, you can install the Bio-Formats plugin by going to the Bio-Formats [download page](http://downloads.openmicroscopy.org/latest/bio-formats5.2/)²³ and saving the **bioformats_package.jar** to the Plugins directory within ImageJ.

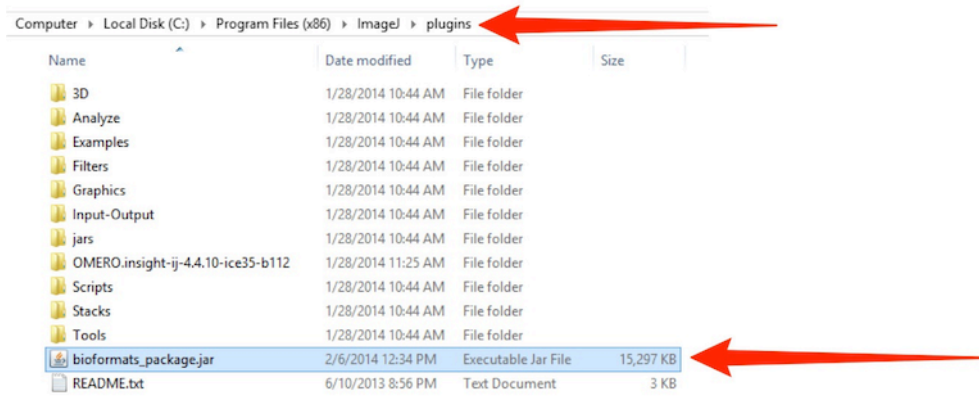
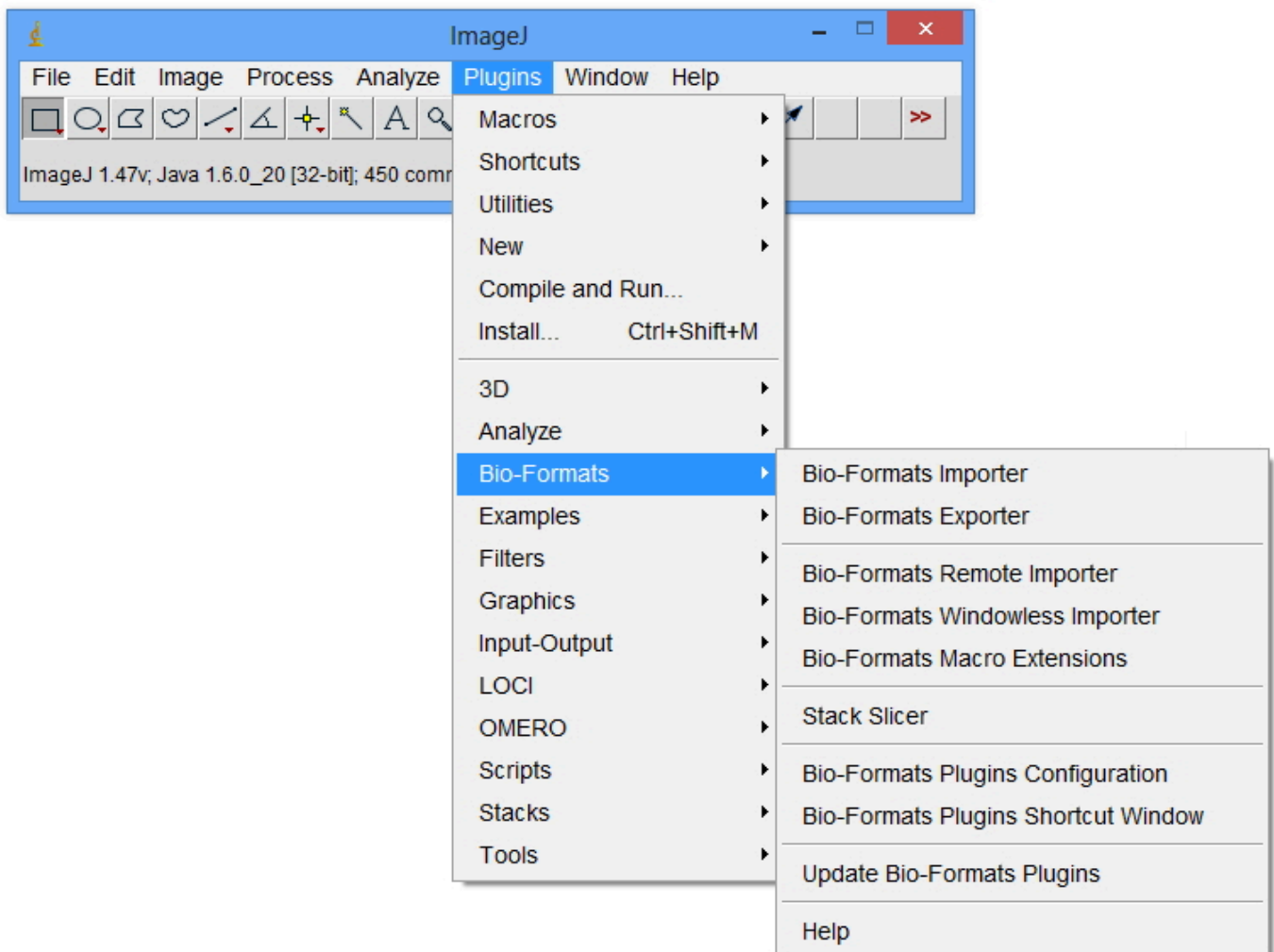


Figure 5.1: Plugin Directory for ImageJ: Where in ImageJ's file structure you should place the file once you downloaded it.

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:



²¹<http://help.openmicroscopy.org/imagej.html>

²²<http://rsbweb.nih.gov/ij/download.html>

²³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

You are now ready to start using Bio-Formats.

5.5 Using Bio-Formats to load images into ImageJ

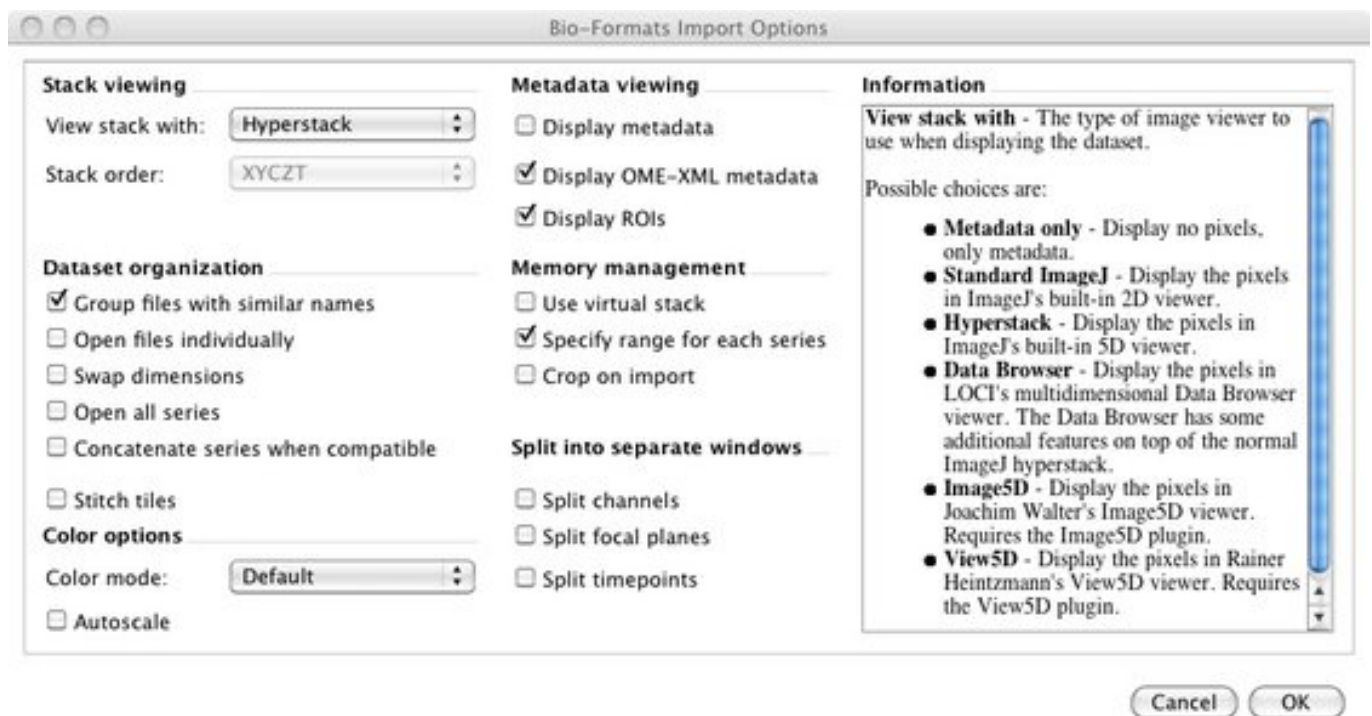
This section will explain how to use Bio-Formats to import files into ImageJ and how to use the settings on the Bio-Formats Import Options screen.

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

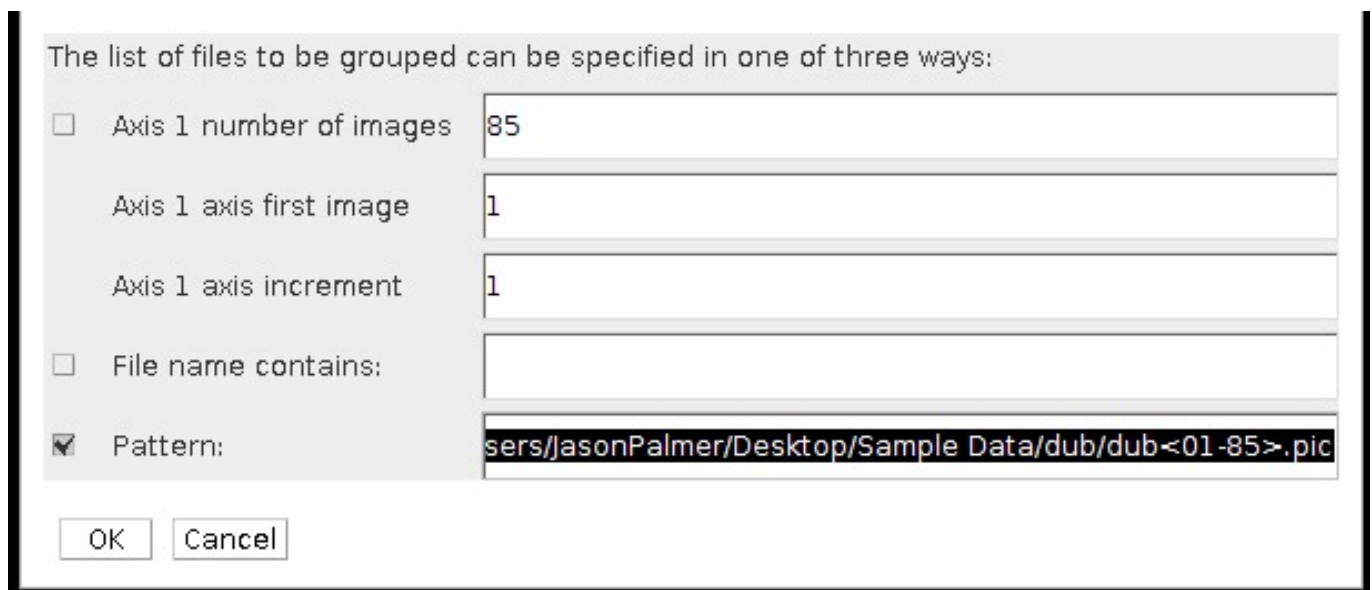
Note: The functionality described below is also available outside ImageJ, by using a pattern file to tell Bio-Formats how to group the files. See *Grouping files using a pattern file* for more information.

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 [dub²⁴](#) data set available under LOCI's [Sample Data²⁵](#) 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 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.

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

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

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

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

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

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

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

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

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

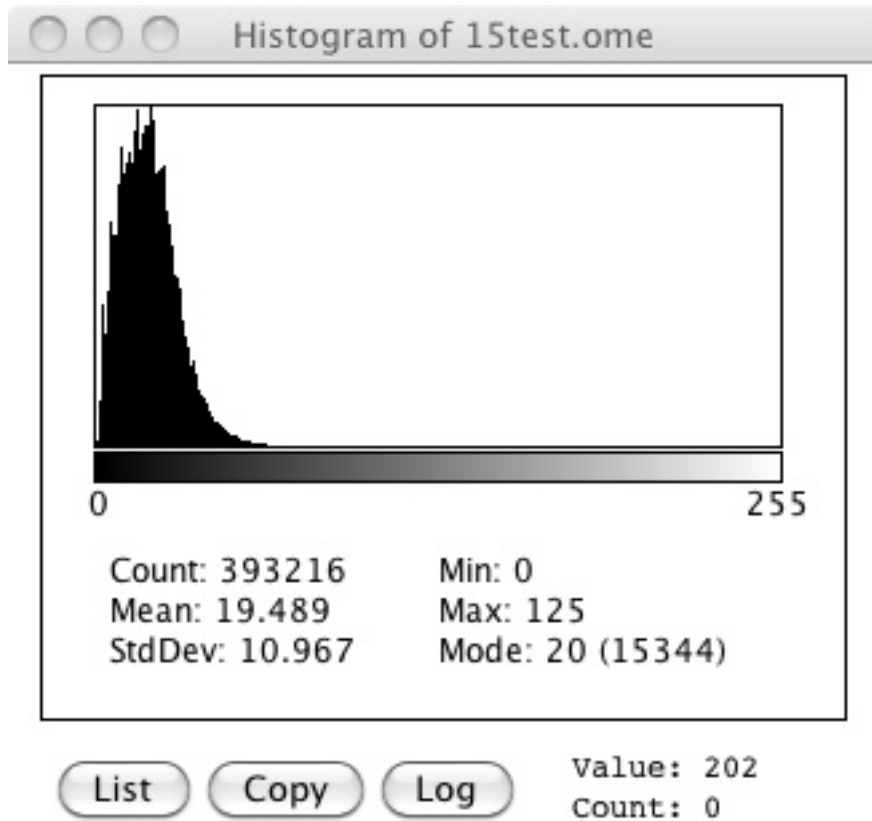
5.5.4 Autoscale

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:

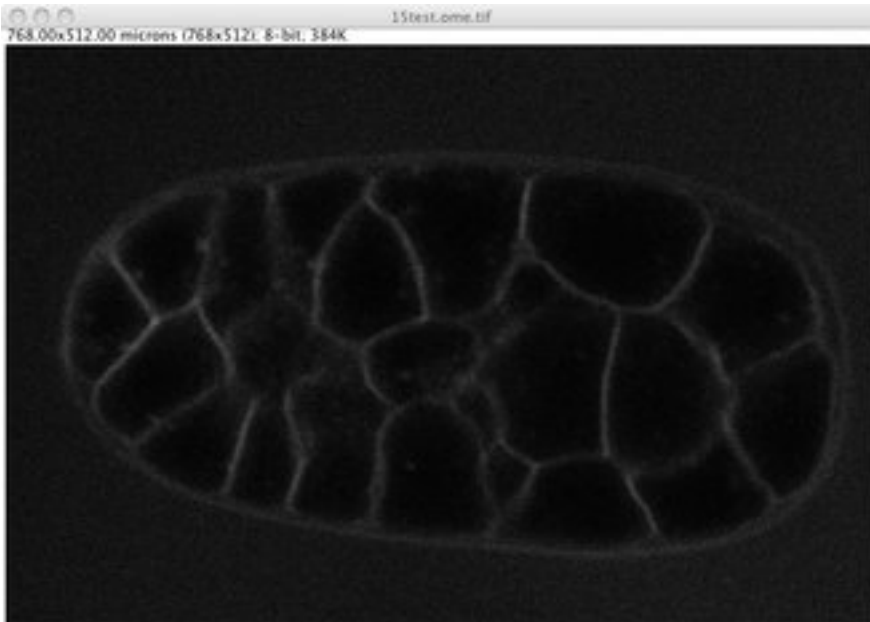
²⁶<http://download.oracle.com/javase/1.5.0/docs/api/java/util/regex/Pattern.html>

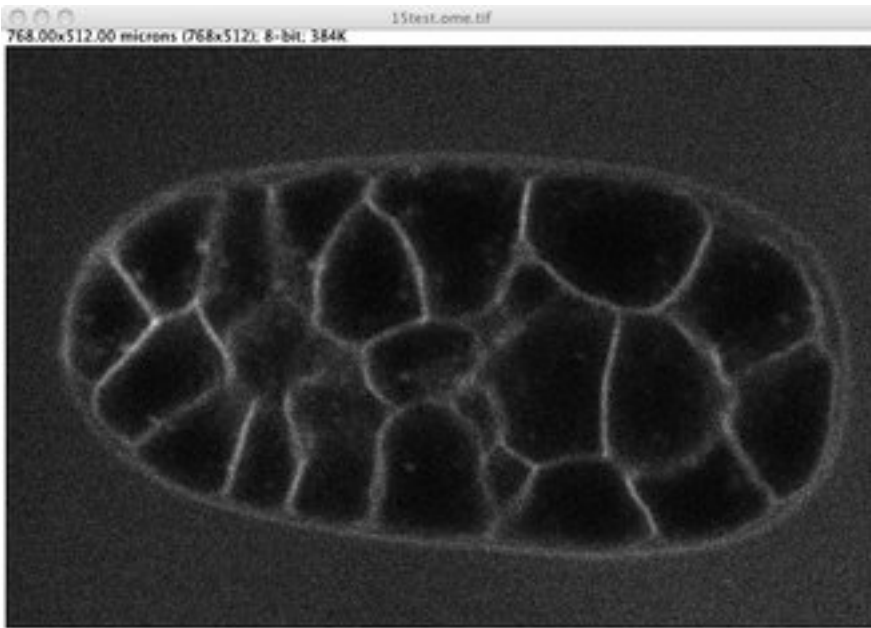


Notice that the histogram heavily skews left. Even though there are 256 possible values, only 0 through 125 are being used.

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:



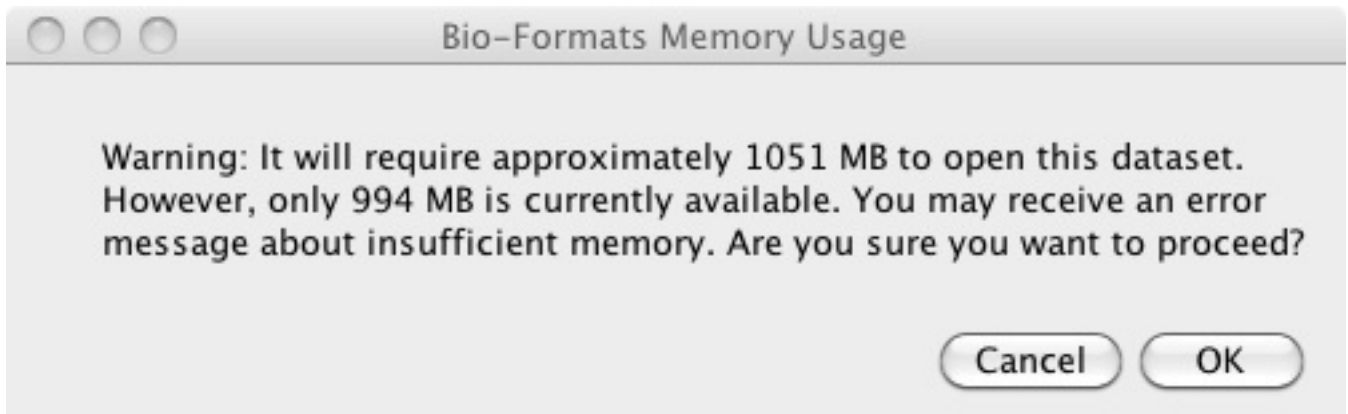


Autoscale readjusts the image based on the highest value in the entire data set. This means if the highest value in your dataset is close to maximum display value, Autoscale's adjusting may be undetectable to the eye.

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:

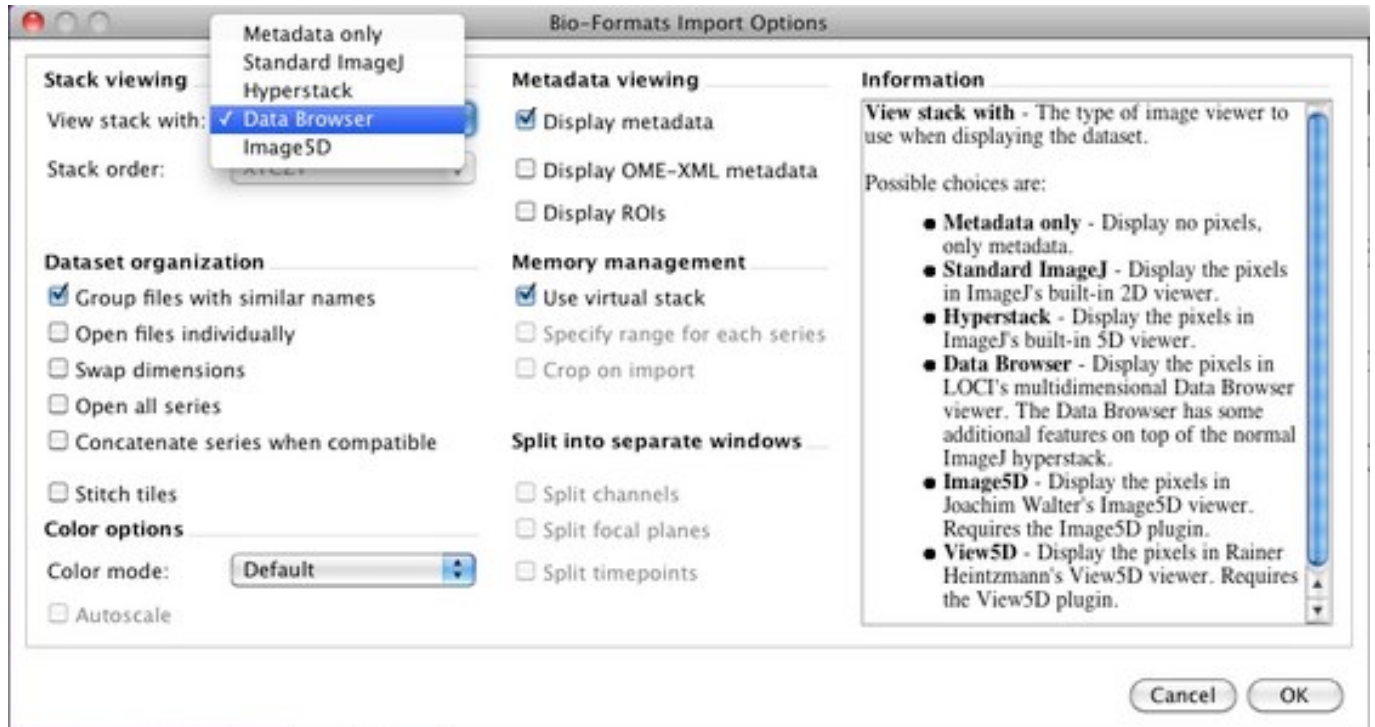
- View your stack with Data Browser
- Crop the view area
- Open only a subset of images
- Use Virtual Stack
- Increase ImageJ/Fiji's memory.

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](http://loci.wisc.edu/software/data-browser)²⁷.

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.

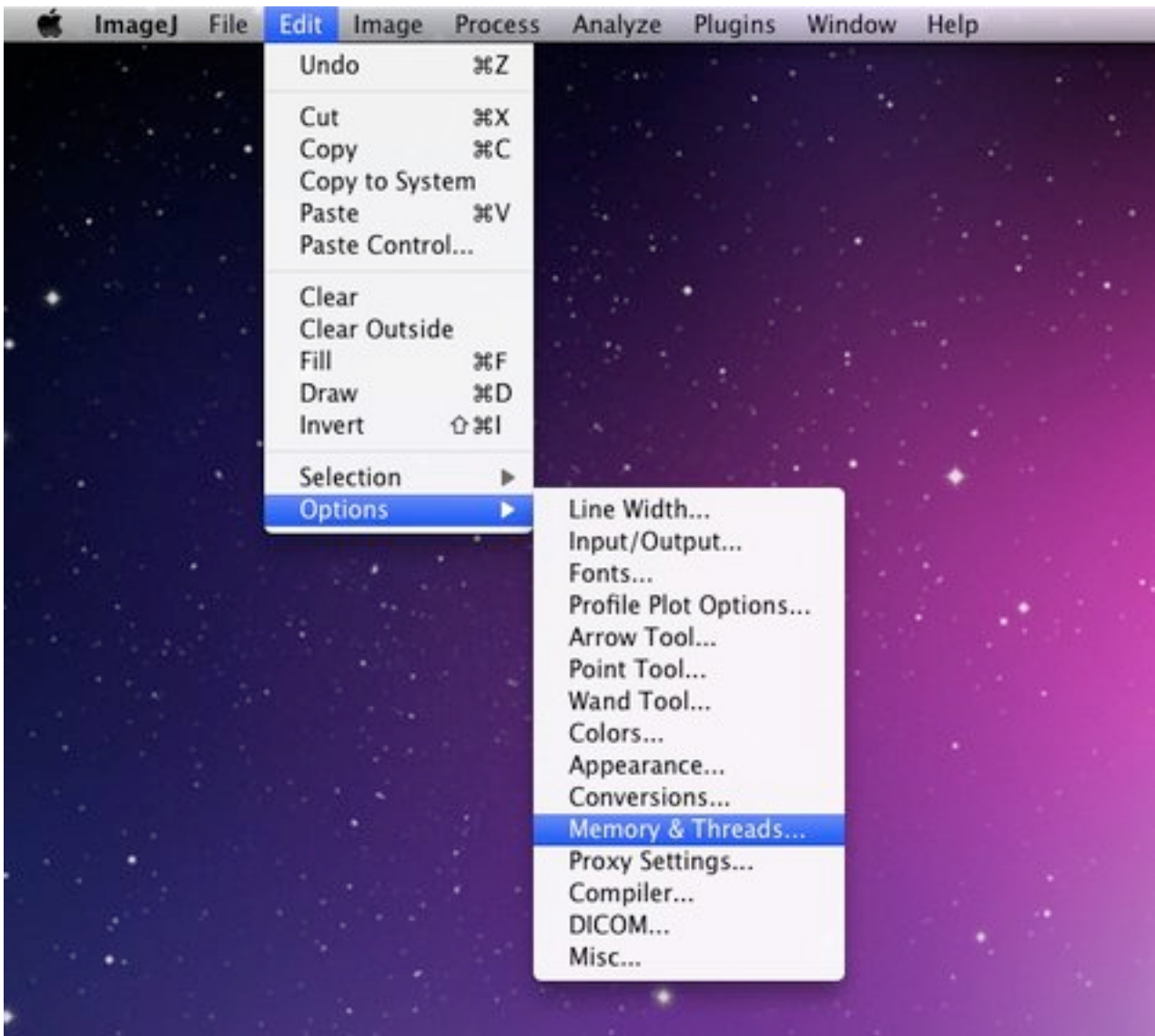
5.6.4 Use Virtual Stack

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.

²⁷<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)²⁸.

²⁸<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. See *Display file in ImageJ* for details.

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. See *List supported file formats* for details.

xmlindent A simple XML prettifier similar to `xmlint -format` but more robust in that it attempts to produce output regardless of syntax errors in the XML. See *Format XML data* for details.

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*).

domainlist Displays a list of imaging domains and the supported formats associated with each domain. See *List formats by domain* for more information.

mkfake Creates a “fake” high-content screen with configurable dimensions. This is useful for testing how HCS metadata is handled, without requiring real image data from an acquired screen. See *Create a high-content screen for testing* for more information.

¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/bftools.zip>

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. 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).

6.1.3 Using the tools directly from source

Firstly, obtain a copy of the sources and build them (see *Obtaining and building Bio-Formats*). You can configure the scripts to use your source tree instead of **bioformats_package.jar** in the same directory by following these steps:

1. Point your CLASSPATH to the checked-out directory and the JAR files in the **jar** folder.
 - E.g. on Windows with Java 1.7 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.

6.1.5 Profiling

For debugging errors or investigating performance issues, it can be useful to use profiling tools while running Bio-Formats. The command-line tools can invoke the `HPROF`² agent library to profile Heap and CPU usage. Setting the `BF_PROFILE` environment variable allows to turn profiling on, e.g.:

```
BF_PROFILE=true showinf -nopix -no-upgrade myfile
```

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
```

²<http://docs.oracle.com/javase/7/docs/technotes/samples/hprof.html>

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.

-series SERIES

Displays a different series, for example the second one:

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

Note that series numbers begin with 0.

-omexml

Displays the OME-XML metadata for a file on the console:

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

-nopix

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

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

-range START END

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.

-crop X, Y, WIDTH, HEIGHT

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.

-no-upgrade

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-upgrade /path/to/file
```

-no-valid

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
```

-no-core

Most output can be suppressed:

```
showinf -nocore /path/to/file
```

-omexml-only

Displays the OME-XML alone:

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

This is particularly helpful when there are hundreds or thousands of series.

-debug

Enables debugging output if more information is needed:

```
showinf -debug /path/to/file
```

-fast

Displays an image as quickly as possible. This is achieved by converting the raw data into a 8 bit RGB image:

```
showinf -fast /path/to/file
```

Note: Due to the data conversion to a RGB image, using this option results in a loss of precision.

-autoscale

Adjusts the display range to the minimum and maximum pixel values:

```
showinf -autoscale /path/to/file
```

Note: This option automatically sets the *-fast* option and suffers from the same limitations.

-cache

Caches the reader under the same directory as the input file after initialization:

```
showinf -cache /path/to/file
```

-cache-dir DIR

Specifies the base directory under which the reader should be cached:

```
showinf -cache-dir /tmp/cachedir /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.

-series SERIES

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
```

-timepoint TIMEPOINT

To convert only one timepoint:

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

-channel CHANNEL

To convert only one channel:

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

-z Z

To convert only one Z section:

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

-range START END

To convert images between certain indices (inclusive):

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

-tilex TILEX, **-tiley** TILEY

All images larger than 4096x4096 will be saved as a set of tiles if the output format supports doing so. The default tile size is determined by the input format, and can be overridden like this:

```
bfconvert -tilex 512 -tiley 512 /path/to/input output-512x512-tiles.tiff
```

-tilex is the width in pixels of each tile; *-tiley* is the height in pixels of each tile. The last row and column of tiles may be slightly smaller if the image width and height are not multiples of the specified tile width and height. Note that specifying *-tilex* and *-tiley* will cause tiles to be written even if the image is smaller than 4096x4096.

Also note that the specified tile size will affect performance. If large amounts of data are being processed, it is a good idea to try converting a single tile with a few different tile sizes using the *-crop* option. This gives an idea of what the most performant size will be.

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).

For large images in particular, it can also be useful to write each tile to a separate file:

```
bfconvert -tilex 512 -tiley 512 /path/to/input output_tile_%x_%y_%m.jpg
```

%x is the row index of the tile, *%y* is the column index of the tile, and *%m* is the overall tile index. As above, all indices begin at 0. Note that if *%x* or *%y* is included in the file name pattern, then the other must be included too. The only exception is if *%m* was also included in the pattern.

-compression COMPRESSION

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
```

-overwrite

If the specified output file already exists, **bfconvert** will prompt to overwrite the file. When running **bfconvert** non-interactively, it may be useful to always allow **bfconvert** to overwrite the output file:

```
bfconvert -overwrite /path/to/input /path/to/output
```

-nooverwrite

To always exit without overwriting:

```
bfconvert -nooverwrite /path/to/input /path/to/output
```

-nolookup

To disable the conversion of lookup tables, leaving the output file without any lookup tables:

```
bfconvert -nolookup /path/to/input /path/to/output
```

New in version 5.2.1.

-bigtiff

This option forces the writing of a BigTiff file:

```
bfconvert -bigtiff /path/to/input output.ome.tiff
```

New in version 5.1.2.

The *-bigtiff* option is not necessary if a BigTiff extension is used for the output file, e.g.:

```
bfconvert /path/to/input output.ome.btf
```

-padded

This option is used alongside a pattern string when writing an image to multiple files. When set this will enforce zero padding on the filename indexes set in the provided pattern string:

```
bfconvert /path/to/input output_xy%sz%zc%ct%t.ome.tif -padded
```

New in version 5.2.2.

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.

Note: The **tiffcomment** tool requires that the *ImageDescription* tag is present in the TIFF file and will error otherwise.

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
```

6.6 List formats by domain

Each supported file format has one or more imaging domains associated with it. To print the list of formats associated with each imaging domain:

```
domainlist
```

The command does not accept any arguments. The known image domains are defined by:

- [ASTRONOMY_DOMAIN](#)³
- [EM_DOMAIN](#)⁴
- [FLIM_DOMAIN](#)⁵
- [GEL_DOMAIN](#)⁶
- [GRAPHICS_DOMAIN](#)⁷
- [HCS_DOMAIN](#)⁸
- [HISTOLOGY_DOMAIN](#)⁹
- [LM_DOMAIN](#)¹⁰
- [MEDICAL_DOMAIN](#)¹¹
- [SEM_DOMAIN](#)¹²
- [SPM_DOMAIN](#)¹³
- [UNKNOWN_DOMAIN](#)¹⁴

6.7 List supported file formats

A detailed list of supported formats can be displayed using the **formatlist** command.

The default behavior is to print a plain-text list of formats:

```
formatlist
```

-txt

Prints the list of formats as plain-text:

```
formatlist -txt
```

-html

Prints the list of formats as HTML:

```
formatlist -html
```

³http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#ASTRONOMY_DOMAIN

⁴http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#EM_DOMAIN

⁵http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#FLIM_DOMAIN

⁶http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#GEL_DOMAIN

⁷http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#GRAPHICS_DOMAIN

⁸http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#HCS_DOMAIN

⁹http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#HISTOLOGY_DOMAIN

¹⁰http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#LM_DOMAIN

¹¹http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#MEDICAL_DOMAIN

¹²http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#SEM_DOMAIN

¹³http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#SPM_DOMAIN

¹⁴http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#UNKNOWN_DOMAIN

-xml

Prints the list of formats as XML:

```
formatlist -xml
```

-help

Displays the usage information:

```
formatlist -help
```

6.8 Display file in ImageJ

Files can be displayed from the command line in ImageJ. The Bio-Formats importer plugin for ImageJ is used to open the file.

The command takes a single argument:

```
ijview /file/to/open
```

If the input file is not specified, ImageJ will show a file chooser window.

The Bio-Formats import options window will then appear, after which the image(s) will be displayed.

If the *BF_DEVEL* environment variable is set, the ImageJ `jar <jars/ij.jar>` must be included in the classpath.

6.9 Format XML data

The **xmlindent** command formats and adds indenting to XML so that it is easier to read. Indenting is currently set to 3 spaces.

If an XML file name is not specified, the XML to indent will be read from standard output. Otherwise, one or more file names can be specified:

```
xmlindent /path/to/xml
xmlindent /path/to/first-xml /path/to/second-xml
```

The formatted XML from each file will be printed in the order in which the files were specified.

By default, extra whitespace may be added to CDATA elements. To preserve the contents of CDATA elements:

```
xmlindent -valid /path/to/xml
```

6.10 Create a high-content screen for testing

The **mkfake** command creates a high-content screen for testing. The image data will be meaningless, but it allows testing of screen, plate, and well metadata without having to find appropriately-sized screens from real acquisitions.

If no arguments are specified, **mkfake** prints usage information.

To create a single screen with default plate dimensions:

```
mkfake default-screen.fake
```

This will create a directory that represents one screen with a single plate containing one well, one field, and one acquisition of the plate (see [PlateAcquisition](#)¹⁵).

-plates PLATES

To change the number of plates in the screen:

```
mkfake -plates 3 three-plates.fake
```

-runs RUNS

To change the number of acquisitions for each plate:

```
mkfake -runs 4 four-plate-acquisitions.fake
```

-rows ROWS

To change the number of rows of wells in each plate:

```
mkfake -rows 8 eight-row-plate.fake
```

-columns COLUMNS

To change the number of columns of wells in each plate:

```
mkfake -columns 12 twelve-column-plate.fake
```

-fields FIELDS

To change the number of fields per well:

```
mkfake -fields 2 two-field-plate.fake
```

It is often most useful to use the arguments together to create a realistic screen, for example:

```
mkfake -rows 16 -columns 24 -plates 2 -fields 3 two-384-well-plates.fake
```

-debug DEBUG

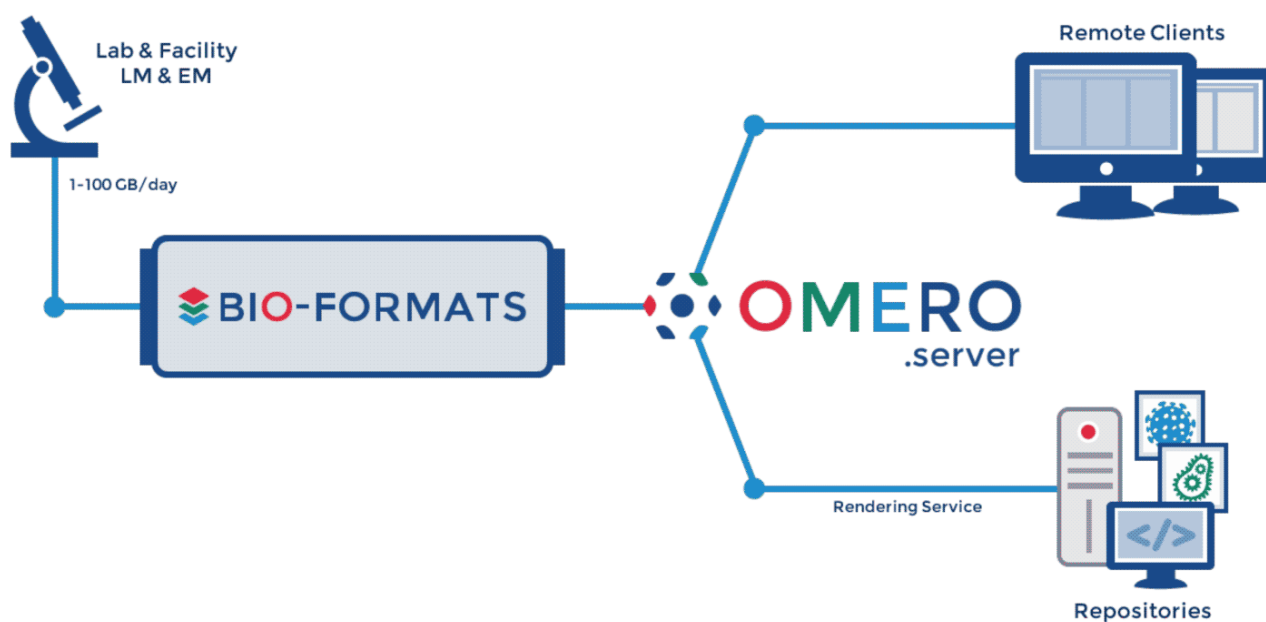
As with other command line tools, debugging output can be enabled if necessary:

```
mkfake -debug debug-screen.fake
```

¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2015-01/SPW_xsd.html#PlateAcquisition_ID

OMERO

OMERO 5 uses Bio-Formats to read original files from over 140 file formats. Please refer to the [OMERO documentation¹](http://www.openmicroscopy.org/site/support/omero5.1/) for further information.



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

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/omero5.1/>

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. Since the OME perl server has been discontinued, we have no plans to fix this limitation.

8.2.2 Upgrading

OME server is not supported by Bio-Formats versions 5.0.0 and above. To take advantage of more recent improvements to Bio-Formats, you must switch to [OMERO server](#)⁵.

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:

⁵<http://www.openmicroscopy.org/site/support/omero5.1/>

- `OmeisImporter.java`⁶ – omebf Java command line tool
- `BioFormats.pm`⁷ – Perl module for OME Bio-Formats importer
- `omeis.c`⁸ – OMEIS C functions for Bio-Formats (search for “bioformats” case insensitively to find relevant sections)

⁶<http://github.com/openmicroscopy/bioformats/tree/v4.4.10/components/scifio/src/loci/formats/ome/OmeisImporter.java>

⁷<http://downloads.openmicroscopy.org/ome/code/BioFormats.pm>

⁸<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 *i3dalgo*⁸ and *i4dcore*⁹, 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++ (java4cpp).

See also:

[Download i3dcore](#)¹⁰

[CBIA Software Development](#)¹¹

9.3 ImgLib

ImgLib2¹² is a multidimensional image processing library. It provides a general mechanism for writing image analysis algorithms, without writing case logic for *bit depth*¹³, or worrying about the source of the pixel data (arrays in memory, files on disk, etc.).

The SCIFIO¹⁴ project provides an *ImgOpener*¹⁵ utility class for reading data into ImgLib2 data structures using Bio-Formats.

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

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

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

¹²<http://imglib2.net/>

¹³http://en.wikipedia.org/wiki/Color_depth

¹⁴<http://scif.io/>

¹⁵<https://github.com/scifio/scifio/blob/master/src/main/java/io/scif/img/ImgOpener.java>

9.4 ITK

The [Insight Toolkit](#)¹⁶ (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](#)¹⁷ plugin provides an ITK imageIO base that uses Bio-Formats to read and write supported life sciences file formats. This plugin allows any program built on ITK to read any of the image types supported by Bio-Formats.

9.5 Qu for MATLAB

[Qu for MATLAB](#)¹⁸ is a MATLAB toolbox for the visualization and analysis of multi-channel 4-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](#)¹⁹

¹⁶<http://itk.org/>

¹⁷<https://github.com/scifio/scifio-imageio>

¹⁸http://www.scs2.net/home/index.php?option=com_content&view=article&id=46%3Aqu-for-matlab&catid=34%3Aqu&Itemid=55

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

NUMERICAL DATA PROCESSING APPLICATIONS

10.1 GNU Octave

GNU Octave¹ is a high-level interpreted language, primarily intended for numerical computations. Being an array programming language, it is naturally suited for image processing and handling of N dimensional datasets. Octave is distributed under the terms of the GNU General Public License.

The Octave language is Matlab compatible so that programs are easily portable. Indeed, the Octave bioformats package is exactly the same as Matlab's, the only difference being the installation steps.

10.1.1 Requirements

The bioformats package requires Octave version 4.0.0 or later with support for java:

```
$ octave
>> OCTAVE_VERSION
ans = 4.0.0
>> octave_config_info ("features").JAVA
ans = 1
```

10.1.2 Installation

1. Download [bioformats_package.jar](#)² and place it somewhere sensible for your system (in Linux, this will probably be */usr/local/share/java* or *~/.local/share/java* for a system-wide or user installation respectively).
2. Add *bioformats_package.jar* to Octave's *static* javaclasspath (see [Octave's documentation](#)³).
3. Download the Octave package from the [downloads page](#)⁴.
4. Start octave and install the package with:

```
>> pkg install path-to-bioformats-octave-version.tar.gz
```

10.1.3 Usage

Usage instructions are the same as Matlab. The only difference is that you need to explicitly load the package. This is done by running at the Octave prompt:

```
>> pkg load bioformats
```

¹<http://www.octave.org>

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

³https://www.gnu.org/software/octave/doc/interpreter/How-to-make-Java-classes-available_003f.html

⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

10.1.4 Upgrading

To use a newer version of Bio-Formats, repeat the install instructions. Do not follow the Matlab instructions.

10.2 IDL

IDL⁵ (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.

10.2.1 Installation

Download the `ij_read_bio_formats.pro`⁶ script from Karsten Rodenacker's [IDL goodies \(?\)](#)⁷ web site. See the comments at the top of the script for installation instructions and caveats.

10.2.2 Upgrading

To use a newer version of Bio-Formats, overwrite the requisite JAR files with the [newer version](#)⁸ and restart IDL.

10.3 KNIME

KNIME⁹ (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](#)¹⁰ (a.k.a. KNIP) plugin.

10.4 MATLAB

MATLAB¹¹ 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](#)¹² for reading image files. Note the minimum supported MATLAB version is R2007b (7.5).

10.4.1 Installation

Download the MATLAB toolbox from the Bio-Formats [downloads page](#)¹³. Unzip `bfmatlab.zip` and add the unzipped `bf-matlab` 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.

⁵<http://www.exelisvis.com/ProductsServices/IDL.aspx>

⁶http://karo03.bplaced.net/karo/IDL/_pro/ij_read_bio_formats.pro

⁷http://karo03.bplaced.net/karo/ro_embed.php?file=IDL/index.html

⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

⁹<http://www.knime.org/>

¹⁰<http://tech.knime.org/community/image-processing>

¹¹<http://www.mathworks.com/products/matlab/>

¹²<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/formats-gpl/matlab>

¹³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

10.4.2 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.

10.4.3 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.

10.4.4 Upgrading

To use a newer version of Bio-Formats, overwrite the content of the `bfmatlab` folder with the *newer version*¹⁴ of the toolbox and restart MATLAB.

10.4.5 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 formats¹⁵

10.5 VisAD

The `VisAD`¹⁶ 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.

10.5.1 Installation

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

10.5.2 Upgrading

It should be possible to use a newer version of Bio-Formats by putting the latest `bioformats_package.jar`¹⁷ or `formats-gpl.jar`¹⁸ 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.

¹⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

¹⁵<http://www.mathworks.com/matlabcentral/fileexchange/32920-imread-for-multiple-life-science-image-file-formats>

¹⁶<http://www.ssec.wisc.edu/%7Ebillh/visad.html>

¹⁷http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/bioformats_package.jar

¹⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/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 Imaging Platform](#)⁵—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:

CellProfiler⁶ Website of the CellProfiler software

Using Bio-Formats in Python Section of the developer documentation describing the Python wrapper for Bio-Formats used by CellProfiler

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/science/platforms/imaging/imaging-platform>

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 Vorregaard⁷.

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

11.4 Endrov

Endrov⁸ (or <http://www.endrov.net>) (EV) is a multi-purpose image analysis program developed by the Thomas Burglin group⁹ at Karolinska Institute¹⁰, 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`¹¹ 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

FocalPoint¹² is an image browser, similar to Windows Explorer¹³ or other file manager¹⁴ 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-Formats¹⁵ by overwriting the old **loci_tools.jar** within the FocalPoint distribution. For Mac OS X, you will have to control click the FocalPoint program icon, choose "Show Package Contents" and navigate into Contents/Resources/Java to find the **loci_tools.jar** file.

11.6 Graphic Converter

Graphic Converter¹⁶ 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.

⁷<http://www.comstat.dk/>

⁸<https://github.com/mahogny/Endrov>

⁹<http://www.biosci.ki.se/groups/tbu>

¹⁰<http://www.ki.se/>

¹¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/formats-gpl.jar>

¹²<http://www.bioinformatics.bbsrc.ac.uk/projects/focalpoint/>

¹³http://en.wikipedia.org/wiki/Windows_Explorer

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

¹⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

¹⁶<http://www.lemkesoft.com>

11.7 Icy

Icy¹⁷ 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 imago¹⁸ 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](#)¹⁹.

11.9 Iqm

Iqm²⁰ 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

Macnification²¹ is a Mac OS X application for organizing, editing, analyzing and annotating microscopic images, designed for ease of use. It is being developed by Orbicule²².

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](#)²³

11.11 Micro-Manager

Micro-Manager²⁴ is a software framework for implementing advanced and novel imaging procedures, extending functionality, customization and rapid development of specialized imaging applications.

Micro-Manager offers the functionality for saving the acquired images in TIFF/OME-TIFF format. Based on the mode of saving and the configuration settings, the acquired image can be saved with or without a companion file (`*metadata.txt`):

¹⁷<http://icy.bioimageanalysis.org/>

¹⁸<http://mayachitra.com/imago/index.html>

¹⁹<http://mayachitra.com/imago/download-trial.php>

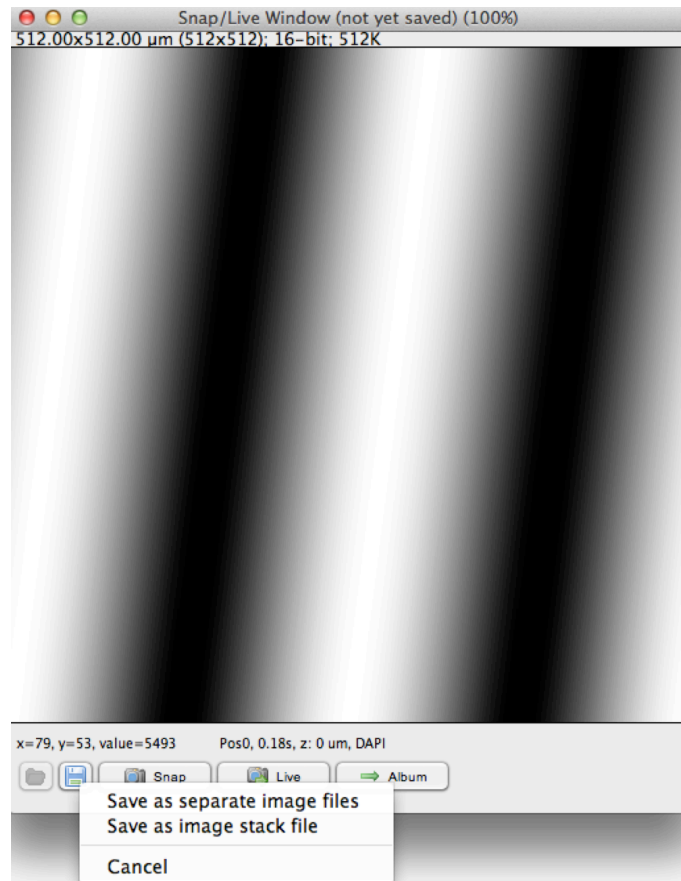
²⁰<http://code.google.com/p/iqm/>

²¹<http://www.orbicule.com/macnification/>

²²<http://www.orbicule.com>

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

²⁴<https://www.micro-manager.org/wiki/Micro-Manager>



Saving Options within Micro-Manager	Format	Companion File	Bio-Formats Reading	Reader Used
Save as separate image files	TIFF	Yes	Full Support	Micromanager-Reader
Save as image stack file	OME-TIFF	No	Pixel data plus minimal metadata*	OMETiffReader
	OME-TIFF	Yes**	Full Support	Micromanager-Reader

* Not all acquisition metadata is converted to OME-XML.

** A small change in the acquisition side facilitates better handling of the metadata from the Bio-Formats side: *Tools* → *Options...* and then select “Create metadata.txt file with Image Stack Files” in the text box.

See also:

[Micro-Manager User’s Guide - Files on Disk](#)²⁵

11.12 MIPAV

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

²⁵https://micro-manager.org/wiki/Micro-Manager_User%27s_Guide#Files_on_Disk

²⁶<http://mipav.cit.nih.gov/>

²⁷<http://cit.nih.gov/>

²⁸<http://nih.gov/>

11.12.1 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.

11.13 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.

11.14 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.

11.14.1 Installation

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

11.14.2 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.

²⁹http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/bioformats_package.jar

³⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/utis/mipav/PlugInBioFormatsImporter.java>

³¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/utis/mipav/readme.txt>

³²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

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>

³⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

11.15 XuvTools

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

³⁹<http://www.xuvtools.org>

Part III

Developer Documentation

The following sections describe various things that are useful to know when working with Bio-Formats. It is recommended that you obtain the Bio-Formats source by following the directions in the *Source code* section. Referring to the *Javadocs*⁴⁰ as you read over these pages should help, as the notes 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*⁴¹.

⁴⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/>

⁴¹<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/formats-gpl/utis>

INTRODUCTION TO BIO-FORMATS

12.1 Overview for developers

From the rest of the Bio-Formats developer documentation one may piece together a correct and useful understanding of what Bio-Formats does and how it does it. This section gives a high-level tour of these technical details, for those new to working on Bio-Formats itself, making it easier to understand how the information from the other sections fits into the big picture.

12.1.1 Terms and concepts

Bio-Formats can read image data from files for many formats, and can write image data to files for some formats. An image may have many two-dimensional “planes” of pixel intensity values. Each pixel on a plane is identified by its x , y values. Planes within an image may be identified by various dimensions including z (third spatial dimension), c (channel, e.g. wavelength) or t (time). Planes may be divided into tiles, which are rectangular subsections of a plane; this is helpful in handling very large planes. A file (or set of related files) on disk may contain multiple images: each image is identified by a unique *series* number.

An image is more than a set of planes: it also has metadata. Bio-Formats distinguishes *core metadata*, such as the x , y , z , c , t dimensions of the image, from format-specific *original metadata*, e.g. information about the microscope and its settings, which is represented as a dictionary of values indexed by unique keys. Metadata apply to the image data as a whole, or separately to specific series within it.

Bio-Formats is able to translate the above metadata into a further form, *OME metadata*. The translation may be partial or incomplete, but remains very useful for allowing the metadata of images from different file formats to be used and compared in a common format defined by the OME data model.

12.1.2 Implementation

Bio-Formats is primarily a Java project. It can be used from MATLAB, and there are C++ bindings and an ongoing C++ implementation effort. The source code is available for download and sometimes the user community contributes code back into Bio-Formats by opening a pull request on GitHub. Bio-Formats is built from source with Ant or Maven and some of the Bio-Formats source code is generated from other files during the build process. The resulting JARs corresponding to official Bio-Formats releases are available for download.

Readers and writers for different image file formats are implemented in separate Java classes. Readers for related formats may reflect that relationship in the Java class hierarchy. Simple standalone command-line tools are provided with Bio-Formats, but it is more commonly used as a third-party library by other applications. Various examples show how one may use Bio-Formats in different ways in writing a new application that reads or writes image data. A common pattern is to initialize a reader based on the image data’s primary file, then query that reader for the metadata and planes of interest.

The set of readers is easily modified. The `readers.txt`¹ file lists the readers to try in determining an image file’s format, and there are many useful classes and methods among the Bio-Formats Java code to assist in writing new readers and writers.

¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-api/src/loci/formats/readers.txt>

12.2 Obtaining and building Bio-Formats

12.2.1 Source code

The source code for this Bio-Formats release is available from the [download page](#)². This release and the latest Bio-Formats source code are also available from the Git repository. This may be accessed using the repository path:

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

More information about Git and client downloads are available from the [Git project website](#)³. You can also browse the [Bio-Formats source on GitHub](#)⁴

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

Lastly, you can browse the [Bio-Formats Javadocs online](#)⁵, or generate them yourself using the “docs” Ant target.

12.2.2 Source code structure

The Bio-Formats code is divided into several projects. Core components are located in subfolders of the [components](#)⁶ folder, with some components further classified into [components/forks](#)⁷ or [components/stubs](#)⁸, depending on the nature of the project. See the [Component overview](#) for more information, including associated build targets for each component.

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

12.2.3 Building from source

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

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

Prerequisites

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

- [Python](#) ⁹, version 2.6 or later (note: not version 3)
- [Genshi](#)¹⁰ 0.5 or later (0.7 recommended)

Note: Genshi may be installed (in order of decreasing preference) with some Linux distributions' package managers, **pip** (`pip install genshi`), by downloading a compatible `.egg` for your system from the [Genshi download page](#)¹¹, or from source. If using a `.egg`, make sure it is added to your `PYTHONPATH` environment variable.

²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/>

³<http://git-scm.com/>

⁴<https://github.com/openmicroscopy/bioformats>

⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/>

⁶<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/>

⁷<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/forks/>

⁸<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/stubs/>

⁹<http://python.org>

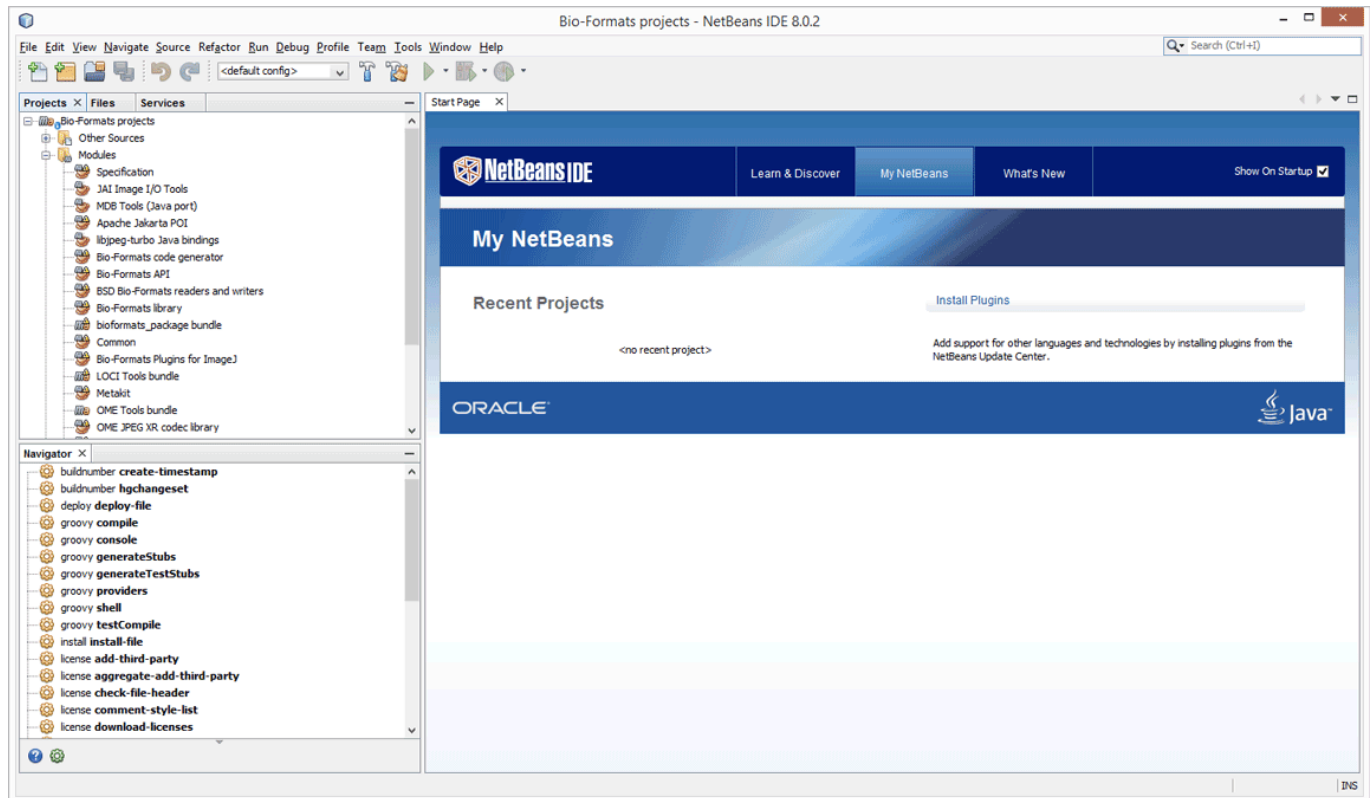
¹⁰<http://genshi.edgewall.org>

¹¹<http://genshi.edgewall.org/wiki/Download>

NetBeans

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

1. Select *File* → *Open Project* from the menu - choose the top-level path to `bioformats.git` and click *Open Project*
2. In the ‘Projects’ tab on the left-hand side, expand the ‘Bio-Formats projects’ entry - you should now have a series of folders including ‘Other Sources’, ‘Modules’ and ‘Dependencies’.
3. Expand the ‘Modules’ folder to give a list of components and then double-click the 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.

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

You can 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. Alternatively, run the Eclipse Maven target with `mvn eclipse:eclipse` to create the Eclipse project files, then use *File* → *Import* → *Existing Projects into Workspace*.

To remove post-import errors, either close the `ome-xml` project or run:

```
ant jars && mvn generate-sources
```

See also:

[ome-devel] Importing source into eclipse¹²

¹²<http://lists.openmicroscopy.org.uk/pipermail/ome-devel/2014-March/002719.html>

Command line

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

For a list of Ant targets, run:

```
ant -p
```

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

When using Maven, Bio-Formats is configured to run the “install” target by default, so all JARs will be copied into your local Maven repository in `~/.m2/repository`. Simply run:

```
mvn
```

With either Ant or Maven, you can use similar commands in any subproject folder to build just that component.

12.2.4 Using Gradle, Maven or Ivy

All released `.jar` artifacts may be obtained through the OME [Artifactory server](http://artifacts.openmicroscopy.org/artifactory)¹³. The “Client Settings” section of the Artifactory main page provides example code snippets for inclusion into your Gradle, Maven or Ivy project, which will enable the use of this repository.

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

12.3 Component overview

The Bio-Formats code repository is divided up into separate components.

The Ant targets to build each component from the repository root are noted in the component descriptions below. Unless otherwise noted, each component can also be built with Maven by running `mvn` in the component’s subdirectory. The Maven module name for each component (as it is shown in most IDEs) is also noted in parenthesis.

12.3.1 Core components

The most commonly used and actively modified components.

- *formats-common*
- *formats-api*
- *formats-bsd*
- *formats-gpl*
- *specification*
- *ome-xml*

12.3.2 Internal testing components

These components are used heavily during continuous integration testing, but are less relevant for active development work.

- *autogen*
- *test-suite*

¹³<http://artifacts.openmicroscopy.org/artifactory>

12.3.3 Forks of existing projects

- *mdbtools*
- *jai*
- *turbojpeg*
- *poi*

12.3.4 All components

autogen (Bio-Formats code generator)¹⁴:

Ant: jar-autogen

Contains everything needed to automatically generate documentation for supported file formats. *format-pages.txt*¹⁵ should be updated for each new file format reader or writer, but otherwise manual changes should be unnecessary. The following Ant targets are used to regenerate the documentation for all formats:

```
gen-format-pages
gen-meta-support
gen-original-meta-support
```

bio-formats-plugins (Bio-Formats Plugins for ImageJ)¹⁶:

Ant: jar-bio-formats-plugins

Everything pertaining to the Bio-Formats plugins for ImageJ lives in this component. Note that when built, this component produces *bio-formats_plugins.jar* (instead of *bio-formats-plugins.jar*) to be in keeping with ImageJ plugin naming conventions. *bio-formats-tools* (Bio-Formats command line tools)¹⁷:

Ant: jar-bio-formats-tools

The classes that implement the **showinf**, **bfconvert**, and **mkfake** *command line tools* are contained in this component. Note that this is built with the **jar-bio-formats-tools** Ant target, and not the **tools** target (which is the Ant equivalent of *bundles*). *bundles* (bioformats_package bundle, LOCI Tools bundle, OME Tools bundle)¹⁸:

Ant: tools

This is only needed by the Maven build system, and is used to aggregate all of the individual .jar files into *bioformats_package.jar*. There should not be any code here, just build system files. *forks/jai* (JAI Image I/O Tools)¹⁹:

Ant: jar-jai

This is a fork of *JAI ImageIO*²⁰ which adds support for decoding YCbCr JPEG-2000 data. This is primarily needed for reading images from histology/pathology formats in *formats-gpl*. There are no dependencies on other components. *forks/mdbtools* (MDB Tools (Java port))²¹:

Ant: jar-mdbtools

This is a fork of the *mdbtools-java*²² project. There are numerous bug fixes, as well as changes to reduce the memory required for large files. There are no dependencies on other components. *forks/poi* (Apache Jakarta POI)²³:

Ant: jar-ome-poi

¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/autogen>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/autogen/src/format-pages.txt>

¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins>

¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-tools>

¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bundles>

¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/jai>

²⁰<http://java.net/projects/jai-imageio-core>

²¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/mdbtools>

²²<http://mdbtools.cvs.sourceforge.net/viewvc/mdbtools/mdbtools-java>

²³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/poi>

This is a fork of [Apache POI](http://poi.apache.org)²⁴, which allows reading of Microsoft OLE document files. We have made substantial changes to support files larger than 2GB and reduce the amount of memory required to open a file. I/O is also handled by classes from *formats-common*, which allows OLE files to be read from memory. [forks/turbojpeg](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/turbojpeg) (libjpeg-turbo Java bindings)²⁵:

Ant: jar-turbojpeg

This is a fork of [libjpeg-turbo](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/turbojpeg)²⁶. There are not any real code changes, but having this as a separate component allows us to package the libjpeg-turbo Java API together with all of the required binaries into a single .jar file using [native-lib-loader](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/turbojpeg)²⁷. There are no dependencies on other components. [formats-api](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-api) (Bio-Formats API)²⁸:

Ant: jar-formats-api

This defines all of the high level interfaces and abstract classes for reading and writing files. There are no file format readers or writers actually implemented in this component, but it does contain the majority of the API that defines Bio-Formats. *formats-bsd* and *formats-gpl* implement this API to provide file format readers and writers. *formats-common* and *ome-xml* are both required as part of the interface definitions. [formats-common](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common) (Common)²⁹:

Ant: jar-formats-common

Provides I/O classes that unify reading from files on disk, streams or files in memory, compressed streams, and non-file URLs. The primary entry points are [Location](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³⁰, [RandomAccessInputStream](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³¹ (for reading), and [RandomAccessOutputStream](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³² (for writing).

In addition to I/O, there are several classes to assist in working with XML ([XMLTools](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³³), date/timestamps ([DateTools](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³⁴), logging configuration ([DebugTools](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³⁵), and byte arithmetic ([DataTools](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common)³⁶).

This does not depend on any other components, so can be used anywhere independent of the rest of the Bio-Formats API. [formats-bsd](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd) (BSD Bio-Formats readers and writers)³⁷:

Ant: jar-formats-bsd, jar-formats-bsd-tests

This contains readers and writers for formats which have a publicly available specification, e.g. TIFF. Everything in the component is BSD-licensed. [formats-gpl](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl) (Bio-Formats library)³⁸:

Ant: jar-formats-gpl

The majority of the file format readers and some file format writers are contained in this component. Everything in the component is GPL-licensed (in contrast with *formats-bsd*). Most file formats represented in this component do not have a publicly available specification. [metakit](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/metakit) (Metakit)³⁹:

Ant: jar-metakit

Java implementation of the [Metakit database specification](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/metakit)⁴⁰. This uses classes from *formats-common* and is used by *formats-gpl*, but is otherwise independent of the main Bio-Formats API. [ome-xml](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/ome-xml) (OME-XML Java library)⁴¹:

Ant: jar-ome-xml

This component contains classes that represent the OME-XML schema. Some classes are committed to the Git repository, but the majority are generated at build time by using *xsd-fu* to parse the *OME-XML schema files*. Classes from this component are used by Bio-Formats to read and write OME-XML, but they can also be used independently. [specification](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/specification) (Specification)⁴²:

Ant: jar-specification

²⁴<http://poi.apache.org>

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/forks/turbojpeg>

²⁶<http://libjpeg-turbo.virtualgl.org/>

²⁷<http://github.com/scijava/native-lib-loader>

²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-api>

²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-common>

³⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html>

³¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/RandomAccessInputStream.html>

³²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/RandomAccessOutputStream.html>

³³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/xml/XMLTools.html>

³⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DateTools.html>

³⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DebugTools.html>

³⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DataTools.html>

³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd>

³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl>

³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/metakit>

⁴⁰<http://equi4.com/metakit/>

⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/ome-xml>

⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/specification>

All released and in-progress OME-XML schema files are contained in this component. The specification component is also the location of all XSLT stylesheets for converting between OME-XML schema versions, as well as example OME-XML files in each of the released schema versions. `stubs` (Luratech LuraWave stubs, MIPAV stubs)⁴³:

Ant: jar-lwf-stubs, jar-mipav-stubs

This component provides empty classes that mirror third-party dependencies which are required at compile time but cannot be included in the build system (usually due to licensing issues). The build succeeds since required class names are present with the correct method signatures; the end user is then expected to replace the stub .jar files at runtime. `test-suite` (Bio-Formats testing framework)⁴⁴:

Ant: jar-tests

All tests that operate on files from our data repository (i.e. integration tests) are included in this component. These tests are primarily run by the `continuous integration jobs`⁴⁵, and verify that there are no regressions in reading images or metadata. `xsd-fu` (XSD-FU)⁴⁶:

Ant: no target

`xsd-fu` is a Python framework for turning the schema files in the *specification* component into the classes that represent the OME-XML schema in the *ome-xml* component.

12.4 Reading files

12.4.1 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`⁴⁷. In general, it is recommended that you read files using an instance of `loci.formats.ImageReader`⁴⁸. 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(java.lang.String)`⁴⁹ 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)`⁵⁰ 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 in the table below together with the appropriate accessor method:

Core metadata field	API method
image width	<code>getSizeX()</code> ⁵¹
image height	<code>getSizeY()</code> ⁵²
number of series per file	<code>getSeriesCount()</code> ⁵³
total number of images per series	<code>getImageCount()</code> ⁵⁴
number of slices in the current series	<code>getSizeZ()</code> ⁵⁵
number of timepoints in the current series	<code>getSizeT()</code> ⁵⁶
number of actual channels in the current series	<code>getSizeC()</code> ⁵⁷
number of channels per image	<code>getRGBChannelCount()</code> ⁵⁸
the ordering of the images within the current series	<code>getDimensionOrder()</code> ⁵⁹
whether each image is RGB	<code>isRGB()</code> ⁶⁰
whether the pixel bytes are in little-endian order	<code>isLittleEndian()</code> ⁶¹
whether the channels in an image are interleaved	<code>isInterleaved()</code> ⁶²
the type of pixel data in this file	<code>getPixelType()</code> ⁶³

⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/stubs>

⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/test-suite>

⁴⁵<http://www.openmicroscopy.org/site/support/contributing/ci-bio-formats.html>

⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/xsd-fu>

⁴⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html>

⁴⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ImageReader.html>

⁴⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatHandler.html#setId\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatHandler.html#setId(java.lang.String))

⁵⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#setSeries\(int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#setSeries(int))

⁵¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeX\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeX())

⁵²[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeY\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeY())

All file formats are guaranteed to accurately report core metadata.

Bio-Formats also converts and stores additional information which can be stored and retrieved from the OME-XML Metadata. These fields can be accessed in a similar way to the core metadata above. An example of such values would be the physical size of dimensions X, Y and Z. The accessor methods for these properties return a `Length`⁶⁴ object which contains both the value and unit of the dimension. These lengths can also be converted to other units using `value(ome.units.unit.Unit)`⁶⁵. An example of reading and converting these physical sizes values can be found in `ReadPhysicalSize.java`

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(java.lang.String)`⁶⁶, 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.

See also:

IFormatReader⁶⁷ Source code of the `loci.formats.IFormatReader` interface

12.4.2 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.

- The `loci.formats.ReaderWrapper`⁶⁸ API that implements `loci.formats.IFormatReader` allows to define “wrapper” readers 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.

The table below summarizes a few wrapper readers of interest:

Wrapper reader	Functionality
<code>loci.formats.BufferedImageReader</code> ⁶⁹	Allows pixel data to be returned as <code>BufferedImages</code> instead of raw byte arrays
<code>loci.formats.FileStitcher</code> ⁷⁰	Uses advanced pattern matching heuristics to group files that belong to the same dataset
<code>loci.formats.ChannelSeparator</code> ⁷¹	Makes sure that all planes are grayscale - RGB images are split into 3 separate grayscale images
<code>loci.formats.ChannelMerger</code> ⁷²	Merges grayscale images to RGB if the number of channels is greater than 1
<code>loci.formats.ChannelFiller</code> ⁷³	Converts indexed color images to RGB images
<code>loci.formats.MinMaxCalculator</code> ⁷⁴	Provides an API for retrieving the minimum and maximum pixel values for each channel
<code>loci.formats.DimensionSwapper</code> ⁷⁵	Provides an API for changing the dimension order of a file
<code>loci.formats.Memoizer</code> ⁷⁶	Caches the state of the reader into a memoization file

- `loci.formats.ImageTools`⁷⁷ and `loci.formats.gui.AWTImageTools`⁷⁸ provide a number of methods for manipulating `BufferedImage`s and primitive type arrays. In particular, there are methods to split and merge channels in a `BufferedImage/array`, as well as converting to a specific data type (e.g. convert short data to byte data).

⁵³[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSeriesCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSeriesCount())

⁵⁴[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getImageCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getImageCount())

⁵⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeZ\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeZ())

⁵⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeT\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeT())

⁵⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeC\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSizeC())

⁵⁸[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getRGBChannelCount\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getRGBChannelCount())

⁵⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getDimensionOrder\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getDimensionOrder())

⁶⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isRGB\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isRGB())

⁶¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isLittleEndian\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isLittleEndian())

⁶²[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isInterleaved\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isInterleaved())

⁶³[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getPixelType\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getPixelType())

⁶⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/ome/units/quantity/Length.html>

⁶⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/ome/units/quantity/Length.html#value\(ome.units.unit.Unit\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/ome/units/quantity/Length.html#value(ome.units.unit.Unit))

⁶⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getMetadataValue\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getMetadataValue(java.lang.String))

⁶⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ReaderWrapper.html>

⁶⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/gui/BufferedImageReader.html>

⁷⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FileStitcher.html>

⁷¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ChannelSeparator.html>

⁷²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ChannelMerger.html>

⁷³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ChannelFiller.html>

⁷⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/MinMaxCalculator.html>

⁷⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/DimensionSwapper.html>

⁷⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html>

⁷⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ImageTools.html>

⁷⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/gui/AWTImageTools.html>

12.4.3 Troubleshooting

- 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).
- Bio-Formats file readers are not thread-safe. If files are read within a parallelized environment, a new reader must be fully initialized in each parallel session. See *Improving reading performance* about ways to improve file reading performance in multi-threaded mode.

12.5 Writing files

The `loci.formats.IFormatWriter`⁷⁹ API is very similar to the reader API, in that files are written one plane at time (rather than all at once).

The file formats which can be written using Bio-Formats are marked in the *supported formats table* with a green tick in the ‘export’ column. These include, but are not limited to:

- 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)

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.

See also:

IFormatWriter⁸⁰ Source code of the `loci.formats.IFormatWriter` interface

loci.formats.tools.ImageConverter⁸¹ Source code of the `loci.formats.tools.ImageConverter` class

Further details on exporting raw pixel data to OME-TIFF files Examples of OME-TIFF writing

⁷⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatWriter.html>

USING BIO-FORMATS AS A JAVA LIBRARY

13.1 Using Bio-Formats as a Java library

13.1.1 Bio-Formats as a Maven dependency

If you wish to make use of Bio-Formats within your own software it can be included as a dependency in any Maven project. The dependency can be added to the project pom file and should include the desired Bio-Formats version. Using *bioformats_package* as the artifactId will include the complete Bio-Formats package, or individual components can be chosen as desired.

```
<dependency>
  <groupId>ome</groupId>
  <artifactId>bioformats_package</artifactId>
  <version>5.2.0</version>
</dependency>
```

In order to include this Bio-Formats dependency a custom repository must also be added to the project pom or `$user.home/.m2/settings.xml`. The repositories element is inherited so for a group of projects the repositories element can be defined at the top of your inheritance chain.

```
<repositories>
  <repository>
    <id>ome</id>
    <name>Bio-Formats Repo</name>
    <url>http://artifacts.openmicroscopy.org/artifactory/maven</url>
  </repository>
</repositories>
```

13.1.2 Bio-Formats as a Java library

Alternatively Bio-Formats can be used by including its component jar files. You can [download `formats-gpl.jar`](http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/formats-gpl.jar)¹ to use it as a library. Just add `formats-gpl.jar` to your CLASSPATH or build path. You will also need `common.jar` for common I/O functions, `ome-xml.jar` for metadata standardization, and SLF4J² for *Logging*.

See the list in the [Bio-Formats toplevel build file](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/build.xml)³ for a complete and up-to-date list of all optional libraries, which can all be found in our [Git repository](https://github.com/openmicroscopy/bioformats/tree/v5.2.3/jar)⁴.

Dependencies

The complete list of current dependencies is as follows:

¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/artifacts/formats-gpl.jar>

²<http://slf4j.org/>

³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/build.xml>

⁴<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/jar>

Package	Maven name	License
Logback Classic v1.1.1 ⁵	ch.qos.logback:logback-classic:1.1.1	Eclipse Public License
Logback Core v1.1.1 ⁷	ch.qos.logback:logback-core:1.1.1	Eclipse Public License
JHDF5 v14.12.0 ⁹	ch.systems.cisd:jhdf5:14.12.0	Apache License v2.0
XMP Library for Java v5.1.2 ¹¹	com.adobe.xmp:xmpcore:5.1.2	BSD License ¹²
JCommander v1.27 ¹³	com.beust:jcommander:1.27	Apache License v2.0
metadata-extractor v2.6.2 ¹⁵	com.drewnoakes:metadata-extractor:2.6.2	Apache License v2.0
Kryo v2.24.0 ¹⁷	com.esotericsoftware.kryo:kryo:2.24.0	BSD License ¹⁸
MinLog v1.2 ¹⁹	com.esotericsoftware.minlog:minlog:1.2	BSD License ²⁰
Guava v17.0 ²¹	com.google.guava:guava:17.0	Apache License v2.0
JGoodies Common v1.7.0 ²³	com.jgoodies:jgoodies-common:1.7.0	BSD License ²⁴
JGoodies Forms v1.7.2 ²⁵	com.jgoodies:jgoodies-forms:1.7.2	BSD License ²⁶
Commons Collections v3.2.1 ²⁷	commons-collections:commons-collections:3.2.1	Apache License v2.0
Commons Lang v2.4 ²⁹	commons-lang:commons-lang:2.4	Apache License v2.0
Commons Logging v1.1.1 ³¹	commons-logging:commons-logging:1.1.1	Apache License v2.0
NetCDF-Java Library v4.3.19 ³³	edu.ucar:netcdf:4.3.19	MIT-Style License ³⁴
Joda time v2.2 ³⁵	joda-time:joda-time:2.2	Apache License v2.0
JUnit v4.10 ³⁷	junit:junit:4.10	Common Public License
Apache Log4j v1.2.17 ³⁹	log4j:log4j:1.2.17	Apache License v2.0
ImageJ v1.48s ⁴¹	net.imagej:ij:1.48s	Public domain
Assume NG v1.2.4 ⁴²	nl.javadude.assumeng:assumeng:1.2.4	Apache License v2.0
Apache Velocity v1.6.4 ⁴⁴	org.apache.velocity:velocity:1.6.4	Apache License v2.0
BeanShell v2.0b4 ⁴⁶	org.beanshell:bsh:2.0b4	Sun Public License /

Continued on

⁵<http://logback.qos.ch>⁶<http://opensource.org/licenses/EPL-1.0>⁷<http://logback.qos.ch>⁸<http://opensource.org/licenses/EPL-1.0>⁹<https://wiki-bsse.ethz.ch/display/JHDF5>¹⁰<http://www.apache.org/licenses/LICENSE-2.0.txt>¹¹<http://www.adobe.com/devnet/xmp.html>¹²<http://opensource.org/licenses/BSD-2-Clause>¹³<http://beust.com/jcommander>¹⁴<http://www.apache.org/licenses/LICENSE-2.0.txt>¹⁵<https://github.com/drewnoakes/metadata-extractor>¹⁶<http://www.apache.org/licenses/LICENSE-2.0.txt>¹⁷<http://github.com/EsotericSoftware/kryo>¹⁸<http://opensource.org/licenses/BSD-2-Clause>¹⁹<https://github.com/EsotericSoftware/minlog>²⁰<http://opensource.org/licenses/BSD-2-Clause>²¹<http://github.com/google/guava>²²<http://www.apache.org/licenses/LICENSE-2.0.txt>²³<http://www.jgoodies.com/downloads/libraries/>²⁴<http://opensource.org/licenses/BSD-2-Clause>²⁵<http://www.jgoodies.com/downloads/libraries/>²⁶<http://opensource.org/licenses/BSD-2-Clause>²⁷<http://commons.apache.org/collections/>²⁸<http://www.apache.org/licenses/LICENSE-2.0.txt>²⁹<http://commons.apache.org/lang/>³⁰<http://www.apache.org/licenses/LICENSE-2.0.txt>³¹<http://commons.apache.org/logging/>³²<http://www.apache.org/licenses/LICENSE-2.0.txt>³³<http://www.unidata.ucar.edu/software/netcdf-java/documentation.htm>³⁴<https://github.com/Unidata/thredds/blob/v4.3.19/cdm/license.txt>³⁵<http://github.com/JodaOrg/joda-time>³⁶<http://www.apache.org/licenses/LICENSE-2.0.txt>³⁷<http://www.junit.org>³⁸<http://www.opensource.org/licenses/cpl1.0.txt>³⁹<http://logging.apache.org/log4j/1.2>⁴⁰<http://www.apache.org/licenses/LICENSE-2.0.txt>⁴¹<http://imagej.net>⁴²<http://github.com/hierynomus/assumeng>⁴³<http://www.apache.org/licenses/LICENSE-2.0.txt>⁴⁴<http://velocity.apache.org>⁴⁵<http://www.apache.org/licenses/LICENSE-2.0.txt>⁴⁶<http://www.beanshell.org>⁴⁷<http://www.beanshell.org/license.html>

Table 13.1 – continued from previous page

Package	Maven name	License
Hamcrest Core v1.1 ⁴⁸	org.hamcrest:hamcrest-core:1.1	BSD 3-Clause ⁴⁹
Objenesis v2.1 ⁵⁰	org.objenesis:objenesis:2.1	Apache License v2.0
Perf4J v0.9.13 ⁵²	org.perf4j:perf4j:0.9.13	Apache License v2.0
Native Library Loader v2.1.4 ⁵⁴	org.scijava:native-lib-loader:2.1.4	BSD License ⁵⁵
SLF4J API v1.7.4 ⁵⁶	org.slf4j:slf4j-api:1.7.6	MIT License ⁵⁷
SLF4J LOG4J-12 Binding v1.7.6 ⁵⁸	org.slf4j:slf4j-log4j12:1.7.6	MIT License ⁵⁹
TestNG v6.8 ⁶⁰	org.testng:testng:6.8	Apache License v2.0
SnakeYAML v1.6 ⁶²	org.yaml:snakeyaml:1.6	Apache License v2.0
Jakarta ORO v2.0.8 ⁶⁴	oro:oro:2.0.8	Apache License v2.0
Woolz v1.4.0 ⁶⁶	woolz:JWlz:1.4.0	GPL v2 ⁶⁷
Xalan Java Serializer v2.7.2 ⁶⁸	xalan:serializer:2.7.2	Apache License v2.0
Xalan Java v2.7.2 ⁷⁰	xalan:xalan:2.7.2	Apache License v2.0
Xerces2 Java Parser v2.8.1 ⁷²	xerces:xercesImpl:2.8.1	Apache License v2.0
XML Commons External Components XML APIs v1.3.04 ⁷⁴	xml-apis:xml-apis:1.3.04	Apache License v2.0

As described in *Versioning policy*, the minor version number of a Bio-Formats release will always be increased if the version of a non-OME/external dependency is bumped.

13.1.3 Examples of usage

File reading and performance:

`MultiFileExample`⁷⁶ - Simple example of how to open multiple files simultaneously.

`ParallelRead`⁷⁷ - Reads all files in given directory in parallel, using a separate thread for each.

`ReadWriteInMemory`⁷⁸ - Tests the Bio-Formats I/O logic to and from byte arrays in memory.

File writing:

`MinimumWriter`⁷⁹ - A command line utility demonstrating the minimum amount of metadata needed to write a file.

⁴⁸<http://hamcrest.org/JavaHamcrest>

⁴⁹<http://opensource.org/licenses/BSD-3-Clause>

⁵⁰<http://objenesis.org>

⁵¹<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁵²<http://www.perf4j.org>

⁵³<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁵⁴<http://github.com/scijava/native-lib-loader>

⁵⁵<http://opensource.org/licenses/BSD-2-Clause>

⁵⁶<http://www.slf4j.org>

⁵⁷<http://opensource.org/licenses/MIT>

⁵⁸<http://www.slf4j.org>

⁵⁹<http://opensource.org/licenses/MIT>

⁶⁰<http://testng.org>

⁶¹<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁶²<https://bitbucket.org/asomov/snakeyaml>

⁶³<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁶⁴<http://jakarta.apache.org/oro>

⁶⁵<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁶⁶http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

⁶⁷<http://opensource.org/licenses/GPL-2.0>

⁶⁸<http://xml.apache.org/xalan-j>

⁶⁹<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁷⁰<http://xml.apache.org/xalan-j>

⁷¹<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁷²<http://xerces.apache.org/xerces2-j>

⁷³<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁷⁴<http://xml.apache.org/commons/components/external>

⁷⁵<http://www.apache.org/licenses/LICENSE-2.0.txt>

⁷⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/MultiFileExample.java>

⁷⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/ParallelRead.java>

⁷⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/ReadWriteInMemory.java>

⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/MinimumWriter.java>

TiledExport⁸⁰ - Shows how to convert a file one tile at a time, instead of one plane at a time (needed for very large images).

File compression:

makeLZW⁸¹ - Converts the given image file to an LZW-compressed TIFF.

Metadata extract/print:

GetPhysicalMetadata⁸² - Uses Bio-Formats to extract some basic standardized (format-independent) metadata.

ImageInfo⁸³ - 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.

PrintTimestamps⁸⁴ - A command line example demonstrating how to extract timestamps from a file.

PrintLensNA⁸⁵ - Uses Bio-Formats to extract lens numerical aperture in a format-independent manner from a dataset.

PrintROIs⁸⁶ - A simple example of how to retrieve ROI data parsed from a file.

SubResolutionExample⁸⁷ - Demonstration of the sub-resolution API.

Metadata add/edit:

EditImageName⁸⁸ - Edits the given file's image name (but does not save back to disk).

EditTiffComment⁸⁹ - Allows raw user TIFF comment editing for the given TIFF files.

writeMapAnnotations⁹⁰ - Example method to write MapAnnotations to the ome-xml.

CommentSurgery⁹¹ - Edits a TIFF ImageDescription comment, particularly the OME-XML comment found in OME-TIFF files.

Image converters:

ImageConverter⁹² - A simple command line tool for converting between formats.

ConvertToOmeTiff⁹³ - Converts the given files to OME-TIFF format.

WritePreCompressedPlanes⁹⁴ - Writes the pixels from a set of JPEG files to a single TIFF. The pixel data is used as-is, so no decompression or re-compression is performed.

ImageJ plugins:

Simple_Read⁹⁵ - A simple ImageJ plugin demonstrating how to use Bio-Formats to read files into ImageJ (see *ImageJ overview*).

Read_Image⁹⁶ - An ImageJ plugin that uses Bio-Formats to build up an image stack, reading image planes one by one (see *ImageJ overview*).

⁸⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/TiledExportExample.java>

⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/MakeLZW.java>

⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/GetPhysicalMetadata.java>

⁸³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-tools/src/loci/formats/tools/ImageInfo.java>

⁸⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/PrintTimestamps.java>

⁸⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/PrintLensNA.java>

⁸⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/PrintROIs.java>

⁸⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/SubResolutionExample.java>

⁸⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/EditImageName.java>

⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/EditTiffComment.java>

⁹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/writeMapAnnotationsExample.java>

⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/CommentSurgery.java>

⁹²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/ConvertToOmeTiff.java>

⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utills/WritePrecompressedPlanes.java>

⁹⁵https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utills/Simple_Read.java

⁹⁶https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utills/Read_Image.java

`Mass_Importer`⁹⁷ - 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*).

Image processing utilities:

`SewTiffs`⁹⁸ - Stitches the first plane from a collection of TIFFs into a single file.

`SumPlanes`⁹⁹ - Sums together the image planes from the given file, and saves the result to a 16-bit TIFF.

13.1.4 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`¹⁰⁰ file of the distribution. You can also read our notes about each in the source distribution's `Ant build.xml`¹⁰¹ script.

13.2 Units of measurement

Since Bio-Formats 5.1 and the adoption of the 2015-01 OME Data Model, the data model and the corresponding Bio-Formats model and metadata APIs have added support for units of measurement. Previously, the units for various properties such as the physical size of an image, stage position, confocal pinhole size, light wavelengths etc. were fixed in the model. This was however somewhat inflexible, and not appropriate for imaging modalities at widely different scales. The solution to this was to add a unit of measurement to each of these properties. The image size, for example, was previously specified to be stored in micrometers but may now be specified in any SI length unit of choice, or one of the supported non-SI length units. This permits the preservation of the unit used by a proprietary file format or used at acquisition time, for example nanometers, millimeters, meters, or inches or thousandths of an inch could be used instead.

At the OME-XML level, the properties continue to use the old attribute names. They are supplemented by an additional attribute with a `Unit` suffix, for example the `PhysicalSizeX` attribute and its companion `PhysicalSizeXUnit` attribute.

At the API level, two classes are used:

Unit<T> represents a unit system for a given dimension such as length, pressure or time.

Quantity represents a value and unit in a given unit system; this is subclassed for each of the supported dimensions such as `Length`, `Pressure` etc. For example the `Length` class could represent the value and unit of 5.3 μm and the `Pressure` class 956 mbar.

⁹⁷ https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-plugins/utis/Mass_Importer.java

⁹⁸ <https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utis/SewTiffs.java>

⁹⁹ <https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/utis/SumPlanes.java>

¹⁰⁰ <https://github.com/openmicroscopy/bioformats/blob/v5.2.3/ant/toplevel.properties>

¹⁰¹ <https://github.com/openmicroscopy/bioformats/blob/v5.2.3/build.xml#L240>

All of the model and metadata APIs pass `Quantity` objects in place of raw numerical values. Updating your code will require replacing the use of raw values with quantities. Where your code needs to deal with the quantity in a specific unit, for example μm , you will need to perform an explicit unit conversion to transform the value to the required unit.

The three situations you will need to deal with are:

- getting a quantity from a `get` method in the API
- converting a quantity to a desired unit
- setting a quantity with a `set` method in the API (possibly also requiring the creation of a quantity)

Examples of how to use units and quantities for these purposes are shown in the sections [Reading files](#) (`ReadPhysicalSize` example which uses `getPixelsPhysicalSize` and also demonstrates unit conversion) and [Further details on exporting raw pixel data to OME-TIFF files](#) (`setPixelsPhysicalSize`).

13.3 Exporting files using Bio-Formats

This guide pertains to version 4.2 and later.

13.3.1 Basic conversion

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

```
// create a reader that will automatically handle any supported format
IFormatReader reader = new ImageReader();
// tell the reader where to store the metadata from the dataset
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)
OMEXMLService service = factory.getInstance(OMEXMLService.class);
writer.setMetadataRetrieve(service.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();

```

13.3.2 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();
OMEXMLService service = factory.getInstance(OMEXMLService.class);
writer.setMetadataRetrieve(service.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:

```

OMEXMLService service = factory.getInstance(OMEXMLService.class);
// 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(service.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();
}

```

13.3.3 Known issues

List of Trac tickets¹⁰²

13.4 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
- the width (in pixels) of an image
- the height (in pixels) of an image
- the number of samples per channel (3 for RGB images, 1 otherwise)

We populate that metadata as follows:

```

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

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

omexml.setPixelsDimensionOrder(DimensionOrder.XYZCT, 0);
omexml.setPixelsType(PixelType.UINT16, 0);
omexml.setPixelsSizeX(new PositiveInteger(width), 0);
omexml.setPixelsSizeY(new PositiveInteger(height), 0);

```

¹⁰²<https://trac.openmicroscopy.org/ome/query?status=accepted&status=new&status=reopened&keywords=export&component=Bio-Formats&col=id&col=summary&col=status&col=type&col=priority&col=milestone&col=component&order=priority>

```

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);
}

Unit<Length> unit = UNITS.MICROMETER;
Length physicalSizeX = new Length(1.0, unit);
Length physicalSizeY = new Length(1.5, unit);
Length physicalSizeZ = new Length(2, unit);
omexml.setPixelsPhysicalSizeX(physicalSizeX, 0);
omexml.setPixelsPhysicalSizeY(physicalSizeY, 0);
omexml.setPixelsPhysicalSizeZ(physicalSizeZ, 0);

```

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.

13.5 Logging

13.5.1 Logging frameworks

Bio-Formats uses [SLF4J¹⁰³](#) as a logging API. SLF4J is a facade and needs to be bound to a logging framework at deployment time. Two underlying logging frameworks are currently supported by Bio-Formats:

- [logback¹⁰⁴](#) is the recommended framework and natively implements the SL4J API,
- [log4j¹⁰⁵](#) is the other logging framework supported by Bio-Formats and is mainly used in the *MATLAB toolbox*.

13.5.2 Initialization

The [DebugTools¹⁰⁶](#) class contains a series of framework-agnostic methods for the initialization and control of the logging system. This class uses reflection to detect the underlying logging framework and delegate the method calls to either [Log4jTools¹⁰⁷](#) or [LogbackTools¹⁰⁸](#).

The main methods are described below:

- `DebugTools.enableLogging()` will initialize the underlying logging framework. This call will result in a no-op if logging has been initialized either via a binding-specific configuration file (see [logback configuration¹⁰⁹](#)) or via a prior call to `DebugTools.enableLogging()`.
- `DebugTools.enableLogging(level)` will initialize the logging framework under the same conditions as described above and set the root logger level if the initialization was successful.
- `DebugTools.setRootLevel(level)` will override the level of the root logger independently of how the logging system was initialized.
- `DebugTools.enableIJLogging()` (logback-only) will add an ImageJ-specific appender to the root logger.

Changed in version 5.2.0: Prior to Bio-Formats 5.2.0, `DebugTools.enableLogging(level)` unconditionally set the logging and root logger level. Use `DebugTools.setRootLevel(level)` to restore this behavior.

13.6 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:

¹⁰³<http://www.slf4j.org>

¹⁰⁴<http://logback.qos.ch/>

¹⁰⁵<http://logging.apache.org/log4j>

¹⁰⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DebugTools.html>

¹⁰⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Log4jTools.html>

¹⁰⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/LogbackTools.html>

¹⁰⁹<http://logback.qos.ch/manual/configuration.html>


```
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.

13.7 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).

As described in [Using Java Libraries](#)¹¹⁰, every installation of MATLAB includes a JVM allowing use of the Java API and third-party Java libraries. All the helper functions included in the MATLAB toolbox make use of the Bio-Formats Java API. Please refer to the [Javadocs](#)¹¹¹ for more information.

¹¹⁰http://uk.mathworks.com/help/matlab/matlab_external/product-overview.html

¹¹¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/>

13.7.1 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. Calling:

```
bfCheckJavaMemory()
```

will also throw a warning if the runtime memory is lower than the recommended value.

If errors of type `java.lang.OutOfMemoryError: PermGen space` are thrown while using Bio-Formats with the Java bundled with MATLAB (Java 7), you may try to increase the default values of `-XX:MaxPermSize` and `-XX:PermSize` via the `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?

[ome-users] Release of OMERO & Bio-Formats 5.1.1¹¹²

13.7.2 Opening an image file

The first thing to do is initialize a file with the `bfopen`¹¹³ 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.
- 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:

```
seriesCount = size(data, 1);
series1 = data{1, 1};
series2 = data{2, 1};
series3 = data{3, 1};
metadataList = data{1, 2};
% etc
```

¹¹²<http://lists.openmicroscopy.org.uk/mailman/listinfo/ome-users/2015-April/005331.html>

¹¹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/bfopen.m>

```

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};

```

Displaying images

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

```

series1_colorMaps = data{1, 3};
figure('Name', series1_label1);
if (isempty(series1_colorMaps{1}))
    colormap(gray);
else
    colormap(series1_colorMaps{1}(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):

```

cmap = gray(256);
for p = 1 : size(series1, 1)
    M(p) = im2frame(uint8(series1{p, 1}), cmap);
end
if feature('ShowFigureWindows')
    movie(M);
end

```

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](http://www.openmicroscopy.org/site/support/ome-model/)¹¹⁴ documentation for full details.

Original metadata

To retrieve the metadata value for specific keys:

¹¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

```
% 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:

```
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:

```
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

voxelSizeXdefaultValue = omeMeta.getPixelsPhysicalSizeX(0).value(); % returns value in default unit
voxelSizeXdefaultUnit = omeMeta.getPixelsPhysicalSizeX(0).unit().getSymbol(); % returns the default unit
voxelSizeX = omeMeta.getPixelsPhysicalSizeX(0).value(ome.units.UNITS.MICROMETER); % in μm
voxelSizeXdouble = voxelSizeX.doubleValue(); % The numeric value represented in μm
voxelSizeY = omeMeta.getPixelsPhysicalSizeY(0).value(ome.units.UNITS.MICROMETER); % in μm
voxelSizeYdouble = voxelSizeY.doubleValue(); % The numeric value represented in μm
voxelSizeZ = omeMeta.getPixelsPhysicalSizeZ(0).value(ome.units.UNITS.MICROMETER); % in μm
voxelSizeZdouble = voxelSizeZ.doubleValue(); % The numeric value represented in μm
```

For more information about the methods to retrieve the metadata, see the [MetadataRetrieve¹¹⁵](#) Javadoc page.

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

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

13.7.3 Changing the logging level

By default, `bfopen` uses `bfInitLogging` to initialize the logging system at the `WARN` level. To change the root logging level, use the [DebugTools¹¹⁶](#) methods as described in the [Logging](#) section.

```
% Set the logging level to DEBUG
loci.common.DebugTools.setRootLevel('DEBUG');
```

¹¹⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/meta/MetadataRetrieve.html>

¹¹⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DebugTools.html>

13.7.4 Reading from an image file

The main inconvenience of the `bfopen.m`¹¹⁷ function is that it loads all the content of an image regardless of its size.

To access the file reader without loading all the data, use the low-level `bfGetReader.m`¹¹⁸ 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`¹¹⁹ function:

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

To switch between series in a multi-image file, use the `setSeries(int)`¹²⁰ method. To retrieve a plane given a set of (z, c, t) coordinates, these coordinates must be linearized first using `getIndex(int, int, int)`¹²¹

```
% Read plane from series iSeries at Z, C, T coordinates (iZ, iC, iT)
% All indices are expected to be 1-based
reader.setSeries(iSeries - 1);
iPlane = reader.getIndex(iZ - 1, iC - 1, iT - 1) + 1;
I = bfGetPlane(reader, iPlane);
```

13.7.5 Saving files

The basic code for saving a 5D array into an OME-TIFF file is located in the `bfsave.m`¹²² 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, 'single-plane.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, 'multiple-planes.ome.tiff');
```

By default, `bfsave` will create a minimal OME-XML metadata object containing basic information such as the pixel dimensions, the dimension order and the pixel type. To customize the OME metadata, it is possible to create a metadata object from the input array using `createMinimalOMEXMLMetadata.m`¹²³, add custom metadata and pass this object directly to `bfsave`:

```
plane = zeros(64, 64, 1, 2, 2, 'uint8');
metadata = createMinimalOMEXMLMetadata(plane);
pixelSize = ome.units.quantity.Length(java.lang.Double(.05), ome.units.UNITS.MICROMETER);
metadata.setPixelsPhysicalSizeX(pixelSize, 0);
metadata.setPixelsPhysicalSizeY(pixelSize, 0);
```

¹¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/bfopen.m>

¹¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/bfGetReader.m>

¹¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/bfGetPlane.m>

¹²⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#setSeries\(int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#setSeries(int))

¹²¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getIndex\(int, int, int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getIndex(int, int, int))

¹²²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/bfsave.m>

¹²³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/matlab/createMinimalOMEXMLMetadata.m>

```
pixelSizeZ = ome.units.quantity.Length(java.lang.Double(.2), ome.units.UNITS.MICROMETER);
metadata.setPixelsPhysicalSizeZ(pixelSizeZ, 0);
bfsave(plane, 'metadata.ome.tiff', 'metadata', metadata);
```

For more information about the methods to store the metadata, see the [MetadataStore¹²⁴](#) Javadoc page.

13.7.6 Improving reading performance

Initializing a Bio-Formats reader can consume substantial time and memory. Most of the initialization time is spent in the `setId(java.lang.String)`¹²⁵ call. Various factors can impact the performance of this step including the file size, the amount of metadata in the image and also the file format itself.

One solution to improve reading performance is to use Bio-Formats memoization functionalities with the `loci.formats.Memoizer`¹²⁶ reader wrapper. By essence, the speedup gained from memoization will only happen after the first initialization of the reader for a particular file.

The simplest way to make use the `Memoizer` functionalities in MATLAB is illustrated by the following example:

```
% Construct an empty Bio-Formats reader
r = bfGetReader();
% Decorate the reader with the Memoizer wrapper
r = loci.formats.Memoizer(r);
% Initialize the reader with an input file
% If the call is longer than a minimal time, the initialized reader will
% be cached in a file under the same directory as the initial file
% name .large_file.bfmemo
r.setId(pathToFile);

% Perform work using the reader

% Close the reader
r.close()

% If the reader has been cached in the call above, re-initializing the
% reader will use the memo file and complete much faster especially for
% large data
r.setId(pathToFile);

% Perform additional work

% Close the reader
r.close()
```

If the time required to call `setId(java.lang.String)`¹²⁷ method is larger than `DEFAULT_MINIMUM_ELAPSED`¹²⁸ or the minimum value passed in the constructor, the initialized reader will be cached in a memo file under the same folder as the input file. Any subsequent call to `setId()` with a reader decorated by the `Memoizer` on the same input file will load the reader from the memo file instead of performing a full reader initialization.

More constructors are described in the [Memoizer javadocs](#)¹²⁹ allowing to control the minimal initialization time required before caching the reader and/or to define a root directory under which the reader should be cached.

As Bio-Formats is not thread-safe, reader memoization offers a new solution to increase reading performance when doing parallel work. For instance, the following example shows how to combine memoization and MATLAB `parfor` to do work on a single file in a parallel loop:

¹²⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/meta/MetadataStore.html>

¹²⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatHandler.html#setId\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatHandler.html#setId(java.lang.String))

¹²⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html>

¹²⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html#setId\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html#setId(java.lang.String))

¹²⁸http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html#DEFAULT_MINIMUM_ELAPSED

¹²⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/Memoizer.html>

```

% Construct a Bio-Formats reader decorated with the Memoizer wrapper
r = loci.formats.Memoizer(bfGetReader(), 0);
% Initialize the reader with an input file to cache the reader
r.setId(pathToFile);
% Close reader
r.close()

nWorkers = 4;

% Enter parallel loop
parfor i = 1 : nWorkers
    % Initialize logging at INFO level
    bfInitLogging('INFO');
    % Initialize a new reader per worker as Bio-Formats is not thread safe
    r2 = javaObject('loci.formats.Memoizer', bfGetReader(), 0);
    % Initialization should use the memo file cached before entering the
    % parallel loop
    r2.setId(pathToFile);

    % Perform work

    % Close the reader
    r2.close()
end

```

13.8 Using Bio-Formats in Python

OME does not currently provide a Python implementation for Bio-Formats.

The *CellProfiler* project has implemented a Python wrapper around Bio-Formats used by the CellProfiler software which can be installed using *pip*:

```
pip install python-bioformats
```

See also:

<https://pypi.python.org/pypi/python-bioformats> Source code of the CellProfiler Python wrapper for Bio-Formats

13.9 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](#)¹³⁰.

Example **in-process solution**: [Bio-Formats JACE C++ bindings](#)¹³¹ (note that this is a legacy project and no longer actively maintained).

¹³⁰<http://loci.wisc.edu/software/interfacing-non-java-code>

¹³¹<https://github.com/ome/bio-formats-jace>

USING BIO-FORMATS AS A NATIVE C++ LIBRARY

Note: See the [OME-Files C++ downloads page](http://downloads.openmicroscopy.org/latest/ome-files-cpp/)¹ for more information.

¹<http://downloads.openmicroscopy.org/latest/ome-files-cpp/>

CONTRIBUTING TO BIO-FORMATS

15.1 Code formatting

Note, these guidelines do not cover:

- third-party code imported into the source tree, which is covered by the guidelines for the upstream projects
- released schema files which would require re-releasing if changed by reindenting

15.1.1 All languages

- Use spaces to indent; do not ever use tabs

15.1.2 Java

All Java code is formatted with:

- an indentation size of two spaces
- braces use the *Java variant of K&R style*¹

15.1.3 XML

All XML code is formatted with:

- an indentation size of two spaces
- attributes on multiple lines aligned vertically after the element name.

15.2 Testing code changes

15.2.1 Automated tests

The *Bio-Formats testing framework*² component contains most of the infrastructure to run automated tests against the data repository.

After checking out source code and building all the JAR files (see *Obtaining and building Bio-Formats*), switch to the `test-suite` component and run the tests using the **ant** `test-automated` target:

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

¹https://en.wikipedia.org/wiki/Indent_style#Variant:_Java

²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/test-suite>

where \$DATA is the path to the full data repository.

Multiple options can be passed to the **ant** `test-automated` target by setting the `testng.${option}` option via the command line. Useful options are described below.

testng.directory Mandatory option. Specifies the root of the data directory to be tested:

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

On Windows, the arguments to the test command must be quoted:

```
> ant "-Dtestng.directory=$DATA\metamorph" test-automated
```

testng.configDirectory Specifies the root of the directory containing the configuration files. This directory must have the same hierarchy as the one specified by `testng.directory` and contain `.bioformats` configuration files:

```
$ ant -Dtestng.directory=/path/to/data -Dtestng.configDirectory=/path/to/config test-automated
```

If no configuration directory is passed, the assumption is that it is the same as the data directory.

testng.configSuffix Specifies an optional suffix for the configuration files:

```
$ ant -Dtestng.directory=/path/to/data -Dtestng.configSuffix=win test-automated
```

testng.memory Specifies the amount of memory to be allocated to the JVM:

```
$ ant -Dtestng.directory=$DATA -Dtestng.memory=4g test-automated
```

Default: 512m.

testng.threadCount Specifies the number of threads to use for testing:

```
$ ant -Dtestng.directory=$DATA -Dtestng.threadCount=4 test-automated
```

Default: 1.

You should now see output similar to this:

```
Buildfile: build.xml
```

```
init-title:
```

```
  [echo] ===== bio-formats-testing-framework =====
```

```
...
```

```
test-automated:
```

```
 [testng] 17:05:28,713 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Could NOT find resource
 [testng] 17:05:28,713 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Could NOT find resource
 [testng] 17:05:28,713 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Could NOT find resource
 [testng] 17:05:28,713 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Found resource [logback-test.xml]
 [testng] 17:05:28,835 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - About to instantiate appender of
 [testng] 17:05:28,837 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - Naming appender as "STDOUT"
 [testng] 17:05:28,876 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - About to instantiate appender of
 [testng] 17:05:28,878 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - Naming appender as "STDERR"
 [testng] 17:05:28,891 |-INFO in ch.qos.logback.classic.joran.action.LoggerAction - Setting level of logger ch.qos.logback.classic.LoggerContext[default] to INFO
 [testng] 17:05:28,891 |-INFO in ch.qos.logback.classic.joran.action.RootLoggerAction - Setting level of root logger to INFO
 [testng] 17:05:28,891 |-INFO in ch.qos.logback.core.joran.action.AppenderRefAction - Attaching appender "STDOUT"
 [testng] 17:05:28,892 |-INFO in ch.qos.logback.core.joran.action.AppenderRefAction - Attaching appender "STDERR"
 [testng] 17:05:28,892 |-INFO in ch.qos.logback.classic.joran.action.ConfigurationAction - End of configuration.
 [testng] 17:05:28,894 |-INFO in ch.qos.logback.classic.joran.JoranConfigurator@706a04ae - Registering current configuration as source configuration for future reference
```

```
[testng] [2015-08-18 17:05:28,904] [main] testng.directory = /ome/data_repo/test_per_commit/
[testng] 17:05:28,908 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - About to instantiate
[testng] 17:05:28,909 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - Naming appender as
[testng] 17:05:28,955 |-INFO in loci.tests.testng.TimestampedLogFileAppender[logfile-main] - File pro
[testng] [2015-08-18 17:05:28,963] [main] testng.multiplier = 1.0
[testng] [2015-08-18 17:05:28,964] [main] testng.in-memory = false
[testng] [2015-08-18 17:05:28,964] [main] user.language = en
[testng] [2015-08-18 17:05:28,964] [main] user.country = US
[testng] [2015-08-18 17:05:28,964] [main] Maximum heap size = 455 MB
[testng] Scanning for files...
[testng] [2015-08-18 17:05:32,258] [main] -----
[testng] [2015-08-18 17:05:32,258] [main] Total files: 480
[testng] [2015-08-18 17:05:32,258] [main] Scan time: 3.293 s (6 ms/file)
[testng] [2015-08-18 17:05:32,258] [main] -----
[testng] Building list of tests...
```

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
```

In most cases, test failures should be logged in the main console output as:

```
[testng] [2015-08-18 17:13:13,625] [pool-1-thread-1]      SizeZ: FAILED (Series 0 (expected 2, actual 1))
```

To identify the file, look for the initialization line preceding the test failures under the same thread:

```
[testng] [2015-08-18 17:13:12,376] [pool-1-thread-1] Initializing /ome/data_repo/test_per_commit/ome-ti
```

The console output is also recorded under `components/test-suite/target` as `bio-formats-software-test-main- $\$$ DATE.log` where “ $\$$ DATE” is the date on which the tests started in “yyyy-MM-dd_hh-mm-ss” format. The detailed report of each thread is recorded under `bio-formats-software-pool- $\$$ POOL-thread- $\$$ THREAD-main- $\$$ DATE.log`

Configuration files can be generated for files or directories using the `ant gen-config` target. This generation target supports the same options as `ant test-automated`:

```
$ ant -Dtestng.directory=/path/to/data -Dtestng.configDirectory=/path/to/config -Dtestng.memory=4g -Dtest
```

15.2.2 MATLAB tests

Tests for the Bio-Formats MATLAB toolbox are written using the xunit framework and are located under `components/formats-gpl/test/matlab`³.

To run these tests, you will need to download or clone `matlab-xunit`⁴, a xUnit framework with JUnit-compatible XML output. Then add this package together with the Bio-Formats MATLAB to your MATLAB path:

³<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/formats-gpl/test/matlab>

⁴<https://github.com/psexton/matlab-xunit>

```
% Add the matlab-xunit toolbox to the MATLAB path
addpath('/path/to/matlab-xunit');
% Add the Bio-Formats MATLAB source to the MATLAB path
% For developers working against the source code
addpath('/path/to/bioformats/components/formats-gpl/matlab');
addpath('/path/to/bioformats/artifacts');
% For developers working against a built artifact, e.g. a release
% addpath('/path/to/bfmatlab');
```

You can run all the MATLAB tests using **runxunit**:

```
cd /path/to/bioformats/components/formats-gpl/test/matlab
runxunit
```

Individual test classes can be run by passing the name of the class:

```
cd /path/to/bioformats/components/formats-gpl/test/matlab
runxunit TestBfsave
```

Individual test methods can be run by passing the name of the class and the name of the method:

```
cd /path/to/bioformats/components/formats-gpl/test/matlab
runxunit TestBfsave:testLZW
```

Finally to output the test results under XML format, you can use the `-xmlfile` option:

```
cd /path/to/bioformats/components/formats-gpl/test/matlab
runxunit -xmlfile test-output.xml
```

15.3 Generating test images

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

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

Whatever is before the first `&` is the image name; the remaining key-value pairs, each preceded with `&`, set the pixel type and image dimensions. Just replace the values with whatever you need for testing.

Additionally, you can put such values in a separate UTF-8 encoded `.ini` file:

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

In fact, just the `.fake.ini` file alone suffices:

```
echo "pixelType=uint8" >> my-special-test-file.fake.ini
echo "sizeX=8192" >> my-special-test-file.fake.ini
echo "sizeY=8192" >> my-special-test-file.fake.ini
```

If you include a “[GlobalMetadata]” section to the ini file, then all the included values will be accessible from the global metadata map:

```
echo "[GlobalMetadata]" >> my-special-test-file.fake.ini
echo "my.key=some.value" >> my-special-test-file.fake.ini
```

Several keys have support for units and can be expressed as KEY=VALUE UNIT where UNIT is the symbol of the desired unit:

```
touch "physicalSizesUnits&physicalSizeX=1nm&physicalSizeY=1nm&physicalSizeZ=1.5km.fake"
echo "physicalSizeX=1 nm" >> physicalSizes.fake.ini
echo "physicalSizeY=10 pm" >> physicalSizes.fake.ini
echo "physicalSizeZ=.002 mm" >> physicalSizes.fake.ini
```

15.3.1 High-content screening

To generate a simple plate file:

```
touch "simple-plate&plates=1&plateAcqs=1&plateRows=1&plateCols=1&fields=1.fake"
touch "default-plate&plates=1.fake"
touch "default-plate&screens=0&plates=1.fake"
```

These will each create a single plate without a containing screen, by default in the first two cases. In the third case setting screens to zero is used to document the lack of a screen. As above a .fake.ini file can be used.

To generate a simple screen file:

```
touch "default-screen&screens=1.fake"
```

This will create a screen containing a single simple plate.

To generate a valid plate at least one of screens, plates, plateAcqs, plateRows, plateCols and fields must be greater than zero. If this condition is met then any other plate-specific values set to zero will be ignored and the defaults used. So, for example, the file:

```
one-key-set&screens=0&plates=0&plateRows=0&plateCols=0&plateAcqs=0&fields=1.fake
```

will create a simple plate with no screen.

15.3.2 Regions

To generate a fake file containing regions of interest:

```
touch "regions&points=10.fake"
touch "regions&ellipses=20.fake"
touch "regions&rectangles=5&lines=25.fake"
```

Replace regions in the above examples with the desired image or plate which will contain the regions, e.g.

```
touch "HCSanalysis&plates=1&plateRows=16&plateCols=24&rectangles=100.fake"
```

For each shape type, the value will specify the number of regions of interest to create where each region of interest contains a single shape of the input type. By convention, all generated regions of interests are not associated to any given Z, C or T plane.

15.3.3 Key-value pairs

There are several other keys that can be added, a complete list of these, with their default values, is shown below.

Key	Value	Default
sizeX	number of pixels wide	512
sizeY	number of pixels tall	512
sizeZ	number of Z sections	1
sizeC	number of channels	1
sizeT	number of timepoints	1
thumbSizeX	number of pixels wide, for the thumbnail	0
thumbSizeY	number of pixels tall, for the thumbnail	0
pixelType	pixel type	uint8
bitsPerPixel	number of valid bits (<= number of bits implied by pixel type)	0
rgb	number of channels that are merged together	1
dimOrder	dimension order (e.g. XYZCT)	XYZCT
orderCertain	whether or not the dimension order is certain	true
little	whether or not the pixel data should be little-endian	true
interleaved	whether or not merged channels are interleaved	false
indexed	whether or not a color lookup table is present	false
falseColor	whether or not the color lookup table is just for making the image look pretty	false
metadataComplete	whether or not the metadata is complete	true
thumbnail	whether or not <code>CoreMetadata.thumbnail</code> is set	false
series	number of series (Images)	1
lutLength	number of entries in the color lookup table	3
scaleFactor	the scaling factor for the pixel values on each plane	1
exposureTime	time of exposure	null
acquisitionDate	timestamp formatted as “yyyy-MM-dd_HH-mm-ss”	null
screens	number of screens	0
plates	number of plates to generate	0
plateAcqs	number of plate runs	0
plateRows	number of rows per plate	0
plateCols	number of rows per plate	0
fields	number of fields per well	0
withMicrobeam	whether or not a microbeam should be added to the experiment (HCS only)	false
annLong, annDouble, annMap, annComment, annBool, annTime, annTag, annTerm, annXml	number of annotations of the given type to generate	0
physicalSizeX	real width of the pixels, supports units defaulting to microns	
physicalSizeY	real height of the pixels, supports units defaulting to microns	
physicalSizeZ	real depth of the pixels, supports units defaulting to microns	
color	the default color for all channels	null
color_x	the color for channel x, overrides the default color for that channel	
ellipses, labels, lines, points, polygons, polylines, rectangles	the number of ROIs containing one shape of the given type to generate	

For full details of these keys, how unset and default values are handled and further examples see [loci.formats.in.FakeReader](https://loci.formats.in/FakeReader)⁵.

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
```

⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/FakeReader.java>

If you do not have the command line tools installed, substitute `loci.formats.tools.ImageConverter`⁶ for `bfconvert`.

15.4 Writing a new file format reader

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

All format readers should extend either `loci.formats.FormatReader`⁷ or an existing reader⁸.

15.4.1 Methods to override

- `isSingleFile(java.lang.String)`⁹ 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.
- `isThisType(loci.common.RandomAccessInputStream)`¹⁰ 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).
- `fileGroupOption(java.lang.String)`¹¹ 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`¹²: the files cannot be handled separately
 - `FormatTools.CAN_GROUP`¹³: the files may be handled separately or as a single unit
 - `FormatTools.CANNOT_GROUP`¹⁴: the files must be handled separately

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

- `getSeriesUsedFiles(boolean)`¹⁵ 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`¹⁶. 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.
- `openBytes(int, byte[], int, int, int, int)`¹⁷ Returns a byte array containing the pixel data for a specified subimage 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`¹⁸ 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`¹⁹ and `isInterleaved`²⁰. 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.
- `initFile(java.lang.String)`²¹ 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`²² variable (see `loci.formats.CoreMetadata`²³).

⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-tools/src/loci/formats/tools/ImageConverter.java>

⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html>

⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/in/package-summary.html>

⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isSingleFile\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isSingleFile(java.lang.String))

¹⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isThisType\(loci.common.RandomAccessInputStream\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isThisType(loci.common.RandomAccessInputStream))

¹¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#fileGroupOption\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#fileGroupOption(java.lang.String))

¹²http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#MUST_GROUP

¹³http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#CAN_GROUP

¹⁴http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html#CANNOT_GROUP

¹⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSeriesUsedFiles\(boolean\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#getSeriesUsedFiles(boolean))

¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

¹⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#openBytes\(int, byte\[\], int, int, int, int\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#openBytes(int, byte[], int, int, int, int))

¹⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatException.html>

¹⁹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isLittleEndian\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isLittleEndian())

²⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isInterleaved\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#isInterleaved())

²¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#initFile\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#initFile(java.lang.String))

²²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#core>

²³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/CoreMetadata.html>

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`²⁴ where you should store any relevant metadata.

The most common way to set up the OME-XML metadata for the reader is to initialize the `MetadataStore` using the `makeFilterMetadata()`²⁵ method and populate the `Pixels` elements of the metadata store from the `core` variable using the `MetadataTools.populatePixels(MetadataStore, FormatReader)`²⁶ method:

```
# Initialize the OME-XML metadata from the core variable
MetadataStore store = makeFilterMetadata();
MetadataTools.populatePixels(store, this);
```

If the reader includes metadata at the plane level, you can initialize the `Plane` elements under the `Pixels` using `MetadataTools.populatePixels(MetadataStore, FormatReader, doPlane)`²⁷:

```
MetadataTools.populatePixels(store, this, true);
```

Once the metadata store has been initialized with the core properties, additional metadata can be added to it using the setter methods. Note that for each of the model components, the `setObjectID()` method should be called before any of the `setObjectProperty()` methods, e.g.:

```
# Add an oil immersion objective with achromat
String objectiveID = MetadataTools.createLSID("Objective", 0, 0);
store.setObjectiveID(objectiveID, 0, 0);
store.setObjectiveImmersion(getImmersion("Oil"), 0, 0);
```

- `close(boolean)`²⁸ 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 `loci.formats.FormatReader`²⁹). In this case, it is usually sufficient to override `initFile(java.lang.String)`³⁰ and `isThisType(byte[])`³¹.

Every reader also has an instance of `loci.formats.CoreMetadata`³². 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 `loci.common.RandomAccessInputStream`³³ or `loci.common.Location`³⁴, 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
}
```

²⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#metadata>

²⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#makeFilterMetadata\(\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#makeFilterMetadata())

²⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/MetadataTools.html#populatePixels\(loci.formats.meta.MetadataStore, loci.formats.IFormatReader\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/MetadataTools.html#populatePixels(loci.formats.meta.MetadataStore, loci.formats.IFormatReader))

²⁷[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/MetadataTools.html#populatePixels\(loci.formats.meta.MetadataStore, loci.formats.IFormatReader, boolean\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/MetadataTools.html#populatePixels(loci.formats.meta.MetadataStore, loci.formats.IFormatReader, boolean))

²⁸[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#close\(boolean\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/IFormatReader.html#close(boolean))

²⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html>

³⁰[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#initFile\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#initFile(java.lang.String))

³¹[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#isThisType\(byte\[\]\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#isThisType(byte[]))

³²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/CoreMetadata.html>

³³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/RandomAccessInputStream.html>

³⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html>

For more details, see `loci.common.Location.mapId(java.lang.String, java.lang.String)`³⁵ and `loci.common.Location.getMappedId(java.lang.String)`³⁶.

15.4.2 Variables to populate

There are a number of global variables defined in `loci.formats.FormatReader`³⁷ that should be populated in the constructor of any implemented reader.

These variables are:

- `suffixNecessary`³⁸ Indicates whether or not a file name suffix is required; true by default
- `suffixSufficient`³⁹ Indicates whether or not a specific file name suffix guarantees that this reader can open a particular file; true by default
- `hasCompanionFiles`⁴⁰ 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
- `datasetDescription`⁴¹ A brief description of the layout of files in datasets of this format; only necessary for multi-file datasets
- `domains`⁴² An array of imaging domains for which this format is used. Domains are defined in `loci.formats.FormatTools`⁴³.

15.4.3 Other useful things

- `loci.common.RandomAccessInputStream`⁴⁴ 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`⁴⁵ 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*⁴⁶ for additional information.
- `loci.common.DataTools`⁴⁷ 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`⁴⁸ 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` package⁴⁹.
- Several common image compression types are supported through subclasses of `loci.formats.codec.BaseCodec`⁵⁰. 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.
- Once you have written your file format reader, add a line to the `readers.txt`⁵¹ file with the fully qualified name of the reader, followed by a '#' and the file extensions associated with the file format. Note that `loci.formats.ImageReader`⁵², the master

³⁵[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html#mapId\(java.lang.String, java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html#mapId(java.lang.String, java.lang.String))

³⁶[http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html#getMappedId\(java.lang.String\)](http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html#getMappedId(java.lang.String))

³⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html>

³⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#suffixNecessary>

³⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#suffixSufficient>

⁴⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#hasCompanionFiles>

⁴¹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#datasetDescription>

⁴²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatReader.html#domains>

⁴³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/FormatTools.html>

⁴⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/RandomAccessInputStream.html>

⁴⁵<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/Location.html>

⁴⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/>

⁴⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/DataTools.html>

⁴⁸<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ImageTools.html>

⁴⁹<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/services/package-summary.html>

⁵⁰<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/codec/BaseCodec.html>

⁵¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-api/src/loci/formats/readers.txt>

⁵²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ImageReader.html>

file format reader, tries to identify which format reader to use according to the order given in `readers.txt`⁵³, 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. `loci.formats.ImageReader`⁵⁴ 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`⁵⁵ to see exactly what each one does.

Argument	Action
-version	print the library version and exit
file	the image file to read
-nopix	read metadata only, not pixels
-nocore	do not output core metadata
-nometa	do not parse format-specific metadata table
-nofilter	do not filter metadata fields
-thumbs	read thumbnails instead of normal pixels
-minmax	compute min/max statistics
-merge	combine separate channels into RGB image
-nogroup	force multi-file datasets to be read as individual files
-stitch	stitch files with similar names
-separate	split RGB image into separate channels
-expand	expand indexed color to RGB
-omexml	populate OME-XML metadata
-normalize	normalize floating point images*
-fast	paint RGB images as quickly as possible*
-debug	turn on debugging output
-range	specify range of planes to read (inclusive)
-series	specify which image series to read
-swap	override the default input dimension order
-shuffle	override the default output dimension order
-map	specify file on disk to which name should be mapped
-preload	pre-read entire file into a buffer; significantly reduces the time required to read the images, but requires more memory
-crop	crop images before displaying; argument is ‘x,y,w,h’
-autoscale	used in combination with ‘-fast’ to automatically adjust brightness and contrast
-novalid	do not perform validation of OME-XML
-omexml-only	only output the generated OME-XML
-format	read file with a particular reader (e.g., ZeissZVI)

* = may result in loss of precision

- If you wish to test using TestNG, `loci.tests.testng.FormatReaderTest`⁵⁶ provides several basic tests that work with all Bio-Formats readers. See the `FormatReaderTest` source code for additional information.
- For more details, please look at the source code and `Javadocs`⁵⁷. 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`⁵⁸ (this is the most straightforward one). `loci.formats.in.LIFReader`⁵⁹ and `InCellReader`⁶⁰ are also good references that show off some of the nicer features of Bio-Formats.

If you have questions about Bio-Formats, please contact the [OME team](#)⁶¹.

⁵³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-api/src/loci/formats/readers.txt>

⁵⁴<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/formats/ImageReader.html>

⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/bio-formats-tools/src/loci/formats/tools/ImageInfo.java>

⁵⁶<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/tests/testng/FormatReaderTest.html>

⁵⁷<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/>

⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LIFReader.java>

⁶⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/InCellReader.java>

⁶¹<http://www.openmicroscopy.org/site/community>

15.5 Adding format/reader documentation pages

Most documentation pages for the supported formats and readers are auto-generated. These pages should not be modified directly. This page explains how to amend/extend this part of the Bio-Formats documentation.

The [Bio-Formats testing framework](#)⁶² component contains most of the infrastructure to run automated tests against the data repository.

15.5.1 Formats

After checking out source code and building all the JAR files (see *Obtaining and building Bio-Formats*), the supported formats pages can be generated using the **ant** `gen-format-pages` target under the `autogen` component:

```
$ ant -f components/autogen/build.xml gen-format-pages
```

This target will read the metadata for each format stored under `format-pages.txt`⁶³ and generate a reStructuredText file for each format stored under `formats/<formatname>.txt` as well as an index page for all supported formats using [Velocity](#)⁶⁴.

The `format-pages.txt` is an INI file where each section corresponds to a particular format given by the section header. Multiple key/values should be defined for each section:

- pagename** The name of the output reStructuredText file. If unspecified, the section header will be used to generate the filename.
- extensions** The list of extensions supported for the format
- owner** The owner of the file format
- developer** The developer of the file format
- bsd** A *yes/no* flag specifying whether the format readers/writers are under the BSD license
- versions** A comma-separated list of all versions supported for this format
- weHave** A bullet-point list describing the supporting material we have for this format including specification and sample datasets
- weWant** A bullet-point list describing the supporting material we would like to have for this format
- pixelRating, metadataRating, opennessRating, presenceRating, utilityRating** See *Ratings legend and definitions*. Available choices are: *Poor, Fair, Good, Very Good, Outstanding*
- reader** A string or a comma-separated list of all readers for this format
- notes** Additional relevant information e.g. that we cannot distribute specification documents to third parties

15.5.2 Dataset structure table

After checking out source code and building all the JAR files (see *Obtaining and building Bio-Formats*), the summary table listing the extensions for each reader can be generated using the **ant** `gen-structure-table` target under the `autogen` component:

```
$ ant -f components/autogen/build.xml gen-structure-table
```

This target will loop through all Bio-Formats readers (BSD and GPL), read their extensions and descriptions and create a reStructuredText file with a table summary of all file extensions.

15.5.3 Readers

After checking out source code and building all the JAR files (see *Obtaining and building Bio-Formats*), the metadata pages for each reader can be generated using the **ant** `gen-meta-support` target under the `autogen` component:

⁶²<https://github.com/openmicroscopy/bioformats/tree/v5.2.3/components/autogen>

⁶³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/autogen/src/format-pages.txt>

⁶⁴<http://velocity.apache.org/>

```
$ ant -f components/autogen/build.xml gen-meta-support
```

This target will loop through all Bio-Formats readers (BSD and GPL), parse their metadata support and create an intermediate `meta-support.txt` file. In a second step, this `meta-support.txt` file is converted into one `reStructuredText` page for each reader stored under `metadata/<reader>.txt` as well as a metadata summary `reStructuredText` file using `Velocity`⁶⁵.

15.6 Bio-Formats service and dependency infrastructure

15.6.1 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`⁶⁶, `dependency inversion`⁶⁷ or `component based design`⁶⁸.

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`⁶⁹ contains many other implementations in many languages.

An added benefit is the potential code reuse possibilities as a result of decoupling of dependency and usage in Bio-Formats readers. Implementations of the initial Bio-Formats services were completed as part of `BioFormatsCleanup` and tickets [#463](#)⁷⁰ and [#464](#)⁷¹.

15.6.2 Writing a service

- **Interface** – The basic form of a service is an interface which inherits from `loci.common.services.Service`⁷². 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`:

```
public class OMENotesServiceImpl extends AbstractService
    implements OMENotesService {

    /**
     * Default constructor.
```

⁶⁵<http://velocity.apache.org/>

⁶⁶http://en.wikipedia.org/wiki/Dependency_injection

⁶⁷http://en.wikipedia.org/wiki/Dependency_inversion_principle

⁶⁸http://en.wikipedia.org/wiki/Component-based_software_engineering

⁶⁹http://en.wikipedia.org/wiki/Dependency_injection

⁷⁰<https://trac.openmicroscopy.org/ome/ticket/463>

⁷¹<https://trac.openmicroscopy.org/ome/ticket/464>

⁷²<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/services/Service.html>

```

    */
    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`⁷³ via the `services.properties` 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
...

```

See also:

[loci.common.services.Service](#)⁷⁴. Source code for `loci.common.services.Service` interface

[loci.common.services.ServiceFactory](#)⁷⁵ Source code for `loci.common.services.Service` interface

15.6.3 Using a service

```

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

```

⁷³<http://downloads.openmicroscopy.org/latest/bio-formats5.2/api/loci/common/services/ServiceFactory.html>

15.7 Code generation with xsd-fu

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

15.7.1 Available options

-d, --dry-run

Run all source generation processing, but don't write output files. In combination with `--print-depends` or `--print-generated`, this option may be used to dynamically introspect command dependencies and output to create build rules on the fly for e.g. **cmake**.

--debug

Enable xsd-fu debugging messages and template debugging. The code templates contain diagnostic messages to debug the template processing, which are normally suppressed in the code output; enabling debugging will add these diagnostic messages to the generated code.

-l language, --language=language

Generate code for the specified language. Currently supported options are *C++* and *Java*.

--metadata-package=package

Package or namespace for the metadata store and retrieve classes.

--ome-xml-metadata-package

Package or namespace for the OME-XML metadata classes.

--ome-xml-model-package=package

Package or namespace for the OME-XML model classes.

--ome-xml-model-enums-package=package

Package or namespace for the OME-XML model enum classes.

--ome-xml-model-enum-handlers-package=package

Package or namespace for the OME-XML model enum handler classes.

-o dir, --output-directory=dir

Output generated code into the specified directory. The directory will be created if it does not already exist. Note that the directory is the root of the source tree; generated classes will be placed into the appropriate module-specific locations under this root.

--print-depends

Print a list of the files required during template processing, including schema files, templates and custom template fragments. Particularly useful with `--dry-run` to introspect command dependencies.

--print-generated

Print a list of the files generated during template processing. Particularly useful with `--dry-run` to determine what a given command would generate.

-q, --quiet

Do not print names of generated files.

-t path, --template-path=path

Path to search for Genshi template files. Defaults to the language-specific template directory in *components/xsd-fu*.

-n, --xsd-namespace

XML schema namespace to use. Defaults to *xsd:*.

-v, --verbose

Print names of generated files as they are processed.

15.7.2 Available commands

- `doc_gen`

- metadata
- omero_metadata
- omero_model
- omexml_metadata
- omexml_metadata_all
- omexml_model
- omexml_model_all
- omexml_model_enums
- omexml_model_enum_handlers
- omexml_model_enum_includeall
- tab_gen

15.7.3 Running the code generator

Run `xsd-fu` script with no arguments to examine the syntax:

```
./components/xsd-fu/xsd-fu
Error: Missing subcommand
```

```
xsd-fu: Generate classes from an OME-XML schema definition
Usage: ./components/xsd-fu/xsd-fu command [options...] -o output_dir schema_files...
```

Options:

<code>-d, --dry-run</code>	Do not create output files
<code>--debug</code>	Enable <code>xsd-fu</code> and template debugging
<code>-l, --language=lang</code>	Generated language
<code>--metadata-package=pkg</code>	Metadata package
<code>--ome-xml-metadata-package=pkg</code>	OME-XML metadata class package
<code>--ome-xml-model-package=pkg</code>	OME-XML model package
<code>--ome-xml-model-enums-package=pkg</code>	OME-XML model enum package
<code>--ome-xml-model-enum-handlers-package=pkg</code>	OME-XML model enum handler package
<code>-o, --output-directory=dir</code>	Generated output directory
<code>-q, --quiet</code>	Do not output file names
<code>-t, --template-path=path</code>	Genshi template path
<code>-v, --verbose</code>	Output generated file names
<code>-n, --xsd-namespace</code>	XML schema namespace

Available subcommands:

```
debug
doc_gen
omexml_model_enum_handlers
omexml_model_enums
omexml_model
metadata
omero_metadata
omero_model
omexml_metadata
tab_gen
```

Default XSD namespace: "xsd:"

Default Java OME-XML package: "ome.xml.model"

Default Java OME-XML enum package: "ome.xml.model.enums"

Default Java OME-XML enum handler package: "ome.xml.model.enums.handlers"

Default Java metadata package: "loci.formats.meta"

Default Java OME-XML metadata package: "loci.formats.ome"


```
Default C++ OME-XML package: "ome::xml::model"
Default C++ OME-XML enum package: "ome::xml::model::enums"
Default C++ metadata package: "ome::xml::meta"
Default C++ OME-XML metadata package: "ome::xml::meta"
```

Examples:

```
./components/xsd-fu/xsd-fu -l Java -n 'xsd:' --ome-xml-model-package=ome.xml.model -o omexml /path/to/
./components/xsd-fu/xsd-fu -l C++ -n 'xsd:' --ome-xml-model-package=ome::xml::model -o omexml /path/to/
```

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

Note: It should not be necessary to run it by hand for a normal Bio-Formats build. **xsd-fu** is run automatically as part of the main Bio-Formats build from version 5.0 when building the *ome-xml* and *scifio* components. It is still useful to run by hand when debugging, or using non-standard targets.

15.7.4 Generating the OME-XML Java model and metadata classes

The following sections outline how to generate parts of the OME-XML Java interfaces and implementations for the object model and metadata store, which are composed of:

- OME model objects
- enumerations for OME model properties
- enumeration handlers for regular expression matching of enumeration strings
- Metadata store and Metadata retrieve interfaces for all OME model properties
- various implementations of Metadata store and/or Metadata retrieve interfaces

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

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

Run:

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

to see the command-line options used.

15.7.5 Working with Enumerations and Enumeration Handlers

XsdFu code generates enumeration regular expressions using a flexible [configuration file](#)⁷⁶.

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

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

⁷⁶https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/xsd-fu/cfg/enum_handler.cfg

15.7.6 Generate OMERO model specification files

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

15.7.7 Special thanks

A special thanks goes out to [Dave Kuhlman](http://www.davekuhlman.org/)⁷⁷ for his fabulous work on `generateDS`⁷⁸ which **xsd-fu** makes heavy use of internally.

15.8 Scripts for performing development tasks

The `tools` directory contains several scripts which are useful for building and performing routine updates to the code base.

15.8.1 bump_maven_version.py

This updates the Maven POM version numbers for all `pom.xml` files that set `groupId` to `ome`. The script takes a single argument, which is the new version. For example, to update the POM versions prior to release:

```
./tools/bump_maven_version.py 5.1.0
```

and to switch back to snapshot versions immediately after release:

```
./tools/bump_maven_version.py 5.1.1-SNAPSHOT
```

15.8.2 test-build

This is the script used by Travis to test each commit. It compiles and runs tests on each of the components in the Bio-Formats repository according to the arguments specified. Valid arguments are:

- *clean*: cleans the Maven build directories
- *maven*: builds all Java components using Maven and runs unit tests
- *cpp*: builds the native C++ code alone
- *sphinx*: builds the Sphinx documentation alone
- *ant*: builds all Java components using Ant and runs unit tests
- *all*: equivalent of *clean maven sphinx ant*

15.8.3 update_copyright

This updates the end year in the copyright blocks of all source code files. The command takes no arguments, and sets the end year to be the current year. As `update_copyright` is a Bash script, it is not intended to be run on Windows.

See [open Trac tickets for Bio-Formats](https://trac.openmicroscopy.org/ome/report/44)⁷⁹ 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](http://www.openmicroscopy.org/site/support/contributing/index.html)⁸⁰.

⁷⁷<http://www.davekuhlman.org/>

⁷⁸<http://www.davekuhlman.org/generateDS.html>

⁷⁹<https://trac.openmicroscopy.org/ome/report/44>

⁸⁰<http://www.openmicroscopy.org/site/support/contributing/index.html>

Part IV

Formats

Bio-Formats supports over 140 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](#)⁸¹. If you have any questions, or would prefer not to use QA, please email the [ome-users mailing list](#)⁸². 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.

All the example files we have permission to share publicly are freely available from our [sample image downloads site](#)⁸³.

⁸¹<http://qa.openmicroscopy.org.uk/qa/upload/>

⁸²<http://www.openmicroscopy.org/site/community/mailing-lists>

⁸³<http://downloads.openmicroscopy.org/images/>

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 AFI	.afi	One .afi file and several similarly-named .svs files
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
Bio-Rad SCN	.scn	Single 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
CellH5 (HDF)	.ch5	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
CellVoyager	.tif, .xml	Directory with 2 master files 'MeasurementResult.xml' and 'MeasurementResult.ome.xml', used to stitch together several TIF 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

Continued on next page

Table 16.1 – continued from previous page

Format name	File to choose	Structure of files
Deltavision	.dv, .r3d, .r3d_d3d, .dv.log, .r3d.log	One .dv, .r3d, or .d3d file and up to two optional .log files
ECAT7	.v	Single file
Encapsulated PostScript	.eps, .epsi, .ps	Single file
Evotec Flex	.flex, .mea, .res	One directory containing one or more .flex files, and an optional directory containing an .mea and .res file. The .mea and .res files may also be in the same directory as the .flex file(s).
FEI TIFF	.tif, .tiff	Single file
FEI/Philips	.img	Single file
Flexible Image Transport System	.fits, .fts	Single file
FlowSight	.cif	Single file
Fuji LAS 3000	.img, .inf	Single file
Gatan DM2	.dm2	Single file
Gatan Digital Micrograph	.dm3, .dm4	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
I2I	.i2i	Single 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, .tif, .tif, .xlog	One .xdce file with at least one .tif/.tiff or .im file
InCell 3000	.frm	Single file
Inveon	.hdr	One .hdr file plus one similarly-named 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
JKP 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
Lavision Inspector	.msr	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

Continued on next page

Table 16.1 – continued from previous page

Format name	File to choose	Structure of files
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, .mrcs	Single file
Metamorph STK	.stk, .nd, .tif, .tiff	One or more .stk or .tif/.tiff files plus an optional .nd file
Metamorph TIFF	.tif, .tiff	One or more .tif/.tiff files
Micro-Manager	.tif, .tiff, .txt, .xml	A file ending in 'metadata.txt' plus one or more .tif files
Minolta MRW	.mrw	Single file
Molecular Imaging	.stp	Single file
Multiple-image Network Graphics	.mng	Single file
NIFTI	.nii, .img, .hdr, .nii.gz	A single .nii file or a single .nii.gz 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
OBF	.obf, .msr	OBF file
OME-TIFF	.ome.tif, .ome.tiff, .ome.tf2, .ome.tf8, .ome.btf, .companion.ome	One or more .ome.tif files
OME-XML	.ome, .ome.xml	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
PCO-RAW	.pcoraw, .rec	A single .pcoraw file with a similarly-named .rec 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
Perkin-Elmer Nuance IM3	.im3	Single 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
PicoQuant Bin	.bin	Single file
Portable Any Map	.pbm, .pgm, .ppm	Single file
Prairie TIFF	.tif, .tiff, .cfg, .env, .xml	One .xml file, one .cfg file, and one or more .tif/.tiff files
Princeton Instruments SPE	.spe	Single file
Pyramid TIFF	.tif, .tiff	Single file

Continued on next page

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Format name	File to choose	Structure of files
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
SPC FIFO Data	.spc, .set	One .spc file and similarly named .set 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
Slidebook TIFF	.tif, .tiff	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> , <i>.sld</i> , <i>.slx</i> , <i>.ROI</i>)
Truevision Targa	.tga	Single file
UBM	.pr3	Single file
Unisoku STM	.hdr, .dat	One .HDR file plus one similarly-named .DAT file
VG SAM	.dti	Single file
Varian FDF	.fdf	Single file
Veeco	.hdf	Single file
Visitech XYS	.xys, .html	One .html file plus one or more .xys files
Velocity Library	.mvd2, .aisf, .aiix, .dat, .atsf	One .mvd2 file plus a 'Data' directory
Velocity Library Clipping	.acff	Single file
WA Technology TOP	.wat	Single file
Windows Bitmap	.bmp	Single file
Woolz	.wlz	Single file
Zeiss AxioVision TIFF	.tif, .xml	Single file
Zeiss CZI	.czi	Single file
Zeiss LMS	.lms	Single file
Zeiss Laser-Scanning Microscopy	.lsm, .mdb	One or more .lsm files; if multiple .lsm files are present, an .mdb file should also be present
Zeiss Vision Image (ZVI)	.zvi	Single file
Zip	.zip	Single file

16.1 Flex Support

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

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

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

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

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

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

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

SUPPORTED FORMATS

Ratings legend and definitions

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<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>Amnis FlowSight</i>	.cif	■	▼	■	▼	▼	✖	✓	✓	✖
<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 SPC FIFO</i>	.spc	▼	▼	■	▼	▼	✖	✖	✓	✖
<i>Becker & Hickl SPCImage</i>	.sdt	▲	▲	■	▼	▼	✖	✖	✓	✖
<i>Bio-Rad Gel</i>	.1sc	■	▼	▼	▼	▼	✖	✖	✖	✖
<i>Bio-Rad PIC</i>	.pic, .raw, .xml	▲	▲	▲	▲	▲	✖	✖	✖	✖
<i>Bio-Rad SCN</i>	.scn	▲	▼	▼	▼	▼	✖	✖	✖	✖
<i>Bitplane Imaris</i>	.ims	▲	▲	▲	▼	▼	✖	✖	✓	✓
<i>Bruker MRI</i>		■	▲	▼	■	▼	✖	✖	✓	✖

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<i>Burleigh</i>	.img	▲	▼	▼	▼	▼	✖	✖	✖	✖
<i>Canon DNG</i>	.cr2, .crw	▲	▲	▼	▼	▼	✖	✖	✖	✖
<i>CellH5</i>	.ch5	▲	▲	▲	▼	▲	✓	✖	✓	✖
<i>Cellomics</i>	.c01, .dib	▲	▼	▼	▼	▼	✖	✖	✓	✖
<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, .dm4	▲	▲	▼	▼	▼	✖	✖	✖	✖
<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, .ndpis	▼	▲	▲	▼	▼	✖	✖	✓	✓
<i>Hamamatsu VMS</i>	.vms	▲	▲	▼	▼	▼	✖	✖	✓	✖
<i>Hitachi S-4800</i>	.txt, .tif, .bmp, .jpg	▲	▲	▲	▼	▼	✖	✖	✖	✖
<i>I2I</i>	.i2i	▲	▲	▲	▼	▼	✖	✖	✖	✖
<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	▲	▲	▲	▼	▼	✖	✖	✖	✖

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Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<i>Improvision TIFF</i>	.tif	▲	▲	▲	▼	■	✘	✘	✘	✘
<i>Inspector OBF</i>	.obf, .msr	▲	■	▲	▼	▼	✘	✓	✓	✘
<i>InCell 1000/2000</i>	.xdce, .tif	▲	▲	■	▼	■	✘	✘	✓	✘
<i>InCell 3000</i>	.frm	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>INR</i>	.inr	▲	■	▼	▼	▼	✘	✘	✘	✘
<i>Inveon</i>	.hdr	▲	▲	■	▼	▼	✘	✘	✓	✘
<i>IPLab</i>	.ipl	▲	▲	▲	▼	▼	✘	✘	✘	✘
<i>IVision</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>	.tif	▲	▲	▲	▼	■	✘	✘	✓	✘
<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	▲	▲	▲	■	■	✘	✘	✘	✘

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Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<i>NEF (Nikon Electronic Format)</i>	.nef, .tif	▲	▲	▼	▼	▼	✘	✘	✘	✘
<i>NIfTI</i>	.img, .hdr, .nii, .nii.gz	▲	■	▲	■	▼	✘	✘	✘	✘
<i>Nikon Elements TIFF</i>	.tiff	■	■	▼	▼	▼	✘	✘	✘	✘
<i>Nikon EZ-C1 TIFF</i>	.tiff	▲	▲	■	▼	▼	✘	✘	✘	✘
<i>Nikon NIS-Elements ND2</i>	.nd2	▲	▲	▼	▲	▲	✘	✘	✓	✘
<i>NRRD (Nearly Raw Raster Data)</i>	.nrrd, .nhdr, .raw, .txt	▲	▲	▲	▼	▲	✘	✓	✘	✘
<i>Olympus CellR/APL</i>	.apl, .mtb, .tnb, .tif, .obsep	▲	▼	▼	▼	▼	✘	✘	✓	✘
<i>Olympus FluoView FV1000</i>	.oib, .oif	▲	▲	■	■	▲	✘	✘	✓	✘
<i>Olympus FluoView TIFF</i>	.tif	▲	▲	▲	■	■	✘	✘	✓	✘
<i>Olympus ScanR</i>	.xml, .dat, .tif	▲	■	■	▼	▼	✘	✘	✓	✘
<i>Olympus SIS TIFF</i>	.tif	■	■	■	▼	■	✘	✘	✘	✘
<i>OME-TIFF</i>	.ome.tiff, .ome.tif, .ome.tf2, .ome.tf8, .ome.bt ¹	▲	▲	▲	▼	▲	✓	✓	✓	✘
<i>OME-XML</i>	.ome, .ome.xml ²	▲	▲	▲	▼	▲	✓	✓	✓	✘
<i>Oxford Instruments PCORAW</i>	.top	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>PCX (PC Paintbrush)</i>	.pcx	▲	▼	▼	▼	▼	✘	✓	✘	✘
<i>Perkin Elmer Densitometer</i>	.pds	■	■	■	▼	▼	✘	✘	✘	✘
<i>PerkinElmer Nuance</i>	.im3	■	▼	▼	▼	▼	✘	✓	✓	✘
<i>PerkinElmer Operetta</i>	.tif, .xml	▲	■	■	▼	■	✘	✘	✓	✘
<i>PerkinElmer UltraVIEW</i>	.tif, .2, .3, .4, etc.	▲	■	▼	▼	▼	✘	✘	✘	✘
<i>Portable Any Map</i>	.pbm, .pgm, .ppm	▲	■	▲	■	▼	✘	✓	✘	✘
<i>Adobe Photoshop PSD</i>	.psd	■	■	■	■	▼	✘	✘	✘	✘
<i>Photoshop TIFF</i>	.tif, .tiff	■	■	■	■	■	✘	✘	✓	✘
<i>PicoQuant Bin</i>	.bin	■	▼	▼	▼	▼	✘	✘	✘	✘

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

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

Table 17.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<i>PICT (Macintosh Picture)</i>	.pict	▲	▼	▼	▲	▼	✘	✓	✘	✘
<i>PNG (Portable Network Graphics)</i>	.png	▲	■	▲	▲	▼	✓	✓	✘	✘
<i>Prairie Technologies TIFF</i>	.tif, .xml, .cfg	▲	■	■	▼	■	✘	✘	✓	✘
<i>Princeton Instruments SPE</i>	.spe	■	▲	▲	▼	■	✘	✘	✓	✘
<i>Quesant</i>	.afm	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>QuickTime Movie</i>	.mov	■	▲	▼	▲	▼	✓	✓	✘	✘
<i>RHK</i>	.sm2, .sm3	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>SBIG</i>		▲	■	▲	▼	▼	✘	✘	✘	✘
<i>Seiko</i>	.xqd, .xqf	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>SimplePCI & HCLmage</i>	.cxd	▲	■	▲	▼	▼	✘	✘	✘	✘
<i>SimplePCI & HCLmage TIFF</i>	.tif	▲	■	▲	▼	■	✘	✘	✘	✘
<i>SM Camera</i>		■	▼	▼	▼	▼	✘	✘	✘	✘
<i>SPIDER</i>	.spi, .stk	▲	▲	▲	■	■	✘	✘	✘	✘
<i>Targa</i>	.tga	▲	▲	▲	■	▼	✘	✘	✘	✘
<i>Text</i>	.txt	■	▼	▼	▼	▼	✘	✓	✘	✘
<i>TIFF (Tagged Image File Format)</i>	.tif, .tif, .tf2, .tf8, .btf	▲	▲	▲	▲	▼	✓	✓	✓	✓
<i>TillPhotonics TillVision</i>	.vws	■	▼	▼	▼	▼	✘	✘	✓	✘
<i>Topometrix</i>	.tfr, .ffr, .zfr, .zfp, .2fl	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Trestle</i>	.tif, .sld, .jpg	■	■	■	▼	▼	✘	✘	✓	✓
<i>UBM</i>	.pr3	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Unisoku</i>	.dat, .hdr	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Varian FDF</i>	.fdf	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Veeco AFM</i>	.hdf	■	▼	▲	▼	■	✘	✘	✘	✘
<i>VG SAM</i>	.dti	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>VisiTech XYS</i>	.xys, .html	▲	■	▼	▼	■	✘	✘	✓	✘
<i>Velocity</i>	.mvd2	■	■	▼	▼	▼	✘	✘	✓	✘
<i>Velocity Library Clipping</i>	.acff	■	■	▼	▼	▼	✘	✘	✘	✘
<i>WA-TOP</i>	.wat	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Windows Bitmap</i>	.bmp	▲	▲	▼	▲	▼	✘	✓	✘	✘
<i>Woolz</i>	.wlz	▲	▼	▲	▼	▼	✓	✘	✘	✘
<i>Zeiss Axio CSM</i>	.lms	■	▼	▼	▼	▼	✘	✘	✘	✘
<i>Zeiss AxioVision TIFF</i>	.xml, .tif	▲	▲	■	▼	▼	✘	✘	✓	✘

Continued on next page

Table 17.1 – continued from previous page

Format	Extensions	Pixels	Metadata	Openness	Presence	Utility	Export	BSD	Multiple Images	Pyramid
<i>Zeiss AxioVision ZVI</i> (<i>Zeiss Vision Image</i>)	.zvi									
<i>Zeiss CZI</i>	.dzi ³									
<i>Zeiss LSM (Laser Scanning Microscope) 510/710</i>	.lsm, .mdb									

Bio-Formats currently supports **144** 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.

Multiple Images This indicates whether the format can store multiple Images (in OME-XML terminology) or series (in Bio-Formats API terminology).

Pyramid This indicates whether the format can store a single image at multiple resolutions, typically referred to as an image pyramid.

17.1 3i SlideBook

Extensions: .sld

Developer: [Intelligent Imaging Innovations](http://www.intelligent-imaging.com/)⁴

Owner: [Intelligent Imaging Innovations](http://www.intelligent-imaging.com/)⁵

³<http://www.zeiss.com/czi>

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

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

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 4.1, 4.2, 5.0, 5.5, 6.0

Reader: SlidebookReader ([Source Code](#)⁶, *Supported Metadata Fields*)

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

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. Free software from 3i can export the files to OME-TIFF post-acquisition, see <https://www.slidebook.com/reader.php>.

3i also develops a native SlideBook reader which works with Bio-Formats. See <http://www.openmicroscopy.org/info/slidebook> for details.

See also:

[Slidebook software overview](#)⁷

17.2 Andor Bio-Imaging Division (ABD) TIFF

Extensions: .tif

Developer: Andor Bioimaging Department

Owner: [Andor Technology](#)⁸

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: FluoviewReader ([Source Code](#)⁹, *Supported Metadata Fields*)

We currently have:

- an ABD-TIFF specification document (from 2005 November, in PDF)

⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SlidebookReader.java>

⁷<https://www.slidebook.com>


⁸<http://www.andor.com/>


⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>


- a few ABD-TIFF datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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


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

17.3 AIM

Extensions: .aim

Developer: [SCANCO Medical AG](#)¹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: AIMReader ([Source Code](#)¹¹, *Supported Metadata Fields*)


We currently have:

- one .aim file


We would like to have:


- an .aim specification document
- more .aim files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.4 Alicona 3D

Extensions: .al3d

Owner: [Alicona Imaging](#)¹²

Support

¹⁰<http://www.scanco.ch>

¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/AIMReader.java>

¹²<http://www.alicon.com/>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 1.0

Reader: AliconaReader ([Source Code](#)¹³, *Supported Metadata Fields*)

We currently have:

- an AL3D specification document (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

Known deficiencies:

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

17.5 Amersham Biosciences Gel

Extensions: .gel

Developer: Molecular Dynamics

Owner: GE Healthcare Life Sciences¹⁴

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: GelReader ([Source Code](#)¹⁵, *Supported Metadata Fields*)

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: ▲

¹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/AliconaReader.java>

¹⁴<http://www.gelifesciences.com/>

¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/GelReader.java>

Openness: Presence: Utility: **Additional Information**


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](#)¹⁶

17.6 Amira Mesh

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

Developer: [Visage Imaging](#)¹⁷**Support**BSD-licensed: Export: 

Officially Supported Versions:



Reader: AmiraReader ([Source Code](#)¹⁸, *Supported Metadata Fields*)

We currently have:

- a few Amira Mesh datasets


We would like to have:

- more Amira Mesh datasets

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.7 Amnis FlowSight

Extensions: .cif

Owner: [Amnis](#)¹⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:

Reader: FlowSightReader ([Source Code](#)²⁰, *Supported Metadata Fields*)

¹⁶<http://www.awaresystems.be/imaging/tiff/tifftags/docs/gel.html>

¹⁷<http://www.amiravis.com/>

¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/AmiraReader.java>

¹⁹<http://www.amnis.com/>


²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/FlowSightReader.java>


We currently have:


- a few sample datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.8 Analyze 7.5

Extensions: .img, .hdr

Developer: Mayo Foundation Biomedical Imaging Resource²¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: AnalyzeReader (Source Code²², *Supported Metadata Fields*)

We currently have:

- an Analyze 7.5 specification document²³
- several Analyze 7.5 datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.9 Animated PNG

Extensions: .png

Developer: The Animated PNG Project²⁴

Support

BSD-licensed: 

Export: 

²¹<http://www.mayo.edu/bir>

²²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/AnalyzeReader.java>

²³<http://web.archive.org/web/20070927191351/http://www.mayo.edu/bir/PDF/ANALYZE75.pdf>

²⁴<http://www.animatedpng.com/>

Officially Supported Versions:

Reader: APNGReader ([Source Code](#)²⁵, *Supported Metadata Fields*)

Writer: APNGWriter ([Source Code](#)²⁶)

Freely Available Software:


- Firefox 3+²⁷
- Opera 9.5+²⁸
- KSquirrel²⁹

We currently have:

- a specification document³⁰
- several APNG files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.10 Aperio AFI

Extensions: .afi, .svs

Owner: [Aperio](#)³¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: AFIREader ([Source Code](#)³², *Supported Metadata Fields*)

We currently have:

- several AFI datasets


We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/APNGReader.java>

²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/APNGWriter.java>

²⁷<http://www.mozilla.com/firefox>


²⁸<http://www.opera.com/download>

²⁹<http://ksquirrel.sourceforge.net/download.php>

³⁰http://wiki.mozilla.org/APNG_Specification

³¹<http://www.aperio.com/>

³²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/AFIREader.java>

Utility: 

Additional Information

See also:


[Aperio ImageScope](#)³³

17.11 Aperio SVS TIFF

Extensions: .svs

Owner: [Aperio](#)³⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 8.0, 8.2, 9.0


Reader: SVSReader ([Source Code](#)³⁵, *Supported Metadata Fields*)

We currently have:

- many SVS datasets
- [public sample images](#)³⁶
- an SVS specification document
- the ability to generate additional SVS datasets

We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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](#)³⁷

17.12 Applied Precision CellWorX

Extensions: .htd, .pnl

Developer: [Applied Precision](#)³⁸

Support

³³<http://www.leicabiosystems.com/index.php?id=8991>

³⁴<http://www.aperio.com/>

³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SVSReader.java>

³⁶<http://downloads.openmicroscopy.org/images/SVS/>

³⁷<http://www.leicabiosystems.com/index.php?id=8991>

³⁸<http://www.api.com>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: CellWorXReader ([Source Code](#)³⁹, *Supported Metadata Fields*)

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: ▼

17.13 AVI (Audio Video Interleave)

Extensions: .avi

Developer: Microsoft⁴⁰

Support

BSD-licensed: ✅

Export: ✅

Officially Supported Versions:

Reader: AVIReader ([Source Code](#)⁴¹, *Supported Metadata Fields*)

Writer: AVIWriter ([Source Code](#)⁴²)

Freely Available Software:

- [AVI Reader plugin for ImageJ](#)⁴³
- [AVI Writer plugin for ImageJ](#)⁴⁴

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

³⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/CellWorXReader.java>





⁴⁰<http://www.microsoft.com/>

⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/AVIReader.java>

⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/AVIWriter.java>

⁴³<http://rsb.info.nih.gov/ij/plugins/avi-reader.html>

⁴⁴<http://rsb.info.nih.gov/ij/plugins/avi.html>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**


- 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](#)⁴⁵ [AVI on Wikipedia](#)⁴⁶

17.14 Axon Raw Format

Extensions: .arf

Owner: INDEC BioSystems⁴⁷**Support**BSD-licensed: Export: 

Officially Supported Versions:




Reader: ARFReader (Source Code⁴⁸, *Supported Metadata Fields*)

We currently have:

- one ARF dataset
- a specification document⁴⁹

We would like to have:

- more ARF datasets

RatingsPixels: Metadata: Openness: Presence: Utility: 

⁴⁵<http://msdn2.microsoft.com/en-us/library/ms779636.aspx>

⁴⁶http://en.wikipedia.org/wiki/Audio_Video_Interleave

⁴⁷<http://www.indecbiosystems.com/>

⁴⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ARFReader.java>


⁴⁹http://www.indecbiosystems.com/imagingworkbench/ApplicationNotes/IWAppNote11-ARF_File_Format.pdf

17.15 BD Pathway

Extensions: .exp, .tif

Owner: BD Biosciences⁵⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: BDReader (Source Code⁵¹, *Supported Metadata Fields*)


We currently have:

- a few BD Pathway datasets

We would like to have:

- more BD Pathway datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.16 Becker & Hickl SPC FIFO

Extensions: .spc

Owner: Becker-Hickl⁵²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: SPCReader (Source Code⁵³, *Supported Metadata Fields*)

We currently have:

- an SPC specification document⁵⁴
- public sample images⁵⁵

We would like to have:

- more SPC sample files

⁵⁰<http://www.bdbiosciences.com>






⁵¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BDReader.java>

⁵²<http://www.becker-hickl.de/>

⁵³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SPCReader.java>

⁵⁴<http://www.becker-hickl.com/handbookphp.htm>


⁵⁵<http://downloads.openmicroscopy.org/images/SPC-FIFO/>

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**

- Only files containing frame, line and pixel clock information are currently supported

17.17 Becker & Hickl SPCImage

Extensions: .sdt

Owner: [Becker-Hickl](#)⁵⁶**Support**BSD-licensed: Export: 





Officially Supported Versions:

Reader: SDTReader ([Source Code](#)⁵⁷, *Supported Metadata Fields*)

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](#)⁵⁸ 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****Please note that while we have specification documents for this format, we are not able to distribute them to third parties.**⁵⁶<http://www.becker-hickl.de/>⁵⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SDTReader.java>⁵⁸<http://www.becker-hickl.de/software/tcspc/softwaretcspcspecial.htm>

17.18 Bio-Rad Gel

Extensions: .lsc

Owner: Bio-Rad⁵⁹

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: BioRadGelReader ([Source Code](#)⁶⁰, *Supported Metadata Fields*)


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: 

17.19 Bio-Rad PIC

Extensions: .pic, .raw, .xml

Developer: Bio-Rad

Owner: Carl Zeiss, Inc.⁶¹

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: BioRadReader ([Source Code](#)⁶², *Supported Metadata Fields*)

Freely Available Software:

- Bio-Rad PIC reader plugin for ImageJ⁶³

We currently have:

- a PIC specification document (v4.5, in PDF)
- an older PIC specification document (v4.2, from 1996 December 16, in DOC)

⁵⁹<http://www.bio-rad.com>

⁶⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BioRadGelReader.java>

⁶¹<http://www.zeiss.com/>


⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BioRadReader.java>


⁶³<http://rsb.info.nih.gov/ij/plugins/biorad.html>


- 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

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 Imaris⁶⁴
 - SVI Huygens⁶⁵


17.20 Bio-Rad SCN

Extensions: .scn

Developer: Bio-Rad

Owner: Bio-Rad⁶⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: BioRadSCNReader (Source Code⁶⁷, *Supported Metadata Fields*)


We currently have:

- a few Bio-Rad .scn files

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

⁶⁴<http://www.bitplane.com/>

⁶⁵<http://svi.nl/>

⁶⁶<http://www.bio-rad.com>

⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BioRadSCNReader.java>

17.21 Bitplane Imaris

Extensions: .ims

Owner: Bitplane⁶⁸

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions: 2.7, 3.0, 5.5

Readers:

- ImarisHDFReader (Source Code⁶⁹, *Supported Metadata Fields*)
- ImarisTiffReader (Source Code⁷⁰, *Supported Metadata Fields*)
- ImarisReader (Source Code⁷¹, *Supported Metadata Fields*)

We currently have:

- an Imaris (RAW) specification document⁷² (from no later than 1997 November 11, in HTML)
- an Imaris 5.5 (HDF) specification document⁷³
- 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

- **There are three distinct Imaris formats:**
 1. the old binary format (introduced in Imaris version 2.7)
 2. Imaris 3, a TIFF variant (introduced in Imaris version 3.0)
 3. Imaris 5.5, an HDF variant (introduced in Imaris version 5.5)

⁶⁸<http://www.bitplane.com/>

⁶⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImarisHDFReader.java>

⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImarisTiffReader.java>

⁷¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImarisReader.java>

⁷²<http://flash.bitplane.com/wda/interfaces/public/faqs/faqsview.cfm?inCat=0&inQuestionID=104>

⁷³<http://open.bitplane.com/Default.aspx?tabid=268>

17.22 Bruker MRI

Developer: Bruker⁷⁴

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: BrukerReader ([Source Code](#)⁷⁵, *Supported Metadata Fields*)

Freely Available Software:

- Bruker plugin for ImageJ⁷⁶


We currently have:

- a few Bruker MRI datasets

We would like to have:

- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.23 Burleigh

Extensions: .img

Owner: Burleigh Instruments

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: BurleighReader ([Source Code](#)⁷⁷, *Supported Metadata Fields*)

We currently have:

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

We would like to have:






- a Burleigh file format specification
- more Burleigh files

⁷⁴<http://www.bruker.com/>

⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BrukerReader.java>


⁷⁶<http://rsbweb.nih.gov/ij/plugins/bruker.html>

⁷⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/BurleighReader.java>

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.24 Canon DNG

Extensions: .cr2, .crw

Developer: [Canon](#)⁷⁸**Support**BSD-licensed: Export: 

Officially Supported Versions:

Reader: DNGReader ([Source Code](#)⁷⁹, *Supported Metadata Fields*)

Freely Available Software:



- [IrfanView](#)⁸⁰

We currently have:

- a few example datasets


We would like to have:

- an official specification document

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.25 CellH5

Extensions: .ch5

Developer: [CellH5](#)⁸¹**Support**BSD-licensed: Export: 

Officially Supported Versions:

⁷⁸<http://canon.com>⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/DNGReader.java>⁸⁰<http://www.irfanview.com/>⁸¹<http://cellh5.org/>

Reader: CellH5Reader (Source Code⁸², *Supported Metadata Fields*)

Writer: CellH5Writer (Source Code⁸³)

Freely Available Software:


- CellH5⁸⁴

We currently have:


- a few CellH5 datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.26 Cellomics

Extensions: .c01, .dib

Developer: Thermo Fisher Scientific⁸⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: CellomicsReader (Source Code⁸⁶, *Supported Metadata Fields*)


We currently have:

- a few Cellomics .c01 datasets
- public .dib sample images⁸⁷

We would like to have:


- a Cellomics .c01 specification document
- more Cellomics .c01 datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/CellH5Reader.java>

⁸³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/out/CellH5Writer.java>

⁸⁴<http://cellh5.org/>

⁸⁵<http://www.thermofisher.com/>

⁸⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/CellomicsReader.java>

⁸⁷<http://downloads.openmicroscopy.org/images/HCS/BBBC/>

17.27 cellSens VSI

Extensions: .vsi

Developer: Olympus⁸⁸

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: CellSensReader (Source Code⁸⁹, *Supported Metadata Fields*)

We currently have:

- a few example datasets

We would like to have:

- an official specification document

Ratings

Pixels: ▼

Metadata: □

Openness: ▼

Presence: ▼

Utility: ▼

17.28 CellVoyager

Extensions: .xml, .tif

Owner: Yokogawa⁹⁰

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: CellVoyagerReader (Source Code⁹¹, *Supported Metadata Fields*)

We currently have:

- a few example datasets

We would like to have:

Ratings

Pixels: ▲

Metadata: □

Openness: □


Presence: ▼

⁸⁸<http://www.olympus.com/>

⁸⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/CellSensReader.java>

⁹⁰<http://www.yokogawa.com/>

⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/CellVoyagerReader.java>


Utility: 

17.29 DeltaVision

Extensions: .dv, .r3d

Owner: GE Healthcare (formerly Applied Precision)⁹²

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: DeltavisionReader (Source Code⁹³, *Supported Metadata Fields*)

Freely Available Software:





- DeltaVision Opener plugin for ImageJ⁹⁴

We currently have:

- a DV specification document (v2.10 or newer, in HTML)
- numerous DV datasets
- public sample images⁹⁵

We would like to have:

Ratings

Pixels: Metadata: Openness: Presence: Utility: 

Additional Information

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 Imaris⁹⁶
 - SVI Huygens⁹⁷
 - Image-Pro Plus⁹⁸


⁹²<http://www.gelifesciences.com/webapp/wcs/stores/servlet/catalog/en/GELifeSciences-UK/brands/deltavision/>⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/DeltavisionReader.java>⁹⁴<http://rsb.info.nih.gov/ij/plugins/track/delta.html>⁹⁵<http://downloads.openmicroscopy.org/images/DV/>⁹⁶<http://www.bitplane.com/>⁹⁷<http://svi.nl/>⁹⁸<http://www.mediacy.com/>

17.30 DICOM

Extensions: .dcm, .dicom

Developer: National Electrical Manufacturers Association⁹⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: DicomReader (Source Code¹⁰⁰, *Supported Metadata Fields*)

Freely Available Software:

- OsiriX Medical Imaging Software¹⁰¹
- ezDICOM¹⁰²
- Wikipedia's list of freeware health software¹⁰³

Sample Datasets:


- MRI Chest from FreeVol-3D web site¹⁰⁴
- Medical Image Samples from Sebastien Barre's Medical Imaging page¹⁰⁵
- DICOM sample image sets from OsiriX web site¹⁰⁶

We currently have:

- DICOM specification documents¹⁰⁷ (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

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

If you have a problematic DICOM file which you cannot send us for privacy reasons, please send us the exact error message and be aware that it may take several attempts to fix the problem blind.

See also:

[DICOM homepage](#)¹⁰⁸

⁹⁹<http://www.nema.org/>

¹⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/DicomReader.java>

¹⁰¹<http://www.osirix-viewer.com/>

¹⁰²<http://www.sph.sc.edu/comd/rorden/ezdicom.html>

¹⁰³http://en.wikipedia.org/wiki/List_of_freeware_health_software

¹⁰⁴http://members.tripod.com/%7Eclunis_immensus/free3d/hk-40.zip

¹⁰⁵<http://www.barre.nom.fr/medical/samples/>

¹⁰⁶<http://osirix-viewer.com/datasets/>

¹⁰⁷<http://medical.nema.org/dicom/2007/>

¹⁰⁸<http://medical.nema.org/>

17.31 ECAT7

Extensions: .v

Developer: Siemens¹⁰⁹

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: Ecat7Reader (Source Code¹¹⁰, *Supported Metadata Fields*)


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: 

17.32 EPS (Encapsulated PostScript)

Extensions: .eps, .epsi, .ps

Developer: Adobe¹¹¹

Support

BSD-licensed: ✔

Export: ✔

Officially Supported Versions:

Reader: EPSReader (Source Code¹¹², *Supported Metadata Fields*)

Writer: EPSWriter (Source Code¹¹³)

Freely Available Software:

- EPS Writer plugin for ImageJ¹¹⁴

We currently have:

- a few EPS datasets
- the ability to produce new datasets

¹⁰⁹<http://www.siemens.com>

¹¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/Ecat7Reader.java>

¹¹¹<http://www.adobe.com/>


¹¹²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/EPSReader.java>

¹¹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/EPSWriter.java>


¹¹⁴<http://rsb.info.nih.gov/ij/plugins/eps-writer.html>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


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

17.33 Evotec/PerkinElmer Opera Flex

Extensions: .flex, .mea, .res

Developer: [Evotec Technologies, now PerkinElmer](#)¹¹⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: FlexReader ([Source Code](#)¹¹⁶, *Supported Metadata Fields*)

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

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

See also:

[LuraTech \(developers of the proprietary LuraWave LWF compression used for Flex image planes\)](#)¹¹⁷

¹¹⁵<http://www.perkinelmer.com/>

¹¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FlexReader.java>

¹¹⁷<http://www.luratech.com/>

17.34 FEI

Extensions: .img

Developer: FEI¹¹⁸

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: FEIReader (Source Code¹¹⁹, *Supported Metadata Fields*)

We currently have:

- a few FEI files

We would like to have:


- a specification document
- more FEI files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.35 FEI TIFF

Extensions: .tiff

Developer: FEI¹²⁰

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:


Reader: FEITiffReader (Source Code¹²¹, *Supported Metadata Fields*)

We currently have:


- a few FEI TIFF datasets

We would like to have:

Ratings

Pixels: 

Metadata: 



Openness: 

¹¹⁸<http://www.fei.com/>

¹¹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FEIReader.java>

¹²⁰<http://www.fei.com>

¹²¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FEITiffReader.java>

Presence: Utility: 

17.36 FITS (Flexible Image Transport System)

Extensions: .fits

Developer: [National Radio Astronomy Observatory](#)¹²²

Support

BSD-licensed: Export: 

Officially Supported Versions:




Reader: FitsReader ([Source Code](#)¹²³, *Supported Metadata Fields*)

We currently have:

- a [FITS specification document](#)¹²⁴ (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

See also:

[MAST:FITS homepage](#)¹²⁵ [FITS Support Office](#)¹²⁶

17.37 Gatan Digital Micrograph

Extensions: .dm3, .dm4

Owner: [Gatan](#)¹²⁷

Support

BSD-licensed: Export: 

Officially Supported Versions: 3, 4

Reader: GatanReader ([Source Code](#)¹²⁸, *Supported Metadata Fields*)

Freely Available Software:

¹²²<http://www.nrao.edu/>¹²³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/FitsReader.java>¹²⁴http://archive.stsci.edu/fits/fits_standard/¹²⁵<http://archive.stsci.edu/fits/>¹²⁶<http://fits.gsfc.nasa.gov/>¹²⁷<http://www.gatan.com/>¹²⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/GatanReader.java>

- DM3 Reader plugin for ImageJ¹²⁹
- EMAN¹³⁰


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

Commercial applications that support .dm3 files include [Datasqueeze](#)¹³¹.


Note that the Gatan Reader does not currently support stacks.

17.38 Gatan Digital Micrograph 2

Extensions: .dm2

Developer: [Gatan](#)¹³²

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 2

Reader: GatanDM2Reader ([Source Code](#)¹³³, *Supported Metadata Fields*)


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: 



¹²⁹http://rsb.info.nih.gov/ij/plugins/DM3_Reader.html

¹³⁰<http://blake.bcm.edu/EMAN/>

¹³¹<http://www.datasqueezesoftware.com/>

¹³²<http://www.gatan.com>

¹³³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/GatanDM2Reader.java>


Presence: Utility: 

17.39 GIF (Graphics Interchange Format)

Extensions: .gif

Developer: CompuServe¹³⁴Owner: Unisys¹³⁵

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: GIFReader (Source Code¹³⁶, *Supported Metadata Fields*)

Freely Available Software:




- Animated GIF Reader plugin for ImageJ¹³⁷
- GIF Stack Writer plugin for ImageJ¹³⁸

We currently have:

- a GIF specification document¹³⁹ (Version 89a, from 1990, in HTML)
- numerous GIF datasets
- the ability to produce new datasets

We would like to have:

Ratings

Pixels: Metadata: Openness: Presence: Utility: 

17.40 Hamamatsu Aquacosmos NAF

Extensions: .naf

Developer: Hamamatsu¹⁴⁰

Support

BSD-licensed: Export: 

Officially Supported Versions:

¹³⁴<http://www.compuserve.com/>¹³⁵<http://www.unisys.com/>¹³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/GIFReader.java>¹³⁷<http://rsb.info.nih.gov/ij/plugins/agr.html>¹³⁸<http://rsb.info.nih.gov/ij/plugins/gif-stack-writer.html>¹³⁹<http://tronche.com/computer-graphics/gif/>¹⁴⁰<http://www.hamamatsu.com/>

Reader: NAFReader ([Source Code](#)¹⁴¹, *Supported Metadata Fields*)


We currently have:


- a few NAF files


We would like to have:


- a specification document
- more NAF files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.41 Hamamatsu HIS

Extensions: .his

Owner: [Hamamatsu](#)¹⁴²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: HISReader ([Source Code](#)¹⁴³, *Supported Metadata Fields*)


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: 

¹⁴¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NAFReader.java>

¹⁴²<http://www.hamamatsu.com>

¹⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/HISReader.java>

17.42 Hamamatsu ndpi

Extensions: .ndpi, .ndpis

Developer: [Hamamatsu](#)¹⁴⁴

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Readers:

- [NDPIReader](#) ([Source Code](#)¹⁴⁵, [Supported Metadata Fields](#))
- [NDPISReader](#) ([Source Code](#)¹⁴⁶, [Supported Metadata Fields](#))

Freely Available Software:

- [NDP.view](#)¹⁴⁷

Sample Datasets:

- [OpenSlide](#)¹⁴⁸


We currently have:

- many example datasets


We would like to have:


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.43 Hamamatsu VMS

Extensions: .vms

Developer: [Hamamatsu](#)¹⁴⁹

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: [HamamatsuVMSReader](#) ([Source Code](#)¹⁵⁰, [Supported Metadata Fields](#))

Sample Datasets:

¹⁴⁴<http://www.hamamatsu.com>

¹⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NDPIReader.java>

¹⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NDPISReader.java>

¹⁴⁷http://www.olympusamerica.com/seg_section/seg_vm_downloads.asp

¹⁴⁸<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu/>

¹⁴⁹<http://www.hamamatsu.com>

¹⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/HamamatsuVMSReader.java>

- [OpenSlide](#)¹⁵¹


We currently have:

- a few example datasets
- [developer documentation from the OpenSlide project](#)¹⁵²


We would like to have:


- an official specification document
- more example datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.44 Hitachi S-4800

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

Developer: [Hitachi](#)¹⁵³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: [HitachiReader](#) ([Source Code](#)¹⁵⁴, [Supported Metadata Fields](#))

We currently have:


- several Hitachi S-4800 datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

¹⁵¹<http://openslide.cs.cmu.edu/download/openslide-testdata/Hamamatsu-vms/>

¹⁵²<http://openslide.org/Hamamatsu%20format/>

¹⁵³http://www.hitachi-hta.com/sites/default/files/technotes/Hitachi_4800_STEM.pdf

¹⁵⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/HitachiReader.java>

17.45 I2I

Extensions: .i2i

Developer: Biomedical Imaging Group, UMass Medical School¹⁵⁵

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: I2IReader (Source Code¹⁵⁶, *Supported Metadata Fields*)

We currently have:

- several example datasets
- a specification document
- an ImageJ plugin that can read I2I data

We would like to have:

Ratings

Pixels: ▲

Metadata: ◻

Openness: ▲

Presence: ▼

Utility: ▼

17.46 ICS (Image Cytometry Standard)

Extensions: .ics, .ids

Developer: P. Dean et al.

Support

BSD-licensed: ✅

Export: ✅

Officially Supported Versions: 1.0, 2.0

Reader: ICSReader (Source Code¹⁵⁷, *Supported Metadata Fields*)

Writer: ICSWriter (Source Code¹⁵⁸)

Freely Available Software:

- Libics (ICS reference library)¹⁵⁹
- ICS Opener plugin for ImageJ¹⁶⁰
- IrfanView¹⁶¹

We currently have:

¹⁵⁵<http://invitro.umassmed.edu/>

¹⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/I2IReader.java>

¹⁵⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/ICSReader.java>

¹⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/ICSWriter.java>

¹⁵⁹<http://libics.sourceforge.net/>


¹⁶⁰http://valelab.ucsf.edu/%7Enstuurman/IJplugins/Ics_Opener.html


¹⁶¹<http://www.irfanview.com/>


- numerous ICS datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

- 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 Imaris¹⁶²
- SVI Huygens¹⁶³

17.47 Imacon

Extensions: .fff

Owner: Hasselblad¹⁶⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: ImaconReader (Source Code¹⁶⁵, *Supported Metadata Fields*)


We currently have:

- one Imacon file

We would like to have:

- more Imacon files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

¹⁶²<http://www.bitplane.com/>

¹⁶³<http://svi.nl/>

¹⁶⁴<http://www.hasselbladusa.com/>

¹⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImaconReader.java>

17.48 ImagePro Sequence

Extensions: .seq

Owner: Media Cybernetics¹⁶⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: SEQReader (Source Code¹⁶⁷, *Supported Metadata Fields*)

We currently have:

- the Image-Pro Plus¹⁶⁸ software
- a few SEQ datasets
- the ability to produce more datasets

We would like to have:

- an official SEQ specification document

Ratings

Pixels: ▲

Metadata: ▲

Openness: ▼

Presence: ▼

Utility: ▼

17.49 ImagePro Workspace

Extensions: .ipw

Owner: Media Cybernetics¹⁶⁹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: IPWReader (Source Code¹⁷⁰, *Supported Metadata Fields*)

We currently have:

- the Image-Pro Plus¹⁷¹ software
- a few IPW datasets
- the ability to produce more datasets

We would like to have:

¹⁶⁶<http://www.mediacy.com/>

¹⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SEQReader.java>

¹⁶⁸<http://www.mediacy.com/index.aspx?page=IPP>


¹⁶⁹<http://www.mediacy.com/>


¹⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/IPWReader.java>


¹⁷¹<http://www.mediacy.com/index.aspx?page=IPP>


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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


Bio-Formats uses a modified version of the [Apache Jakarta POI¹⁷²](#) library to read IPW files.

17.50 IMAGIC

Extensions: .hed, .img

Developer: [Image Science¹⁷³](#)

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: [ImagicReader \(Source Code¹⁷⁴, Supported Metadata Fields\)](#)

Freely Available Software:

- [em2em¹⁷⁵](#)


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

See also:

¹⁷²<http://jakarta.apache.org/poi/>

¹⁷³<http://www.imagescience.de>

¹⁷⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImagicReader.java>

¹⁷⁵<http://www.imagescience.de/em2em.html>

IMAGIC specification¹⁷⁶

17.51 IMOD

Extensions: .mod

Developer: Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells¹⁷⁷

Owner: Boulder Laboratory for 3-Dimensional Electron Microscopy of Cells¹⁷⁸

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: IMODReader (Source Code¹⁷⁹, *Supported Metadata Fields*)

Freely Available Software:


- IMOD¹⁸⁰

We currently have:


- a few sample datasets
- official documentation¹⁸¹


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.52 Improvion Openlab LIFF

Extensions: .liff

Developer: Improvion¹⁸²

Owner: PerkinElmer¹⁸³

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 2.0, 5.0

Reader: OpenlabReader (Source Code¹⁸⁴, *Supported Metadata Fields*)

¹⁷⁶<http://www.imagescience.de/em2em.html>

¹⁷⁷<http://bio3d.colorado.edu>

¹⁷⁸<http://bio3d.colorado.edu>

¹⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/IMODReader.java>

¹⁸⁰<http://bio3d.colorado.edu/imod/>

¹⁸¹<http://bio3d.colorado.edu/imod/doc/binspec.html>

¹⁸²<http://www.perkinelmer.com/cellular-imaging>

¹⁸³<http://www.perkinelmer.com/>

¹⁸⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/OpenlabReader.java>


We currently have:

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

We would like to have:


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


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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


17.53 Improvion Openlab Raw

Extensions: .raw

Developer: [Improvion](#)¹⁸⁵

Owner: [PerkinElmer](#)¹⁸⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: [OpenlabRawReader](#) ([Source Code](#)¹⁸⁷, [Supported Metadata Fields](#))

We currently have:

- an [Openlab Raw specification document](#)¹⁸⁸ (from 2004 November 09, in HTML)
- a few Openlab Raw datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

¹⁸⁵<http://www.perkinelmer.com/cellular-imaging>

¹⁸⁶<http://www.perkinelmer.com/>

¹⁸⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/OpenlabRawReader.java>

¹⁸⁸http://cellularimaging.perkinelmer.com/support/technical_notes/detail.php?id=344

17.54 Improvission TIFF

Extensions: .tif

Developer: Improvission¹⁸⁹

Owner: PerkinElmer¹⁹⁰

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: ImprovissionTiffReader (Source Code¹⁹¹, *Supported Metadata Fields*)

We currently have:

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

We would like to have:

Ratings

Pixels: ▲

Metadata: ▲

Openness: ▲

Presence: ▼

Utility: □

Additional Information

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

17.55 Inspector OBF

Extensions: .obf, .msr

Developer: Department of NanoBiophotonics, MPI-BPC¹⁹²

Owner: MPI-BPC¹⁹³

Support

BSD-licensed: ✅

Export: ❌

Officially Supported Versions:

Reader: OBFReader (Source Code¹⁹⁴, *Supported Metadata Fields*)

We currently have:

- a few .msr datasets
- a specification document¹⁹⁵

¹⁸⁹<http://www.perkinelmer.com/cellular-imaging>

¹⁹⁰<http://www.perkinelmer.com/>

¹⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ImprovissionTiffReader.java>

¹⁹²<https://imspector.mpibpc.mpg.de/index.html>


¹⁹³<http://www.mpibpc.mpg.de/>

¹⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/OBFReader.java>


¹⁹⁵<https://imspector.mpibpc.mpg.de/documentation/fileformat.html>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.56 InCell 1000/2000

Extensions: .xdce, .tif

Developer: [GE](#)¹⁹⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: InCellReader ([Source Code](#)¹⁹⁷, *Supported Metadata Fields*)


We currently have:

- a few InCell 1000 datasets
- [public InCell 2000 sample images](#)¹⁹⁸

We would like to have:


- an InCell 1000 specification document
- more InCell 1000 datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.57 InCell 3000

Extensions: .frm

Developer: [GE](#)¹⁹⁹

Support

BSD-licensed: 

Export: 

¹⁹⁶<http://gelifesciences.com/>

¹⁹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/InCellReader.java>

¹⁹⁸<http://downloads.openmicroscopy.org/images/HCS/INCELL2000/>

¹⁹⁹<http://gelifesciences.com/>

Officially Supported Versions:

Reader: InCell3000Reader ([Source Code](#)²⁰⁰, *Supported Metadata Fields*)

Sample Datasets:

- [Broad Bioimage Benchmark Collection](#)²⁰¹

We currently have:

- a few example datasets


We would like to have:


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

Utility: 

17.58 INR

Extensions: .inr

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: INRReader ([Source Code](#)²⁰², *Supported Metadata Fields*)

We currently have:

- several sample .inr datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.59 Inveon

Extensions: .hdr

Support

²⁰⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/InCell3000Reader.java>

²⁰¹<http://www.broadinstitute.org/bbbc/BBBC013/>

²⁰²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/INRReader.java>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: InveonReader ([Source Code](#)²⁰³, *Supported Metadata Fields*)

We currently have:

a few Inveon datasets

We would like to have:

Ratings

Pixels: ▲

Metadata: ▲

Openness: ◻

Presence: ▼

Utility: ▼

17.60 IPLab

Extensions: .ipl

Developer: Scanalytics

Owner: was BD Biosystems²⁰⁴, now BioVision Technologies²⁰⁵

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: IPLabReader ([Source Code](#)²⁰⁶, *Supported Metadata Fields*)

Freely Available Software:

- [IPLab Reader plugin for ImageJ](#)²⁰⁷

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: ▼


²⁰³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/InveonReader.java>

²⁰⁴<http://www.bdbiosciences.com/>

²⁰⁵<http://www.biovis.com/iplab.htm>

²⁰⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/IPLabReader.java>

²⁰⁷<http://rsb.info.nih.gov/ij/plugins/iplab-reader.html>

Utility: 

Additional Information

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 Imaris²⁰⁸
- SVI Huygens²⁰⁹

See also:


IPLab software review²¹⁰

17.61 IVision

Extensions: .ipm

Owner: BioVision Technologies²¹¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: IvisionReader (Source Code²¹², *Supported Metadata Fields*)


We currently have:

- a few iVision-Mac datasets
- a specification document

We would like to have:


- more iVision-Mac datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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

iVision-Mac was formerly called IPLab for Macintosh.

²⁰⁸<http://www.bitplane.com/>

²⁰⁹<http://svi.nl/>

²¹⁰<http://www.biovis.com/iplab.htm>

²¹¹<http://biovis.com/>

²¹²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/IvisionReader.java>

17.62 JEOL

Extensions: .dat, .img, .par

Owner: JEOL²¹³

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: JEOLReader (Source Code²¹⁴, *Supported Metadata Fields*)


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: 

17.63 JPEG

Extensions: .jpg

Developer: Independent JPEG Group²¹⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: JPEGReader (Source Code²¹⁶, *Supported Metadata Fields*)

Writer: JPEGWriter (Source Code²¹⁷)

We currently have:

- a JPEG specification document²¹⁸ (v1.04, from 1992 September 1, in PDF)
- numerous JPEG datasets
- the ability to produce more datasets

²¹³<http://www.jeol.com>

²¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/JEOLReader.java>

²¹⁵<http://www.ijg.org/>

²¹⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/JPEGReader.java>

²¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/JPEGWriter.java>

²¹⁸<http://www.w3.org/Graphics/JPEG/jfif3.pdf>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

Bio-Formats can save individual planes as JPEG. Bio-Formats uses the [Java Image I/O²¹⁹](#) API to read and write JPEG files. JPEG stands for “Joint Photographic Experts Group”.

See also:

[JPEG homepage²²⁰](#)

17.64 JPEG 2000

Extensions: .jp2

Developer: [Independent JPEG Group²²¹](#)

Support

BSD-licensed:

Export:

Officially Supported Versions:

Reader: [JPEG2000Reader](#) ([Source Code²²²](#), [Supported Metadata Fields](#))

Writer: [JPEG2000Writer](#) ([Source Code²²³](#))

Freely Available Software:

- [JJ2000](#) (JPEG 2000 library for Java)²²⁴

We currently have:

- a JPEG 2000 specification document (free draft from 2000, no longer available online)
- a few .jp2 files

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

²¹⁹<http://docs.oracle.com/javase/7/docs/technotes/guides/imageio/>

²²⁰<http://www.jpeg.org/jpeg/index.html>

²²¹<http://www.ijg.org/>

²²²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/JPEG2000Reader.java>

²²³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/JPEG2000Writer.java>

²²⁴<http://code.google.com/p/jj2000/>

Bio-Formats uses the [JAI Image I/O Tools](#)²²⁵ library to read JP2 files. JPEG stands for “Joint Photographic Experts Group”.

17.65 JPK

Extensions: .jpk

Developer: [JPK Instruments](#)²²⁶

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: [JPKReader](#) ([Source Code](#)²²⁷, [Supported Metadata Fields](#))


We currently have:

- Pascal code that can read JPK files (from ImageSXM)
- a few JPK files


We would like to have:

- an official specification document
- more JPK files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.66 JPX

Extensions: .jpx

Developer: [JPEG Committee](#)²²⁸

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: [JPXReader](#) ([Source Code](#)²²⁹, [Supported Metadata Fields](#))

We currently have:

- a few .jpx files

²²⁵<https://java.net/projects/jai-imageio>

²²⁶<http://www.jpk.com>

²²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/JPKReader.java>

²²⁸<http://www.jpeg.org/jpeg2000/>

²²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/JPXReader.java>

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

17.67 Khoros VIFF (Visualization Image File Format) Bitmap

Extensions: .xv

Developer: Khoral²³⁰

Owner: AccuSoft²³¹

Support

BSD-licensed:

Export:

Officially Supported Versions:

Reader: KhorosReader (Source Code²³², *Supported Metadata Fields*)

Sample Datasets:

- VIFF Images²³³

We currently have:

- several VIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

17.68 Kodak BIP

Extensions: .bip

Developer: Kodak/Carestream²³⁴

Support

BSD-licensed:

²³⁰<http://www.khoral.com/company/>

²³¹<http://www.accusoft.com/company/>

²³²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/KhorosReader.java>

²³³<http://netghost.narod.ru/gff/sample/images/viff/index.htm>

²³⁴<http://carestream.com>

Export: 

Officially Supported Versions:

Reader: KodakReader (Source Code²³⁵, *Supported Metadata Fields*)


We currently have:

- a few .bip datasets


We would like to have:


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

See also:


[Information on Image Station systems](#)²³⁶

17.69 Lambert Instruments FLIM

Extensions: .fli

Developer: Lambert Instruments²³⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: LiFlimReader (Source Code²³⁸, *Supported Metadata Fields*)

We currently have:

- an LI-FLIM specification document
- several example LI-FLIM datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

²³⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/KodakReader.java>

²³⁶<http://carestream.com/PublicContent.aspx?langType=1033&id=448953>

²³⁷<http://www.lambert-instruments.com>

²³⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LiFlimReader.java>

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

17.70 LaVision Inspector

Extensions: .msr

Developer: LaVision BioTec²³⁹

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions: 4.0, 4.1

Reader: InspectorReader (Source Code²⁴⁰, *Supported Metadata Fields*)

We currently have:

- a few .msr files

We would like to have:

Ratings

Pixels: ▼

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

17.71 Leica LCS LEI

Extensions: .lei, .tif

Developer: Leica Microsystems CMS GmbH²⁴¹

Owner: Leica²⁴²

Support

BSD-licensed: ✖

Export: ✖

Officially Supported Versions:

Reader: LeicaReader (Source Code²⁴³, *Supported Metadata Fields*)

Freely Available Software:

- Leica LCS Lite²⁴⁴

We currently have:

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

²³⁹<http://www.lavisionbiotec.com/>

²⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/InspectorReader.java>

²⁴¹<http://www.leica-microsystems.com/>


²⁴²<http://www.leica.com/>


²⁴³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LeicaReader.java>


²⁴⁴<ftp://ftp.llt.de/softlib/LCSLite/LCSLite2611537.exe>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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 Imaris²⁴⁵
- SVI Huygens²⁴⁶
- Image-Pro Plus²⁴⁷


17.72 Leica LAS AF LIF (Leica Image File Format)

Extensions: .lif

Developer: Leica Microsystems CMS GmbH²⁴⁸

Owner: Leica²⁴⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0, 2.0

Reader: LIFReader (Source Code²⁵⁰, *Supported Metadata Fields*)

Freely Available Software:

- Leica LAS AF Lite²⁵¹ (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: 

Metadata: 

²⁴⁵<http://www.bitplane.com/>

²⁴⁶<http://svi.nl/>




²⁴⁷<http://www.mediacy.com/>

²⁴⁸<http://www.leica-microsystems.com/>

²⁴⁹<http://www.leica.com/>

²⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LIFReader.java>

²⁵¹<http://www.leica-microsystems.com/products/microscope-software/software-for-life-science-research/las-x/>

Openness: Presence: Utility: **Additional Information****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 Imaris²⁵²
- SVI Huygens²⁵³
- Amira²⁵⁴

17.73 Leica SCN

Extensions: .scn

Developer: Leica Microsystems²⁵⁵**Support**BSD-licensed: Export: 

Officially Supported Versions: 2012-03-10



Reader: LeicaSCNReader ([Source Code](#)²⁵⁶, *Supported Metadata Fields*)

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: 

17.74 LEO

Extensions: .sxn

Owner: Zeiss²⁵⁷²⁵²<http://www.bitplane.com/>²⁵³<http://svi.nl/>²⁵⁴<http://www.amira.com/>²⁵⁵<http://www.leica-microsystems.com/>²⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LeicaSCNReader.java>²⁵⁷<http://www.zeiss.de>

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: LEORReader ([Source Code](#)²⁵⁸, *Supported Metadata Fields*)

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: 

17.75 Li-Cor L2D

Extensions: .l2d, .tif, .scn

Owner: LiCor Biosciences²⁵⁹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: L2DReader ([Source Code](#)²⁶⁰, *Supported Metadata Fields*)

We currently have:


- a few L2D datasets

We would like to have:

- an official specification document


- more L2D datasets

Ratings

Pixels: 

Metadata: 


Openness: 

Presence: 

²⁵⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LEORReader.java>

²⁵⁹<http://www.licor.com/>

²⁶⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/L2DReader.java>

Utility: 

Additional Information


L2D datasets cannot be imported into OME using server-side import. They can, however, be imported from ImageJ, or using the omeul utility.

17.76 LIM (Laboratory Imaging/Nikon)

Extensions: .lim

Owner: [Laboratory Imaging](#)²⁶¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: LIMReader ([Source Code](#)²⁶², *Supported Metadata Fields*)


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

Bio-Formats only supports uncompressed LIM files.

Commercial applications that support LIM include:

- [NIS Elements](#)²⁶³

17.77 MetaMorph 7.5 TIFF

Extensions: .tiff

Owner: [Molecular Devices](#)²⁶⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

²⁶¹<http://www.lim.cz/>

²⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LIMReader.java>

²⁶³<http://www.nis-elements.com/>

²⁶⁴<http://www.moleculardevices.com/>

Reader: `MetamorphTiffReader` ([Source Code](#)²⁶⁵, *Supported Metadata Fields*)

We currently have:

- a few Metamorph 7.5 TIFF datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

17.78 MetaMorph Stack (STK)

Extensions: `.stk`, `.nd`

Owner: [Molecular Devices](#)²⁶⁶

Support

BSD-licensed:

Export:

Officially Supported Versions:

Reader: `MetamorphReader` ([Source Code](#)²⁶⁷, *Supported Metadata Fields*)

We currently have:

- an STK specification document (from 2006 November 21, in DOC)
- an older STK specification document (from 2005 March 25, in DOC)
- an ND specification document (from 2002 January 24, in PDF)
- a large number of datasets

We would like to have:

Ratings

Pixels:

Metadata:

Openness:

Presence:

Utility:

Additional Information

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](#)²⁶⁸

²⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MetamorphTiffReader.java>

²⁶⁶<http://www.moleculardevices.com/>

²⁶⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MetamorphReader.java>

²⁶⁸<http://www.bitplane.com/>

- SVI Huygens²⁶⁹
- DIMIN²⁷⁰

See also:

Metamorph imaging system overview²⁷¹

17.79 MIAS (Maia Scientific)

Extensions: .tif

Developer: Maia Scientific²⁷²

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: MIASReader (Source Code²⁷³, *Supported Metadata Fields*)

We currently have:

- several MIAS datasets

We would like to have:

Ratings

Pixels: ▲

Metadata: ▼

Openness: ▼

Presence: ▼

Utility: ▼

17.80 Micro-Manager

Extensions: .tif, .txt, .xml

Developer: Vale Lab²⁷⁴

Support

BSD-licensed: ✅

Export: ❌

Officially Supported Versions: Up to 1.4.22

Reader: MicromanagerReader (Source Code²⁷⁵, *Supported Metadata Fields*)

Freely Available Software:

- Micro-Manager²⁷⁶

²⁶⁹<http://svi.nl/>

²⁷⁰<http://dimin.net/>

²⁷¹<http://www.metamorph.com/>

²⁷²<http://www.selectscience.net/supplier/maia-scientific/?compID=6088>

²⁷³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MIASReader.java>

²⁷⁴<http://valelab.ucsf.edu/>

²⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/MicromanagerReader.java>


²⁷⁶<http://micro-manager.org/>


We currently have:


- many Micro-manager datasets
- public sample images²⁷⁷


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information


- Bio-Formats will recognize a `*metadata.txt` file as part of a Micro-Manager fileset if pointed at it and will load the fileset including the companion TIFF files.
- If pointed at a companion `.ome.tif` file, Bio-Formats will recognize an OME-TIFF format instead. This means it may load the fileset if there are multiple `.ome.tif` but it will not include `*metadata.txt` in this fileset and therefore the extended Micro-Manager metadata will be skipped.
- See *Micro-Manager* for more information.

17.81 MINC MRI

Extensions: `.mnc`

Developer: McGill University²⁷⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: MINCReader (Source Code²⁷⁹, *Supported Metadata Fields*)

Freely Available Software:


- MINC²⁸⁰

We currently have:

- a few MINC files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

²⁷⁷<http://downloads.openmicroscopy.org/images/Micro-Manager/>

²⁷⁸<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

²⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MINCReader.java>


²⁸⁰<http://www.bic.mni.mcgill.ca/ServicesSoftware/MINC>

17.82 Minolta MRW

Extensions: .mrw

Developer: [Minolta](#)²⁸¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: MRWReader (Source Code²⁸², *Supported Metadata Fields*)

Freely Available Software:


- [dcraw](#)²⁸³

We currently have:


- several .mrw files

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.83 MNG (Multiple-image Network Graphics)

Extensions: .mng

Developer: [MNG Development Group](#)²⁸⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: MNGReader (Source Code²⁸⁵, *Supported Metadata Fields*)

Freely Available Software:

- [libmng \(MNG reference library\)](#)²⁸⁶

Sample Datasets:

- [MNG sample files](#)²⁸⁷

We currently have:

²⁸¹<http://www.konicaminolta.com/>

²⁸²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MRWReader.java>

²⁸³<http://www.cybercom.net/%7Edcoffin/dcraw/>

²⁸⁴<http://www.libpng.org/pub/mng/mngnews.html>

²⁸⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/MNGReader.java>


²⁸⁶<http://sourceforge.net/projects/libmng/>

²⁸⁷<http://sourceforge.net/projects/libmng/files/libmng-testsuites/MNGsuite-1.0/MNGsuite.zip/download>

- the `libmng-testsuites`²⁸⁸ 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

See also:

[MNG homepage](#)²⁸⁹ [MNG specification](#)²⁹⁰

17.84 Molecular Imaging

Extensions: `.stp`

Owner: Molecular Imaging Corp, San Diego CA (closed)

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: `MolecularImagingReader` ([Source Code](#)²⁹¹, *Supported Metadata Fields*)


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: 

²⁸⁸<http://downloads.sourceforge.net/libmng/MNGsuite-20030305.zip>

²⁸⁹<http://www.libpng.org/pub/mng/>

²⁹⁰<http://www.libpng.org/pub/mng/spec>


²⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MolecularImagingReader.java>

17.85 MRC (Medical Research Council)

Extensions: .mrc

Developer: MRC Laboratory of Molecular Biology²⁹²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: MRCReader (Source Code²⁹³, *Supported Metadata Fields*)

Sample Datasets:


- golgi.mrc²⁹⁴

We currently have:

- an MRC specification document²⁹⁵ (in TXT)
- a few MRC datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Commercial applications that support MRC include:

- Bitplane Imaris²⁹⁶

See also:


MRC on Wikipedia²⁹⁷

17.86 NEF (Nikon Electronic Format)

Extensions: .nef, .tif

Developer: Nikon²⁹⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

²⁹²<http://www2.mrc-lmb.cam.ac.uk/>

²⁹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/MRCReader.java>

²⁹⁴http://bio3d.colorado.edu/imod/files/imod_data.tar.gz

²⁹⁵http://bio3d.colorado.edu/imod/doc/mrc_format.txt

²⁹⁶<http://www.bitplane.com/>

²⁹⁷http://en.wikipedia.org/wiki/MRC_%28file_format%29

²⁹⁸<http://www.nikon.com/>

Reader: NikonReader (Source Code²⁹⁹, *Supported Metadata Fields*)

Sample Datasets:


- neffile1.zip³⁰⁰
- Sample NEF images³⁰¹

We currently have:

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


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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](#)³⁰²

17.87 NifTI

Extensions: .img, .hdr, .nii, .nii.gz

Developer: [National Institutes of Health](#)³⁰³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: NiftiReader (Source Code³⁰⁴, *Supported Metadata Fields*)

Sample Datasets:

- Official test data³⁰⁵

We currently have:

- NifTI specification documents³⁰⁶
- several NifTI datasets
- public sample images³⁰⁷

²⁹⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NikonReader.java>

³⁰⁰http://www.outbackphoto.com/workshop/NEF_conversion/neffile1.zip

³⁰¹http://www.nikondigital.org/articles/library/nikon_d2x_first_impressions.htm

³⁰²http://www.outbackphoto.com/workshop/NEF_conversion/nefconversion.html

³⁰³<http://www.nih.gov/>

³⁰⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NiftiReader.java>


³⁰⁵<http://afni.nimh.nih.gov/pub/dist/data/>

³⁰⁶http://afni.nimh.nih.gov/pub/dist/doc/nifti/nifti_revised.html


³⁰⁷<http://downloads.openmicroscopy.org/images/NifTI/>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.88 Nikon Elements TIFF

Extensions: .tiff

Developer: [Nikon](#)³⁰⁸

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: `NikonElementsTiffReader` ([Source Code](#)³⁰⁹, *Supported Metadata Fields*)


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: 

17.89 Nikon EZ-C1 TIFF

Extensions: .tiff

Developer: [Nikon](#)³¹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: `NikonTiffReader` ([Source Code](#)³¹¹, *Supported Metadata Fields*)

³⁰⁸<http://www.nikon.com>

³⁰⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NikonElementsTiffReader.java>

³¹⁰<http://www.nikon.com/>


³¹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NikonTiffReader.java>

We currently have:


- a few Nikon EZ-C1 TIFF files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.90 Nikon NIS-Elements ND2

Extensions: .nd2

Developer: [Nikon USA](#)³¹²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Readers:

- [NativeND2Reader](#) ([Source Code](#)³¹³, *Supported Metadata Fields*)
- [LegacyND2Reader](#) ([Source Code](#)³¹⁴, *Supported Metadata Fields*)

Freely Available Software:

- [NIS-Elements Viewer from Nikon](#)³¹⁵


We currently have:

- many ND2 datasets

We would like to have:

- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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](#)³¹⁶ library to read ND2 files compressed with JPEG-2000.

³¹²<http://www.nikonusa.com/>

³¹³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/NativeND2Reader.java>

³¹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/LegacyND2Reader.java>

³¹⁵<http://www.nikoninstruments.com/Products/Software/NIS-Elements-Advanced-Research/NIS-Elements-Viewer>

³¹⁶<http://java.net/projects/jai-imageio>


There is also a **legacy** ND2 reader that uses Nikon's native libraries. To use it, you must be using Windows 32-bit and have Nikon's ND2 reader plugin for ImageJ³¹⁷ installed. Additionally, you will need to download [LegacyND2Reader.dll](#)³¹⁸ and place it in your ImageJ plugin folder. Note that this reader is **unmaintained** and no additional support effort will be made.

17.91 NRRD (Nearly Raw Raster Data)

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

Developer: Teem developers³¹⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: NRRDReader (Source Code³²⁰, *Supported Metadata Fields*)

Freely Available Software:

- nrrd (NRRD reference library)³²¹

Sample Datasets:


- Diffusion tensor MRI datasets³²²

We currently have:

- an nrrd specification document³²³ (v1.9, from 2005 December 24, in HTML)
- a few nrrd datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.92 Olympus CelIR/APL

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

Owner: Olympus³²⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

³¹⁷<http://rsb.info.nih.gov/ij/plugins/nd2-reader.html>

³¹⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/lib/LegacyND2Reader.dll?raw=true>

³¹⁹<http://teem.sourceforge.net/>

³²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/NRRDReader.java>

³²¹<http://teem.sourceforge.net/nrrd/>

³²²<http://www.sci.utah.edu/%7Egk/DTI-data/>

³²³<http://teem.sourceforge.net/nrrd/format.html>

³²⁴<http://www.olympus.com/>

Reader: APLReader (Source Code³²⁵, *Supported Metadata Fields*)


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: 

17.93 Olympus FluoView FV1000

Extensions: .oib, .oif

Owner: Olympus³²⁶

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0, 2.0

Reader: FV1000Reader (Source Code³²⁷, *Supported Metadata Fields*)

Freely Available Software:

- FV-Viewer from Olympus³²⁸


We currently have:

- an OIF specification document (v2.0.0.0, from 2008, in PDF)
- an FV1000 specification document (v1.0.0.0, from 2004 June 22, in PDF)
- older FV1000 specification documents (draft, in DOC and XLS)
- many FV1000 datasets


We would like to have:


- more OIB datasets (especially 2+ GB files)
- more FV1000 version 2 datasets

Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

³²⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/APLReader.java>

³²⁶<http://www.olympus.com/>

³²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FV1000Reader.java>

³²⁸http://www.olympus.co.uk/microscopy/22_FluoView_FV1000_Confocal_Microscope.htm

Utility: 

Additional Information

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](http://jakarta.apache.org/poi/)³²⁹ 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](http://www.bitplane.com/)³³⁰
- [SVI Huygens](http://www.svi.nl/)³³¹

See also:


[Olympus FluoView Resource Center](http://www.olympusfluoview.com/)³³²

17.94 Olympus FluoView TIFF

Extensions: .tif

Owner: [Olympus](http://www.olympus.com/)³³³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: [FluoviewReader](#) ([Source Code](#)³³⁴, *Supported Metadata Fields*)

Freely Available Software:


- [DIMIN](http://www.dimin.net/)³³⁵

We currently have:


- a FluoView specification document (from 2002 November 14, in DOC)
- Olympus’ FluoView Image File Reference Suite (from 2002 March 1, in DOC)
- several FluoView datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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

³²⁹<http://jakarta.apache.org/poi/>

³³⁰<http://www.bitplane.com/>

³³¹<http://svi.nl/>

³³²http://www.olympusfluoview.com

³³³<http://www.olympus.com/>

³³⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/FluoviewReader.java>

³³⁵<http://www.dimin.net/>

Commercial applications that support this format include:

- Bitplane Imaris³³⁶
- SVI Huygens³³⁷


17.95 Olympus ScanR

Extensions: .xml, .dat, .tif

Developer: Olympus³³⁸

Owner: Olympus³³⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions: Up to 2.5.1


Reader: ScanrReader (Source Code³⁴⁰, *Supported Metadata Fields*)

We currently have:


- several ScanR datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.96 Olympus SIS TIFF

Extensions: .tiff

Developer: Olympus³⁴¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: SISReader (Source Code³⁴², *Supported Metadata Fields*)

We currently have:

- a few example SIS TIFF files

³³⁶<http://www.bitplane.com/>

³³⁷<http://svi.nl/>

³³⁸<http://www.olympus.com/>

³³⁹<http://www.olympus.com/>


³⁴⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ScanrReader.java>

³⁴¹<http://www.olympus-sis.com/>


³⁴²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SISReader.java>


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.97 OME-TIFF

Extensions: .ome.tiff, .ome.tif, .ome.tf2, .ome.tf8, .ome.btf³⁴³

Developer: Open Microscopy Environment³⁴⁴

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, 2015-01, 2016-06

Reader: OMETiffReader (Source Code³⁴⁵, *Supported Metadata Fields*)


Writer: OMETiffWriter (Source Code³⁴⁶)

We currently have:


- an OME-TIFF specification document³⁴⁷
- many OME-TIFF datasets
- public sample images³⁴⁸
- the ability to produce additional datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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

Commercial applications that support OME-TIFF include:

- Bitplane Imaris³⁴⁹

³⁴³<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

³⁴⁴<http://www.openmicroscopy.org/>

³⁴⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/OMETiffReader.java>

³⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/OMETiffWriter.java>

³⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/specification.html>

³⁴⁸<http://downloads.openmicroscopy.org/images/OME-TIFF/>

³⁴⁹<http://www.bitplane.com/>

- SVI Huygens³⁵⁰

See also:


OME-TIFF technical overview³⁵¹

17.98 OME-XML

Extensions: `.ome`, `.ome.xml`³⁵²

Developer: Open Microscopy Environment³⁵³

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, 2015-01, 2016-06

Reader: OMEXMLReader (Source Code³⁵⁴, *Supported Metadata Fields*)


Writer: OMEXMLWriter (Source Code³⁵⁵)

We currently have:

- OME-XML specification documents³⁵⁶
- many OME-XML datasets
- public sample images³⁵⁷
- the ability to produce more datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Bio-Formats uses the OME-XML Java library³⁵⁸ to read OME-XML files.

Commercial applications that support OME-XML include:

- Bitplane Imaris³⁵⁹
- SVI Huygens³⁶⁰

³⁵⁰<http://svi.nl/>

³⁵¹<http://www.openmicroscopy.org/site/support/ome-model/ome-tiff/index.html>

³⁵²<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/index.html>

³⁵³<http://www.openmicroscopy.org/>

³⁵⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/OMEXMLReader.java>

³⁵⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/OMEXMLWriter.java>

³⁵⁶<http://www.openmicroscopy.org/Schemas/>

³⁵⁷<http://downloads.openmicroscopy.org/images/OME-XML/>

³⁵⁸<http://www.openmicroscopy.org/site/support/ome-model/ome-xml/java-library.html>

³⁵⁹<http://www.bitplane.com/>

³⁶⁰<http://svi.nl/>

17.99 Oxford Instruments

Extensions: .top

Owner: Oxford Instruments³⁶¹

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: OxfordInstrumentsReader (Source Code³⁶², *Supported Metadata Fields*)


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: 

17.100 PCORAW

Extensions: .pcoraw, .rec

Developer: PCO³⁶³

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:


Reader: PCORAWReader (Source Code³⁶⁴, *Supported Metadata Fields*)

We currently have:

- a few example datasets

We would like to have:

Ratings

Pixels: 




Metadata: 

³⁶¹<http://www.oxinst.com>

³⁶²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/OxfordInstrumentsReader.java>

³⁶³<http://www.pco.de/>

³⁶⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PCORAWReader.java>


Openness: Presence: Utility: 

17.101 PCX (PC Paintbrush)

Extensions: .pcx

Developer: ZSoft Corporation

Support

BSD-licensed: Export: 

Officially Supported Versions:





Reader: PCXReader ([Source Code](#)³⁶⁵, *Supported Metadata Fields*)

We currently have:

- several .pcx files
- the ability to generate additional .pcx files

We would like to have:

Ratings

Pixels: Metadata: Openness: Presence: Utility: 

Additional Information


Commercial applications that support PCX include Zeiss LSM Image Browser³⁶⁶.

17.102 Perkin Elmer Densitometer

Extensions: .pds

Developer: Perkin Elmer³⁶⁷

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: PDSReader ([Source Code](#)³⁶⁸, *Supported Metadata Fields*)

We currently have:

- a few PDS datasets

³⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/PCXReader.java>

³⁶⁶http://www.zeiss.com/microscopy/en_de/downloads/lsm-5-series.html


³⁶⁷<http://www.perkinelmer.com>


³⁶⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PDSReader.java>


We would like to have:


- an official specification document
- more PDS datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.103 PerkinElmer Nuance

Extensions: .im3

Developer: [PerkinElmer](#)³⁶⁹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: IM3Reader (Source Code³⁷⁰, *Supported Metadata Fields*)

We currently have:


- a few sample datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.104 PerkinElmer Operetta

Extensions: .tiff, .xml

Developer: [PerkinElmer](#)³⁷¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

³⁶⁹<http://www.perkinelmer.com/>

³⁷⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/IM3Reader.java>

³⁷¹<http://www.perkinelmer.com/>

Reader: OperettaReader ([Source Code](#)³⁷², *Supported Metadata Fields*)


We currently have:

- a few sample datasets
- [public sample images](#)³⁷³

We would like to have:


- an official specification document
- more sample datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.105 PerkinElmer UltraVIEW

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

Owner: [PerkinElmer](#)³⁷⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: PerkinElmerReader ([Source Code](#)³⁷⁵, *Supported Metadata Fields*)

We currently have:


- several UltraVIEW datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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

Commercial applications that support this format include:

- [Bitplane Imaris](#)³⁷⁶

³⁷²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/OperettaReader.java>

³⁷³<http://downloads.openmicroscopy.org/images/HCS/Operetta/>

³⁷⁴<http://www.perkinelmer.com/>

³⁷⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PerkinElmerReader.java>

³⁷⁶<http://www.bitplane.com/>

- Image-Pro Plus³⁷⁷

See also:


PerkinElmer UltraVIEW system overview³⁷⁸

17.106 Portable Any Map

Extensions: .pbm, .pgm, .ppm

Developer: Netpbm developers

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: PGMReader (Source Code³⁷⁹, *Supported Metadata Fields*)

Freely Available Software:


- Netpbm graphics filter³⁸⁰

We currently have:

- a PGM specification document³⁸¹ (from 2003 October 3, in HTML)
- a few PBM, PPM and PGM files


We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.107 Adobe Photoshop PSD

Extensions: .psd

Developer: Adobe³⁸²

Support

BSD-licensed: 

Export: 

Officially Supported Versions: 1.0

Reader: PSDReader (Source Code³⁸³, *Supported Metadata Fields*)

We currently have:

³⁷⁷<http://www.mediacy.com/>

³⁷⁸<http://www.perkinelmer.com/product/ultraview-vox-3d-live-cell-imaging-system-l7267000>

³⁷⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/PGMReader.java>

³⁸⁰<http://netpbm.sourceforge.net/>

³⁸¹<http://netpbm.sourceforge.net/doc/pgm.html>

³⁸²<http://www.adobe.com/>


³⁸³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PSDReader.java>


- 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: 

17.108 Photoshop TIFF

Extensions: .tif, .tiff

Developer: [Adobe](#)³⁸⁴

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: PhotoshopTiffReader ([Source Code](#)³⁸⁵, *Supported Metadata Fields*)

We currently have:

- a Photoshop TIFF specification document
- a few Photoshop TIFF files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.109 PicoQuant Bin

Extensions: .bin

Developer: [PicoQuant](#)³⁸⁶

Support

BSD-licensed: 

³⁸⁴<http://www.adobe.com>

³⁸⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PhotoshopTiffReader.java>

³⁸⁶<http://www.picoquant.com/>

Export: ❌

Officially Supported Versions:

Reader: PQBinReader ([Source Code](#)³⁸⁷, *Supported Metadata Fields*)

Freely Available Software:

- [SymphoTime64](#)³⁸⁸

We currently have:


- a few example datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.110 PICT (Macintosh Picture)

Extensions: .pict

Developer: [Apple Computer](#)³⁸⁹

Support

BSD-licensed: 

Export: ❌

Officially Supported Versions:


Reader: PictReader ([Source Code](#)³⁹⁰, *Supported Metadata Fields*)

We currently have:


- many PICT datasets

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

QuickTime for Java is required for reading vector files and some compressed files but note that this is no longer available from Apple.

See also:

³⁸⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PQBinReader.java>

³⁸⁸<http://www.picoquant.com/products/category/software/symphotime-64-fluorescence-lifetime-imaging-and-correlation-software>

³⁸⁹<http://www.apple.com>

³⁹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/PictReader.java>


PICT technical overview³⁹¹ Another PICT technical overview³⁹²

17.111 PNG (Portable Network Graphics)

Extensions: .png

Developer: PNG Development Group³⁹³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: APNGReader (Source Code³⁹⁴, *Supported Metadata Fields*)

Writer: APNGWriter (Source Code³⁹⁵)

Freely Available Software:


- PNG Writer plugin for ImageJ³⁹⁶


We currently have:

- a PNG specification document³⁹⁷ (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

Bio-Formats uses the Java Image I/O³⁹⁸ API to read and write PNG files.

See also:

PNG technical overview³⁹⁹

17.112 Prairie Technologies TIFF

Extensions: .tif, .xml, .cfg

Developer: Prairie Technologies⁴⁰⁰

Support

³⁹¹<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-107.html>

³⁹²<http://www.prepressure.com/formats/pict/fileformat.htm>

³⁹³<http://www.libpng.org/pub/png/pngnews.html>

³⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/APNGReader.java>

³⁹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/APNGWriter.java>

³⁹⁶<http://rsb.info.nih.gov/ij/plugins/png-writer.html>

³⁹⁷<http://www.libpng.org/pub/png/spec/iso/>

³⁹⁸<http://docs.oracle.com/javase/7/docs/technotes/guides/imageio/>

³⁹⁹<http://www.libpng.org/pub/png/>

⁴⁰⁰<http://www.prairie-technologies.com/>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: PrairieReader ([Source Code](#)⁴⁰¹, *Supported Metadata Fields*)

We currently have:

- many Prairie datasets

We would like to have:

Ratings

Pixels: ▲

Metadata: ◻

Openness: ◻

Presence: ▼

Utility: ◻

17.113 Princeton Instruments SPE

Extensions: .spe

Developer: [Princeton Instruments](#)⁴⁰²

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 3.0

Reader: SPEReader ([Source Code](#)⁴⁰³, *Supported Metadata Fields*)

We currently have:

- [An official specification document](#)⁴⁰⁴
- two SPE files

We would like to have:

- more SPE files

Ratings

Pixels: ◻

Metadata: ▲

Openness: ▲

Presence: ▼

Utility: ◻

⁴⁰¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PrairieReader.java>

⁴⁰²<http://www.princetoninstruments.com>

⁴⁰³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SPEReader.java>

⁴⁰⁴<ftp://ftp.princetoninstruments.com/public/Manuals/Princeton%20Instruments/SPE%203.0%20File%20Format%20Specification.pdf>

17.114 Quesant

Extensions: .afm

Developer: Quesant Instrument Corporation

Owner: KLA-Tencor Corporation⁴⁰⁵

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: QuesantReader (Source Code⁴⁰⁶, *Supported Metadata Fields*)


We currently have:

- Pascal code that can read Quesant files (from ImageSXM)
- several Quesant files


We would like to have:


- an official specification document
- more Quesant files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 


Utility: 

17.115 QuickTime Movie

Extensions: .mov

Owner: Apple Computer⁴⁰⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Readers:

- NativeQTReader (Source Code⁴⁰⁸, *Supported Metadata Fields*)
- LegacyQTReader (Source Code⁴⁰⁹, *Supported Metadata Fields*)

Writer: QTWriter (Source Code⁴¹⁰)

Freely Available Software:

⁴⁰⁵<http://www.kla-tencor.com/surface-profilometry-and-metrology.html>

⁴⁰⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/QuesantReader.java>

⁴⁰⁷<http://www.apple.com/>

⁴⁰⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/NativeQTReader.java>

⁴⁰⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/LegacyQTReader.java>

⁴¹⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/QTWriter.java>

- QuickTime Player⁴¹¹


We currently have:

- a QuickTime specification document⁴¹² (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

Bio-Formats has two modes of operation for QuickTime:

- The legacy QTJava mode requires QuickTime for Java which will only run with a 32-bit JVM and is no longer available from Apple.
- Native mode works on systems with no QuickTime (e.g. Linux).

Bio-Formats can save image stacks as QuickTime movies. The following table shows supported codecs:

Codec	Description	Native	LegacyQTJava
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](#)⁴¹³

⁴¹¹<https://support.apple.com/downloads/quicktime>

⁴¹²<http://developer.apple.com/documentation/Quicktime/QTFF/>

⁴¹³<http://www.apple.com/quicktime/>

17.116 RHK

Extensions: .sm2, .sm3

Owner: RHK Technologies⁴¹⁴

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: RHKReader ([Source Code](#)⁴¹⁵, *Supported Metadata Fields*)

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: 

17.117 SBIG

Owner: Santa Barbara Instrument Group (SBIG)⁴¹⁶

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: SBIGReader ([Source Code](#)⁴¹⁷, *Supported Metadata Fields*)

We currently have:

- an official SBIG specification document⁴¹⁸
- a few SBIG files

We would like to have:

- more SBIG files






⁴¹⁴<http://www.rhk-tech.com>

⁴¹⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/RHKReader.java>

⁴¹⁶<http://www.sbig.com>


⁴¹⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SBIGReader.java>

⁴¹⁸<http://sbig.impulse.net/pdffiles/file.format.pdf>

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.118 Seiko

Extensions: .xqd, .xqf

Owner: [Seiko](#)⁴¹⁹**Support**BSD-licensed: Export: 

Officially Supported Versions:





Reader: SeikoReader ([Source Code](#)⁴²⁰, *Supported Metadata Fields*)

We currently have:

- Pascal code that can read Seiko files (from ImageSXM)
- a few Seiko files


We would like to have:

- an official specification document
- more Seiko files

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.119 SimplePCI & HcImage

Extensions: .xcd

Developer: [Compix](#)⁴²¹**Support**BSD-licensed: Export: 

Officially Supported Versions:

⁴¹⁹<http://www.seiko.co.jp/en/index.php>⁴²⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SeikoReader.java>⁴²¹<http://hcimage.com>


Reader: PCIReader ([Source Code](#)⁴²², *Supported Metadata Fields*)


We currently have:


- several SimplePCI files


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

Bio-Formats uses a modified version of the [Apache Jakarta POI library](#)⁴²³ to read CXD files.

See also:


[SimplePCI software overview](#)⁴²⁴

17.120 SimplePCI & HImage TIFF

Extensions: .tiff

Developer: [Hamamatsu](#)⁴²⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: SimplePCITiffReader ([Source Code](#)⁴²⁶, *Supported Metadata Fields*)


We currently have:

- a few SimplePCI TIFF datasets

We would like to have:


- more SimplePCI TIFF datasets


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

⁴²²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/PCIReader.java>

⁴²³<http://jakarta.apache.org/poi/>

⁴²⁴<http://himage.com/simple-pci-legacy/>

⁴²⁵<http://himage.com/simple-pci-legacy/>

⁴²⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SimplePCITiffReader.java>

17.121 SM Camera

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: SMCameraReader ([Source Code](#)⁴²⁷, *Supported Metadata Fields*)


We currently have:

- Pascal code that can read SM-Camera files (from ImageSXM)
- a few SM-Camera files


We would like to have:


- an official specification document
- more SM-Camera files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.122 SPIDER

Extensions: .spi, .stk

Developer: [Wadsworth Center](#)⁴²⁸

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: SpiderReader ([Source Code](#)⁴²⁹, *Supported Metadata Fields*)

Freely Available Software:


- [SPIDER](#)⁴³⁰

We currently have:

- a few example datasets
- [official file format documentation](#)⁴³¹

We would like to have:

Ratings

Pixels: 


⁴²⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SMCameraReader.java>


⁴²⁸http://spider.wadsworth.org/spider_doc/spider/docs/spider.html


⁴²⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/SpiderReader.java>


⁴³⁰http://spider.wadsworth.org/spider_doc/spider/docs/spider.html

⁴³¹http://spider.wadsworth.org/spider_doc/spider/docs/image_doc.html

Metadata: 

Openness: 

Presence: 


Utility: 

17.123 Targa

Extensions: .tga

Developer: Truevision⁴³²

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: TargaReader (Source Code⁴³³, *Supported Metadata Fields*)

We currently have:

- a Targa specification document
- a few Targa files

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

Utility: 

17.124 Text

Extensions: .txt

Support

BSD-licensed: 

Export: 


Officially Supported Versions:

Reader: TextReader (Source Code⁴³⁴, *Supported Metadata Fields*)

We currently have:

We would like to have:

Ratings

Pixels: 

⁴³²<http://www.truevision.com>

⁴³³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/TargaReader.java>

⁴³⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/TextReader.java>

Metadata: 
 Openness: 
 Presence: 
 Utility: 

Additional Information

Reads tabular pixel data produced by a variety of software.


17.125 TIFF (Tagged Image File Format)

Extensions: .tiff, .tif, .tf2, .tf8, .btf

Developer: Aldus and Microsoft

Owner: Adobe⁴³⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: TiffReader (Source Code⁴³⁶, *Supported Metadata Fields*)

Writer: TiffWriter (Source Code⁴³⁷)

Sample Datasets:


- LZW TIFF data gallery⁴³⁸
- Big TIFF⁴³⁹

We currently have:


- a TIFF specification document⁴⁴⁰ (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

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:

⁴³⁵<http://www.adobe.com>

⁴³⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/TiffReader.java>

⁴³⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/out/TiffWriter.java>

⁴³⁸http://marlin.life.utsa.edu/Data_Gallery.html

⁴³⁹<http://www.awaresystems.be/imaging/tiff/bigtiff.html#samples>

⁴⁴⁰<http://partners.adobe.com/asn/developer/PDFS/TN/TIFF6.pdf>

TIFF technical overview⁴⁴¹ BigTIFF technical overview⁴⁴²

17.126 TillPhotonics TillVision

Extensions: .vws

Developer: TILL Photonics⁴⁴³

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: TillVisionReader (Source Code⁴⁴⁴, *Supported Metadata Fields*)


We currently have:

- several TillVision datasets


We would like to have:


- an official specification document


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.127 Topometrix

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

Owner: TopoMetrix (now Veeco)⁴⁴⁵

Support

BSD-licensed: ✘

Export: ✘

Officially Supported Versions:

Reader: TopometrixReader (Source Code⁴⁴⁶, *Supported Metadata Fields*)

We currently have:

- Pascal code that reads Topometrix files (from ImageSXM)
- a few Topometrix files

We would like to have:

- an official specification document

⁴⁴¹<http://www.awaresystems.be/imaging/tiff/faq.html#q3>

⁴⁴²<http://www.awaresystems.be/imaging/tiff/bigtiff.html>

⁴⁴³<http://www.till-photonics.com/>

⁴⁴⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/TillVisionReader.java>

⁴⁴⁵<http://www.veeco.com/>


⁴⁴⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/TopometrixReader.java>


- more Topometrix files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

17.128 Trestle

Extensions: .tif, .sld, .jpg

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: TrestleReader ([Source Code](#)⁴⁴⁷, *Supported Metadata Fields*)

Sample Datasets:


- [OpenSlide](#)⁴⁴⁸

We currently have:


- a few example datasets
- [developer documentation from the OpenSlide project](#)⁴⁴⁹

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 


Presence: 

Utility: 

17.129 UBM

Extensions: .pr3

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: UBMReader ([Source Code](#)⁴⁵⁰, *Supported Metadata Fields*)

⁴⁴⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/TrestleReader.java>

⁴⁴⁸<http://openslide.cs.cmu.edu/download/openslide-testdata/Trestle/>

⁴⁴⁹<http://openslide.org/Trestle%20format/>

⁴⁵⁰<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/UBMReader.java>

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: 

17.130 Unisoku

Extensions: .dat, .hdr

Owner: [Unisoku](http://www.unisoku.com)⁴⁵¹

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: UnisokuReader ([Source Code](#)⁴⁵², *Supported Metadata Fields*)


We currently have:

- Pascal code that can read Unisoku files (from ImageSXM)
- a few Unisoku files

We would like to have:


- an official specification document
- more Unisoku files


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

⁴⁵¹<http://www.unisoku.com>

⁴⁵²<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/UnisokuReader.java>


17.131 Varian FDF

Extensions: .fdf

Developer: Varian, Inc.

Owner: [Agilent Technologies](http://www.agilent.com/home)⁴⁵³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: VarianFDFReader ([Source Code](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VarianFDFReader.java)⁴⁵⁴, *Supported Metadata Fields*)


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: 

17.132 Veeco AFM

Extensions: .hdf

Developer: [Veeco](http://www.veeco.com)⁴⁵⁵

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: VeecoReader ([Source Code](https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VeecoReader.java)⁴⁵⁶, *Supported Metadata Fields*)

We currently have:

- a few sample datasets

We would like to have:

Ratings

Pixels: 




Metadata: 

⁴⁵³<http://www.agilent.com/home>

⁴⁵⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VarianFDFReader.java>

⁴⁵⁵<http://www.veeco.com>


⁴⁵⁶<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VeecoReader.java>

Openness: Presence: Utility: 

17.133 VG SAM

Extensions: .dti

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: VGSAMReader ([Source Code](#)⁴⁵⁷, *Supported Metadata Fields*)





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: 

17.134 VisiTech XYS

Extensions: .xys, .html

Developer: [VisiTech International](#)⁴⁵⁸

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: VisitechReader ([Source Code](#)⁴⁵⁹, *Supported Metadata Fields*)

We currently have:

- several VisiTech datasets





We would like to have:

- an official specification document

⁴⁵⁷<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VGSAMReader.java>


⁴⁵⁸<http://www.visitech.co.uk/>

⁴⁵⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VisitechReader.java>

RatingsPixels: Metadata: Openness: Presence: Utility: 

17.135 Volocity

Extensions: .mvd2

Developer: [PerkinElmer](#)⁴⁶⁰**Support**BSD-licensed: Export: 

Officially Supported Versions:

Reader: VolocityReader ([Source Code](#)⁴⁶¹, *Supported Metadata Fields*)

Sample Datasets:




- [PerkinElmer Downloads](#)⁴⁶²

We currently have:

- many example Volocity datasets

We would like to have:

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

RatingsPixels: Metadata: Openness: Presence: Utility: **Additional Information**.mvd2 files are [Metakit database files](#)⁴⁶³.

17.136 Volocity Library Clipping

Extensions: .acff

Developer: [PerkinElmer](#)⁴⁶⁴**Support**⁴⁶⁰<http://www.perkinelmer.com/cellular-imaging/>⁴⁶¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VolocityReader.java>⁴⁶²<http://cellularimaging.perkinelmer.com/downloads/>⁴⁶³<http://equi4.com/metakit/>⁴⁶⁴<http://www.perkinelmer.com/cellular-imaging/>

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: VolocityClippingReader ([Source Code](#)⁴⁶⁵, *Supported Metadata Fields*)


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

RGB .acff files are not yet supported. See [#6413](#)⁴⁶⁶.

17.137 WA-TOP

Extensions: .wat

Developer: WA Technology

Owner: [Oxford Instruments](#)⁴⁶⁷

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: WATOPReader ([Source Code](#)⁴⁶⁸, *Supported Metadata Fields*)

We currently have:

- Pascal code that can read WA-TOP files (from ImageSXM)
- a few WA-TOP files

We would like to have:

- an official specification document
- more WA-TOP files

Ratings

Pixels: 




Metadata: 

⁴⁶⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/VolocityClippingReader.java>

⁴⁶⁶<https://trac.openmicroscopy.org/ome/ticket/6413>

⁴⁶⁷<http://www.oxinst.com>

⁴⁶⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/WATOPReader.java>


Openness: Presence: Utility: 

17.138 Windows Bitmap

Extensions: .bmp

Developer: Microsoft and IBM

Support

BSD-licensed: Export: 

Officially Supported Versions:

Reader: BMPReader ([Source Code](#)⁴⁶⁹, *Supported Metadata Fields*)

Freely Available Software:




- [BMP Writer plugin for ImageJ](#)⁴⁷⁰

We currently have:

- many BMP datasets

We would like to have:

Ratings

Pixels: Metadata: Openness: Presence: Utility: 

Additional Information

Compressed BMP files are currently not supported.

See also:

[Technical Overview](#)⁴⁷¹

17.139 Woolz

Extensions: .wlz

Developer: [MRC Human Genetics Unit](#)⁴⁷²

Support

BSD-licensed: Export: 

Officially Supported Versions:

⁴⁶⁹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-bsd/src/loci/formats/in/BMPReader.java>

⁴⁷⁰<http://rsb.info.nih.gov/ij/plugins/bmp-writer.html>

⁴⁷¹<http://www.faqs.org/faqs/graphics/fileformats-faq/part3/section-18.html>

⁴⁷²http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

Reader: WlzReader (Source Code⁴⁷³, *Supported Metadata Fields*)

Writer: WlzWriter (Source Code⁴⁷⁴)

Freely Available Software:


- Woolz⁴⁷⁵

We currently have:


- a few Woolz datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 


17.140 Zeiss Axio CSM

Extensions: .lms

Developer: Carl Zeiss Microscopy GmbH⁴⁷⁶

Owner: Carl Zeiss Microscopy GmbH⁴⁷⁷

Support

BSD-licensed: 

Export: 

Officially Supported Versions:


Reader: ZeissLMSReader (Source Code⁴⁷⁸, *Supported Metadata Fields*)

We currently have:

- one example dataset

We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

This should not be confused with the more common Zeiss LSM format, which has a similar extension. As far as we know, the Axio CSM 700 system is the only one which saves files in the .lms format.

⁴⁷³<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/WlzReader.java>

⁴⁷⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/out/WlzWriter.java>

⁴⁷⁵http://www.emouseatlas.org/emap/analysis_tools_resources/software/woolz.html

⁴⁷⁶<http://www.zeiss.com/microscopy/>

⁴⁷⁷<http://www.zeiss.com/microscopy/>

⁴⁷⁸<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ZeissLMSReader.java>

17.141 Zeiss AxioVision TIFF

Extensions: .xml, .tiff

Developer: Carl Zeiss Microscopy GmbH⁴⁷⁹

Owner: Carl Zeiss Microscopy GmbH⁴⁸⁰

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions:

Reader: ZeissTIFFReader (Source Code⁴⁸¹, *Supported Metadata Fields*)

Freely Available Software:

- Zeiss ZEN Lite⁴⁸²

We currently have:

- many example datasets

We would like to have:

- an official specification document

Ratings

Pixels: ▲

Metadata: ▲

Openness: ■

Presence: ▼

Utility: ▼

17.142 Zeiss AxioVision ZVI (Zeiss Vision Image)

Extensions: .zvi

Developer: Carl Zeiss Microscopy GmbH (AxioVision)⁴⁸³

Owner: Carl Zeiss Microscopy GmbH⁴⁸⁴

Support

BSD-licensed: ❌

Export: ❌

Officially Supported Versions: 1.0, 2.0

Reader: ZeissZVIReader (Source Code⁴⁸⁵, *Supported Metadata Fields*)

Freely Available Software:

- Zeiss Axiovision LE⁴⁸⁶

⁴⁷⁹<http://www.zeiss.com/microscopy/>

⁴⁸⁰<http://www.zeiss.com/microscopy/>

⁴⁸¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ZeissTIFFReader.java>

⁴⁸²http://www.zeiss.com/microscopy/en_de/products/microscope-software/zen-lite.html

⁴⁸³http://www.zeiss.com/microscopy/en_de/products/microscope-software/axiovision.html

⁴⁸⁴<http://www.zeiss.com/microscopy/>

⁴⁸⁵<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ZeissZVIReader.java>

⁴⁸⁶http://www.zeiss.com/microscopy/en_de/downloads/axiovision.html

We currently have:

- a ZVI specification document (v2.0.5, from 2010 August, in PDF)
- an older ZVI specification document (v2.0.2, from 2006 August 23, in PDF)
- an older ZVI specification document (v2.0.1, from 2005 April 21, in PDF)
- an older ZVI specification document (v1.0.26.01.01, from 2001 January 29, in DOC)
- Zeiss' ZvImageReader code (v1.0, from 2001 January 25, in C++)
- many ZVI datasets


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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](http://jakarta.apache.org/poi/)⁴⁸⁷ to read ZVI files. ImageJ/FIJI will use the ZVI reader plugin in preference to Bio-Formats if both are installed. If you have a problem which is solved by opening the file using the Bio-Formats Importer plugin, you can just remove the ZVI_Reader.class from the plugins folder.

Commercial applications that support ZVI include [Bitplane Imaris](http://www.bitplane.com/)⁴⁸⁸.

17.143 Zeiss CZI

Extensions: .czi⁴⁸⁹

Developer: [Carl Zeiss Microscopy GmbH](http://www.zeiss.com/czi/)⁴⁹⁰

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: ZeissCZIReader (Source Code⁴⁹¹, *Supported Metadata Fields*)

Freely Available Software:

- [Zeiss ZEN](http://www.zeiss.com/czi/)⁴⁹²

We currently have:

- many example datasets
- official specification documents

⁴⁸⁷<http://jakarta.apache.org/poi/>

⁴⁸⁸<http://www.bitplane.com/>

⁴⁸⁹<http://www.zeiss.com/czi/>


⁴⁹⁰<http://www.zeiss.com/czi/>


⁴⁹¹<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ZeissCZIReader.java>


⁴⁹²http://www.zeiss.com/microscopy/en_de/products/microscope-software/zen.html


We would like to have:


Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

Utility: 

Additional Information

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


Bio-Formats does not support CZI files generated using JPEG-XR compression.

17.144 Zeiss LSM (Laser Scanning Microscope) 510/710

Extensions: .lsm, .mdb

Owner: [Carl Zeiss Microscopy GmbH](http://www.zeiss.com/microscopy/)⁴⁹³

Support

BSD-licensed: 

Export: 

Officially Supported Versions:

Reader: ZeissLSMReader (Source Code⁴⁹⁴, *Supported Metadata Fields*)

Freely Available Software:


- [Zeiss LSM Image Browser](http://www.zeiss.com/microscopy/)⁴⁹⁵
- [LSM Toolbox plugin for ImageJ](http://imagejdocu.tudor.lu/Members/ppirrotte/lsmtoolbox)⁴⁹⁶
- [LSM Reader plugin for ImageJ](http://rsb.info.nih.gov/ij/plugins/lsm-reader.html)⁴⁹⁷
- [DIMIN](http://www.dimin.net/)⁴⁹⁸

We currently have:

- LSM specification v3.2, from 2003 March 12, in PDF
- LSM specification v5.5, from 2009 November 23, in PDF
- LSM specification v6.0, from 2010 September 28, in PDF
- many LSM datasets

We would like to have:

Ratings

Pixels: 

Metadata: 

Openness: 

Presence: 

⁴⁹³<http://www.zeiss.com/microscopy/>


⁴⁹⁴<https://github.com/openmicroscopy/bioformats/blob/v5.2.3/components/formats-gpl/src/loci/formats/in/ZeissLSMReader.java>

⁴⁹⁵http://www.zeiss.com/microscopy/en_de/downloads/lsm-5-series.html

⁴⁹⁶<http://imagejdocu.tudor.lu/Members/ppirrotte/lsmtoolbox>

⁴⁹⁷<http://rsb.info.nih.gov/ij/plugins/lsm-reader.html>

⁴⁹⁸<http://www.dimin.net/>

Utility: 

Additional Information

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

Bio-Formats uses the [MDB Tools Java port](http://mdbtools.sourceforge.net/)⁴⁹⁹

Commercial applications that support this format include:

- [SVI Huygens](https://svi.nl/)⁵⁰⁰
- [Bitplane Imaris](http://www.bitplane.com/)⁵⁰¹
- [Amira](http://www.amira.com/)⁵⁰²
- [Image-Pro Plus](http://www.mediacy.com/)⁵⁰³

⁴⁹⁹<http://mdbtools.sourceforge.net/>

⁵⁰⁰<https://svi.nl/HomePage>

⁵⁰¹<http://www.bitplane.com/>

⁵⁰²<http://www.amira.com/>

⁵⁰³<http://www.mediacy.com/>

SUMMARY OF SUPPORTED METADATA FIELDS

18.1 Format readers

Reader	Supported	Unsupported	Partial	Unknown/Missing
<i>AFIReader</i>	30	0	0	446
<i>AIMReader</i>	22	0	0	454
<i>APLReader</i>	21	0	0	455
<i>APNGReader</i>	19	0	0	457
<i>ARFReader</i>	19	0	0	457
<i>AVIReader</i>	19	0	0	457
<i>AliconaReader</i>	33	0	0	443
<i>AmiraReader</i>	22	0	0	454
<i>AnalyzeReader</i>	24	0	0	452
<i>BDReader</i>	57	0	0	419
<i>BIFormatReader</i>	19	0	0	457
<i>BMPReader</i>	21	0	0	455
<i>BaseTiffReader</i>	28	0	0	448
<i>BaseZeissReader</i>	83	0	0	393
<i>BioRadGelReader</i>	21	0	0	455
<i>BioRadReader</i>	40	0	0	436
<i>BioRadSCNReader</i>	29	0	0	447
<i>BrukerReader</i>	23	0	0	453
<i>BurleighReader</i>	22	0	0	454
<i>CanonRawReader</i>	19	0	0	457
<i>CellH5Reader</i>	41	0	0	435
<i>CellSensReader</i>	46	0	0	430
<i>CellVoyagerReader</i>	34	0	0	442
<i>CellWorxReader</i>	45	0	0	431
<i>CellomicsReader</i>	31	0	0	445
<i>DNGReader</i>	19	0	0	457
<i>DeltavisionReader</i>	52	0	0	424
<i>DicomReader</i>	23	0	0	453
<i>EPSReader</i>	19	0	0	457
<i>Ecat7Reader</i>	23	0	0	453
<i>FEIReader</i>	19	0	0	457
<i>FEITiffReader</i>	39	0	0	437
<i>FV1000Reader</i>	113	0	0	363
<i>FakeReader</i>	84	0	0	392
<i>FilePatternReader</i>	19	0	0	457
<i>FitsReader</i>	19	0	0	457
<i>FlexReader</i>	69	0	0	407
<i>FlowSightReader</i>	20	0	0	456
<i>FluoviewReader</i>	49	0	0	427
<i>FujiReader</i>	23	0	0	453
<i>GIFReader</i>	19	0	0	457
<i>GatanDM2Reader</i>	30	0	0	446

Continued on next page

Table 18.1 – continued from previous page

Reader	Supported	Unsupported	Partial	Unknown/Missing
<i>GatanReader</i>	36	0	0	440
<i>GelReader</i>	21	0	0	455
<i>HISReader</i>	27	0	0	449
<i>HRDGDFReader</i>	21	0	0	455
<i>HamamatsuVMSReader</i>	26	0	0	450
<i>HitachiReader</i>	31	0	0	445
<i>I2IReader</i>	19	0	0	457
<i>ICSReader</i>	72	0	0	404
<i>IM3Reader</i>	19	0	0	457
<i>IMODReader</i>	44	0	0	432
<i>INRReader</i>	22	0	0	454
<i>IPLabReader</i>	31	0	0	445
<i>IPWReader</i>	20	0	0	456
<i>ImaconReader</i>	23	0	0	453
<i>ImageIOReader</i>	19	0	0	457
<i>ImagicReader</i>	22	0	0	454
<i>ImarisHDFReader</i>	23	0	0	453
<i>ImarisReader</i>	32	0	0	444
<i>ImarisTiffReader</i>	23	0	0	453
<i>ImprovisionTiffReader</i>	25	0	0	451
<i>InspectorReader</i>	19	0	0	457
<i>InCell3000Reader</i>	19	0	0	457
<i>InCellReader</i>	67	0	0	409
<i>InveonReader</i>	30	0	0	446
<i>IvisionReader</i>	34	0	0	442
<i>JEOLReader</i>	19	0	0	457
<i>JPEG2000Reader</i>	19	0	0	457
<i>JPEGReader</i>	19	0	0	457
<i>JPKReader</i>	19	0	0	457
<i>JPXReader</i>	19	0	0	457
<i>KhorosReader</i>	19	0	0	457
<i>KodakReader</i>	26	0	0	450
<i>L2DReader</i>	29	0	0	447
<i>LEOReader</i>	27	0	0	449
<i>LIFReader</i>	85	0	0	391
<i>LIMReader</i>	19	0	0	457
<i>LegacyND2Reader</i>	19	0	0	457
<i>LegacyQTReader</i>	19	0	0	457
<i>LeicaReader</i>	56	0	0	420
<i>LeicaSCNReader</i>	33	0	0	443
<i>LiFlimReader</i>	25	0	0	451
<i>MIASReader</i>	65	0	0	411
<i>MINCReader</i>	23	0	0	453
<i>MNGReader</i>	19	0	0	457
<i>MRCReader</i>	22	0	0	454
<i>MRWReader</i>	19	0	0	457
<i>MetamorphReader</i>	46	0	0	430
<i>MetamorphTiffReader</i>	38	0	0	438
<i>MicromanagerReader</i>	41	0	0	435
<i>MinimalTiffReader</i>	19	0	0	457
<i>MolecularImagingReader</i>	21	0	0	455
<i>NAFReader</i>	19	0	0	457
<i>ND2Reader</i>	19	0	0	457
<i>NDPIReader</i>	28	0	0	448
<i>NDPISReader</i>	19	0	0	457
<i>NRRDReader</i>	22	0	0	454
<i>NativeND2Reader</i>	52	0	0	424
<i>NativeQTReader</i>	19	0	0	457

Continued on next page

Table 18.1 – continued from previous page

Reader	Supported	Unsupported	Partial	Unknown/Missing
<i>NiftiReader</i>	24	0	0	452
<i>NikonElementsTiffReader</i>	50	0	0	426
<i>NikonReader</i>	19	0	0	457
<i>NikonTiffReader</i>	47	0	0	429
<i>OBFReader</i>	19	0	0	457
<i>OMETiffReader</i>	19	0	0	457
<i>OMEXMLReader</i>	19	0	0	457
<i>OpenlabRawReader</i>	19	0	0	457
<i>OpenlabReader</i>	32	0	0	444
<i>OperettaReader</i>	43	0	0	433
<i>OxfordInstrumentsReader</i>	22	0	0	454
<i>PCIRReader</i>	29	0	0	447
<i>PCORAWReader</i>	26	0	0	450
<i>PCXReader</i>	19	0	0	457
<i>PDSReader</i>	23	0	0	453
<i>PGMReader</i>	19	0	0	457
<i>PQBinReader</i>	21	0	0	455
<i>PSDReader</i>	19	0	0	457
<i>PerkinElmerReader</i>	30	0	0	446
<i>PhotoshopTiffReader</i>	19	0	0	457
<i>PictReader</i>	19	0	0	457
<i>PovrayReader</i>	19	0	0	457
<i>PrairieReader</i>	46	0	0	430
<i>PyramidTiffReader</i>	19	0	0	457
<i>QTReader</i>	19	0	0	457
<i>QuesantReader</i>	22	0	0	454
<i>RHKReader</i>	22	0	0	454
<i>SBIGReader</i>	22	0	0	454
<i>SDTReader</i>	19	0	0	457
<i>SEQReader</i>	19	0	0	457
<i>SIFReader</i>	20	0	0	456
<i>SISReader</i>	33	0	0	443
<i>SMCameraReader</i>	19	0	0	457
<i>SPCReader</i>	19	0	0	457
<i>SPEReader</i>	30	0	0	446
<i>SVSReader</i>	29	0	0	447
<i>ScanrReader</i>	43	0	0	433
<i>ScreenReader</i>	34	0	0	442
<i>SeikoReader</i>	22	0	0	454
<i>SimplePCITiffReader</i>	33	0	0	443
<i>SlidebookReader</i>	34	0	0	442
<i>SlidebookTiffReader</i>	30	0	0	446
<i>SpiderReader</i>	21	0	0	455
<i>TCSReader</i>	22	0	0	454
<i>TargaReader</i>	20	0	0	456
<i>TextReader</i>	19	0	0	457
<i>TiffDelegateReader</i>	19	0	0	457
<i>TiffJAIRReader</i>	19	0	0	457
<i>TiffReader</i>	22	0	0	454
<i>TileJPEGReader</i>	19	0	0	457
<i>TillVisionReader</i>	22	0	0	454
<i>TopometrixReader</i>	22	0	0	454
<i>TrestleReader</i>	27	0	0	449
<i>UBMReader</i>	19	0	0	457
<i>UnisokuReader</i>	22	0	0	454
<i>VGSAMReader</i>	19	0	0	457
<i>VarianFDFReader</i>	25	0	0	451
<i>VeecoReader</i>	19	0	0	457

Continued on next page

Table 18.1 – continued from previous page

Reader	Supported	Unsupported	Partial	Unknown/Missing
<i>VisitechReader</i>	19	0	0	457
<i>VolocityClippingReader</i>	19	0	0	457
<i>VolocityReader</i>	38	0	0	438
<i>WATOPReader</i>	22	0	0	454
<i>WlzReader</i>	26	0	0	450
<i>ZeissCZIReader</i>	158	0	0	318
<i>ZeissLMSReader</i>	23	0	0	453
<i>ZeissLSMReader</i>	101	0	0	375
<i>ZeissTIFFReader</i>	19	0	0	457
<i>ZeissZVIReader</i>	19	0	0	457
<i>ZipReader</i>	19	0	0	457

18.2 Metadata fields

Field	Supported	Unsupported	Partial	Unknown/Missing
Arc - ID ¹	0	0	0	169
Arc - LotNumber ²	1	0	0	168
Arc - Manufacturer ³	1	0	0	168
Arc - Model ⁴	1	0	0	168
Arc - Power ⁵	1	0	0	168
Arc - SerialNumber ⁶	1	0	0	168
Arc - Type ⁷	0	0	0	169
BooleanAnnotation - AnnotationRef ⁸	0	0	0	169
BooleanAnnotation - Description ⁹	0	0	0	169
BooleanAnnotation - ID ¹⁰	1	0	0	168
BooleanAnnotation - Namespace ¹¹	1	0	0	168
BooleanAnnotation - Value ¹²	1	0	0	168
Channel - AcquisitionMode ¹³	4	0	0	165
Channel - AnnotationRef ¹⁴	0	0	0	169
Channel - Color ¹⁵	8	0	0	161
Channel - ContrastMethod ¹⁶	0	0	0	169
Channel - EmissionWavelength ¹⁷	18	0	0	151

Continued on next page

¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Arc_Type

⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description

¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BooleanAnnotation_Value

¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_AcquisitionMode

¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ContrastMethod

¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Channel - Excitation-Wavelength ¹⁸	17	0	0	152
Channel - FilterSetRef ¹⁹	1	0	0	168
Channel - Fluor ²⁰	1	0	0	168
Channel - ID ²¹	169	0	0	0
Channel - IlluminationType ²²	3	0	0	166
Channel - LightSourceSettingsAttenuation ²³	1	0	0	168
Channel - LightSourceSettingsID ²⁴	5	0	0	164
Channel - LightSourceSettingsWavelength ²⁵	2	0	0	167
Channel - NDFilter ²⁶	2	0	0	167
Channel - Name ²⁷	33	0	0	136
Channel - PinholeSize ²⁸	10	0	0	159
Channel - PockelCellSetting ²⁹	0	0	0	169
Channel - SamplesPerPixel ³⁰	169	0	0	0
CommentAnnotation - AnnotationRef ³¹	0	0	0	169
CommentAnnotation - Description ³²	0	0	0	169
CommentAnnotation - ID ³³	1	0	0	168
CommentAnnotation - Namespace ³⁴	1	0	0	168
CommentAnnotation - Value ³⁵	1	0	0	168
Dataset - AnnotationRef ³⁶	0	0	0	169
Dataset - Description ³⁷	0	0	0	169
Dataset - ExperimenterGroupRef ³⁸	0	0	0	169

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¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterSetRef_ID²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Fluor²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_IlluminationType²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Attenuation²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Wavelength²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_NDFilter²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PockelCellSetting³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#CommentAnnotation_Value³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dataset_Description³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroupRef_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Dataset - ExperimentRef ³⁹	0	0	0	169
Dataset - ID ⁴⁰	0	0	0	169
Dataset - ImageRef ⁴¹	0	0	0	169
Dataset - Name ⁴²	0	0	0	169
Detector - AmplificationGain ⁴³	2	0	0	167
Detector - AnnotationRef ⁴⁴	0	0	0	169
Detector - Gain ⁴⁵	6	0	0	163
Detector - ID ⁴⁶	35	0	0	134
Detector - LotNumber ⁴⁷	1	0	0	168
Detector - Manufacturer ⁴⁸	5	0	0	164
Detector - Model ⁴⁹	14	0	0	155
Detector - Offset ⁵⁰	6	0	0	163
Detector - SerialNumber ⁵¹	4	0	0	165
Detector - Type ⁵²	28	0	0	141
Detector - Voltage ⁵³	2	0	0	167
Detector - Zoom ⁵⁴	4	0	0	165
DetectorSettings - Binning ⁵⁵	18	0	0	151
DetectorSettings - Gain ⁵⁶	20	0	0	149
DetectorSettings - ID ⁵⁷	33	0	0	136
DetectorSettings - Offset ⁵⁸	9	0	0	160
DetectorSettings - ReadOutRate ⁵⁹	5	0	0	164
DetectorSettings - Voltage ⁶⁰	6	0	0	163
Dichroic - AnnotationRef ⁶¹	0	0	0	169
Dichroic - ID ⁶²	6	0	0	163

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³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimentRef_ID⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dataset_ID⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dataset_Name⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_AmplificationGain⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Voltage⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Zoom⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Dichroic - LotNumber ⁶³	1	0	0	168
Dichroic - Manufacturer ⁶⁴	1	0	0	168
Dichroic - Model ⁶⁵	6	0	0	163
Dichroic - Serial-Number ⁶⁶	1	0	0	168
DoubleAnnotation - AnnotationRef ⁶⁷	0	0	0	169
DoubleAnnotation - Description ⁶⁸	0	0	0	169
DoubleAnnotation - ID ⁶⁹	1	0	0	168
DoubleAnnotation - Namespace ⁷⁰	1	0	0	168
DoubleAnnotation - Value ⁷¹	1	0	0	168
Ellipse - FillColor ⁷²	0	0	0	169
Ellipse - FillRule ⁷³	0	0	0	169
Ellipse - FontFamily ⁷⁴	0	0	0	169
Ellipse - FontSize ⁷⁵	2	0	0	167
Ellipse - FontStyle ⁷⁶	0	0	0	169
Ellipse - ID ⁷⁷	6	0	0	163
Ellipse - Locked ⁷⁸	0	0	0	169
Ellipse - RadiusX ⁷⁹	6	0	0	163
Ellipse - RadiusY ⁸⁰	6	0	0	163
Ellipse - StrokeColor ⁸¹	0	0	0	169
Ellipse - StrokeDashArray ⁸²	0	0	0	169
Ellipse - StrokeWidth ⁸³	2	0	0	167
Ellipse - Text ⁸⁴	3	0	0	166
Ellipse - TheC ⁸⁵	0	0	0	169
Ellipse - TheT ⁸⁶	2	0	0	167
Ellipse - TheZ ⁸⁷	2	0	0	167

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⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description

⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DoubleAnnotation_Value

⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor

⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule

⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily

⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle

⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked

⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray

⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC

⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Ellipse - Transform ⁸⁸	2	0	0	167
Ellipse - X ⁸⁹	6	0	0	163
Ellipse - Y ⁹⁰	6	0	0	163
Experiment - AnnotationRef ⁹¹	0	0	0	169
Experiment - Description ⁹²	1	0	0	168
Experiment - ExperimenterRef ⁹³	0	0	0	169
Experiment - ID ⁹⁴	5	0	0	164
Experiment - Type ⁹⁵	5	0	0	164
Experimenter - AnnotationRef ⁹⁶	0	0	0	169
Experimenter - Email ⁹⁷	2	0	0	167
Experimenter - FirstName ⁹⁸	5	0	0	164
Experimenter - ID ⁹⁹	11	0	0	158
Experimenter - Institution ¹⁰⁰	4	0	0	165
Experimenter - LastName ¹⁰¹	9	0	0	160
Experimenter - MiddleName ¹⁰²	1	0	0	168
Experimenter - UserName ¹⁰³	3	0	0	166
ExperimenterGroup - AnnotationRef ¹⁰⁴	0	0	0	169
ExperimenterGroup - Description ¹⁰⁵	0	0	0	169
ExperimenterGroup - ExperimenterRef ¹⁰⁶	0	0	0	169
ExperimenterGroup - ID ¹⁰⁷	0	0	0	169
ExperimenterGroup - Leader ¹⁰⁸	0	0	0	169
ExperimenterGroup - Name ¹⁰⁹	0	0	0	169

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⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Description⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Email⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Institution¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_MiddleName¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_UserName¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroup_Description¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroup_ID¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Leader_ID¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroup_Name

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Filament - ID ¹¹⁰	0	0	0	169
Filament - LotNumber ¹¹¹	1	0	0	168
Filament - Manufacturer ¹¹²	1	0	0	168
Filament - Model ¹¹³	1	0	0	168
Filament - Power ¹¹⁴	1	0	0	168
Filament - SerialNumber ¹¹⁵	1	0	0	168
Filament - Type ¹¹⁶	0	0	0	169
FileAnnotation - AnnotationRef ¹¹⁷	0	0	0	169
FileAnnotation - Description ¹¹⁸	0	0	0	169
FileAnnotation - ID ¹¹⁹	0	0	0	169
FileAnnotation - Namespace ¹²⁰	0	0	0	169
Filter - AnnotationRef ¹²¹	0	0	0	169
Filter - FilterWheel ¹²²	2	0	0	167
Filter - ID ¹²³	8	0	0	161
Filter - LotNumber ¹²⁴	1	0	0	168
Filter - Manufacturer ¹²⁵	1	0	0	168
Filter - Model ¹²⁶	8	0	0	161
Filter - SerialNumber ¹²⁷	1	0	0	168
Filter - Type ¹²⁸	2	0	0	167
FilterSet - DichroicRef ¹²⁹	2	0	0	167
FilterSet - EmissionFilterRef ¹³⁰	2	0	0	167
FilterSet - ExcitationFilterRef ¹³¹	2	0	0	167
FilterSet - ID ¹³²	2	0	0	167

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¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filament_Type¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_FilterWheel¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_Type¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterSet_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
FilterSet - LotNumber ¹³³	1	0	0	168
FilterSet - Manufacturer ¹³⁴	1	0	0	168
FilterSet - Model ¹³⁵	2	0	0	167
FilterSet - Serial-Number ¹³⁶	1	0	0	168
Folder - Annotation-Ref ¹³⁷	0	0	0	169
Folder - Description ¹³⁸	0	0	0	169
Folder - FolderRef ¹³⁹	0	0	0	169
Folder - ID ¹⁴⁰	0	0	0	169
Folder - ImageRef ¹⁴¹	0	0	0	169
Folder - Name ¹⁴²	0	0	0	169
Folder - ROIRef ¹⁴³	0	0	0	169
Image - Acquisition-Date ¹⁴⁴	169	0	0	0
Image - Annotation-Ref ¹⁴⁵	1	0	0	168
Image - Description ¹⁴⁶	44	0	0	125
Image - ExperimentRef ¹⁴⁷	2	0	0	167
Image - ExperimenterGroupRef ¹⁴⁸	0	0	0	169
Image - ExperimenterRef ¹⁴⁹	6	0	0	163
Image - ID ¹⁵⁰	169	0	0	0
Image - InstrumentRef ¹⁵¹	45	0	0	124
Image - Microbeam-ManipulationRef ¹⁵²	0	0	0	169
Image - Name ¹⁵³	169	0	0	0
Image - ROIRef ¹⁵⁴	14	0	0	155
ImagingEnvironment - AirPressure ¹⁵⁵	1	0	0	168

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¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Folder_Description

¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FolderRef_ID

¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Folder_ID

¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Folder_Name

¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimentRef_ID

¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroupRef_ID

¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#MicrobeamManipulationRef_ID

¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_AirPressure

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
ImagingEnvironment - CO2Percent ¹⁵⁶	1	0	0	168
ImagingEnvironment - Humidity ¹⁵⁷	1	0	0	168
ImagingEnvironment - Temperature ¹⁵⁸	10	0	0	159
Instrument - Annota- tionRef ¹⁵⁹	0	0	0	169
Instrument - ID ¹⁶⁰	51	0	0	118
Label - FillColor ¹⁶¹	0	0	0	169
Label - FillRule ¹⁶²	0	0	0	169
Label - FontFam- ily ¹⁶³	0	0	0	169
Label - FontSize ¹⁶⁴	2	0	0	167
Label - FontStyle ¹⁶⁵	0	0	0	169
Label - ID ¹⁶⁶	5	0	0	164
Label - Locked ¹⁶⁷	0	0	0	169
Label - Stroke- Color ¹⁶⁸	0	0	0	169
Label - StrokeDashArray ¹⁶⁹	0	0	0	169
Label - StrokeWidth ¹⁷⁰	2	0	0	167
Label - Text ¹⁷¹	5	0	0	164
Label - TheC ¹⁷²	0	0	0	169
Label - TheT ¹⁷³	0	0	0	169
Label - TheZ ¹⁷⁴	0	0	0	169
Label - Transform ¹⁷⁵	0	0	0	169
Label - X ¹⁷⁶	5	0	0	164
Label - Y ¹⁷⁷	5	0	0	164
Laser - Frequency- Multiplication ¹⁷⁸	0	0	0	169
Laser - ID ¹⁷⁹	9	0	0	160
Laser - Laser- Medium ¹⁸⁰	8	0	0	161

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¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_CO2Percent¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Humidity¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_FrequencyMultiplication¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Laser - LotNumber ¹⁸¹	1	0	0	168
Laser - Manufacturer ¹⁸²	2	0	0	167
Laser - Model ¹⁸³	4	0	0	165
Laser - PockelCell ¹⁸⁴	0	0	0	169
Laser - Power ¹⁸⁵	3	0	0	166
Laser - Pulse ¹⁸⁶	0	0	0	169
Laser - Pump ¹⁸⁷	0	0	0	169
Laser - RepetitionRate ¹⁸⁸	1	0	0	168
Laser - SerialNumber ¹⁸⁹	1	0	0	168
Laser - Tuneable ¹⁹⁰	0	0	0	169
Laser - Type ¹⁹¹	8	0	0	161
Laser - Wavelength ¹⁹²	7	0	0	162
LightEmittingDiode - ID ¹⁹³	0	0	0	169
LightEmittingDiode - LotNumber ¹⁹⁴	1	0	0	168
LightEmittingDiode - Manufacturer ¹⁹⁵	1	0	0	168
LightEmittingDiode - Model ¹⁹⁶	1	0	0	168
LightEmittingDiode - Power ¹⁹⁷	1	0	0	168
LightEmittingDiode - SerialNumber ¹⁹⁸	1	0	0	168
LightPath - AnnotationRef ¹⁹⁹	0	0	0	169
LightPath - DichroicRef ²⁰⁰	3	0	0	166
LightPath - EmissionFilterRef ²⁰¹	5	0	0	164
LightPath - ExcitationFilterRef ²⁰²	1	0	0	168
Line - FillColor ²⁰³	0	0	0	169

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¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_PockelCell¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Pulse¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pump_ID¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_RepetitionRate¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Tuneable¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor

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Field	Supported	Unsupported	Partial	Unknown/Missing
Line - FillRule ²⁰⁴	0	0	0	169
Line - FontFamily ²⁰⁵	0	0	0	169
Line - FontSize ²⁰⁶	2	0	0	167
Line - FontStyle ²⁰⁷	0	0	0	169
Line - ID ²⁰⁸	6	0	0	163
Line - Locked ²⁰⁹	0	0	0	169
Line - MarkerEnd ²¹⁰	0	0	0	169
Line - MarkerStart ²¹¹	0	0	0	169
Line - StrokeColor ²¹²	0	0	0	169
Line - StrokeDashArray ²¹³	0	0	0	169
Line - StrokeWidth ²¹⁴	2	0	0	167
Line - Text ²¹⁵	2	0	0	167
Line - TheC ²¹⁶	0	0	0	169
Line - TheT ²¹⁷	1	0	0	168
Line - TheZ ²¹⁸	1	0	0	168
Line - Transform ²¹⁹	1	0	0	168
Line - X1 ²²⁰	6	0	0	163
Line - X2 ²²¹	6	0	0	163
Line - Y1 ²²²	6	0	0	163
Line - Y2 ²²³	6	0	0	163
ListAnnotation - AnnotationRef ²²⁴	0	0	0	169
ListAnnotation - Description ²²⁵	0	0	0	169
ListAnnotation - ID ²²⁶	0	0	0	169
ListAnnotation - Namespace ²²⁷	0	0	0	169
LongAnnotation - AnnotationRef ²²⁸	0	0	0	169
LongAnnotation - Description ²²⁹	0	0	0	169

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²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_MarkerEnd²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_MarkerStart²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
LongAnnotation - ID ²³⁰	1	0	0	168
LongAnnotation - Namespace ²³¹	1	0	0	168
LongAnnotation - Value ²³²	1	0	0	168
Mask - BinData ²³³	3	0	0	166
Mask - BinDataBigEndian ²³⁴	1	0	0	168
Mask - BinDataBigLength ²³⁵	0	0	0	169
Mask - BinDataCompression ²³⁶	0	0	0	169
Mask - FillColor ²³⁷	1	0	0	168
Mask - FillRule ²³⁸	0	0	0	169
Mask - FontFamily ²³⁹	0	0	0	169
Mask - FontSize ²⁴⁰	0	0	0	169
Mask - Height ²⁴¹	3	0	0	166
Mask - ID ²⁴²	3	0	0	166
Mask - Locked ²⁴³	0	0	0	169
Mask - StrokeColor ²⁴⁴	1	0	0	168
Mask - StrokeDashArray ²⁴⁵	0	0	0	169
Mask - StrokeWidth ²⁴⁶	0	0	0	169
Mask - Text ²⁴⁷	0	0	0	169
Mask - TheC ²⁴⁸	0	0	0	169
Mask - TheT ²⁴⁹	0	0	0	169
Mask - TheZ ²⁵⁰	0	0	0	169
Mask - Transform ²⁵¹	0	0	0	169
Mask - Width ²⁵²	3	0	0	166
Mask - X ²⁵³	3	0	0	166
Mask - Y ²⁵⁴	3	0	0	166

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²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LongAnnotation_Value²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData_BigEndian²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData_Length²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData_Compression²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Height²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Width²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_X²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Y

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
MicrobeamManipulation - ExperimenterRef ²⁵⁵	0	0	0	169
MicrobeamManipulation - ID ²⁵⁶	0	0	0	169
MicrobeamManipulation - ROIRef ²⁵⁷	0	0	0	169
MicrobeamManipulation - Type ²⁵⁸	0	0	0	169
MicrobeamManipulationLightSourceSettings - Attenuation ²⁵⁹	0	0	0	169
MicrobeamManipulationLightSourceSettings - ID ²⁶⁰	0	0	0	169
MicrobeamManipulationLightSourceSettings - Wavelength ²⁶¹	0	0	0	169
Microscope - Lot-Number ²⁶²	1	0	0	168
Microscope - Manufacturer ²⁶³	2	0	0	167
Microscope - Model ²⁶⁴	12	0	0	157
Microscope - Serial-Number ²⁶⁵	4	0	0	165
Microscope - Type ²⁶⁶	3	0	0	166
Objective - AnnotationRef ²⁶⁷	0	0	0	169
Objective - CalibratedMagnification ²⁶⁸	9	0	0	160
Objective - Correction ²⁶⁹	25	0	0	144
Objective - ID ²⁷⁰	37	0	0	132
Objective - Immersion ²⁷¹	26	0	0	143
Objective - Iris ²⁷²	2	0	0	167
Objective - LensNA ²⁷³	21	0	0	148
Objective - LotNumber ²⁷⁴	1	0	0	168
Objective - Manufacturer ²⁷⁵	5	0	0	164

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²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimentRef_ID²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#MicrobeamManipulation_ID²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#MicrobeamManipulation_Type²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Attenuation²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Wavelength²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Microscope_Type²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Iris²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Objective - Model ²⁷⁶	13	0	0	156
Objective - Nominal-Magnification ²⁷⁷	28	0	0	141
Objective - Serial-Number ²⁷⁸	3	0	0	166
Objective - WorkingDistance ²⁷⁹	10	0	0	159
ObjectiveSettings - CorrectionCollar ²⁸⁰	1	0	0	168
ObjectiveSettings - ID ²⁸¹	32	0	0	137
ObjectiveSettings - Medium ²⁸²	1	0	0	168
ObjectiveSettings - RefractiveIndex ²⁸³	8	0	0	161
Pixels - Annotation-Ref ²⁸⁴	0	0	0	169
Pixels - BigEndian ²⁸⁵	169	0	0	0
Pixels - DimensionOrder ²⁸⁶	169	0	0	0
Pixels - ID ²⁸⁷	169	0	0	0
Pixels - Interleaved ²⁸⁸	169	0	0	0
Pixels - Physical-SizeX ²⁸⁹	87	0	0	82
Pixels - Physical-SizeY ²⁹⁰	87	0	0	82
Pixels - Physical-SizeZ ²⁹¹	43	0	0	126
Pixels - Significant-Bits ²⁹²	169	0	0	0
Pixels - SizeC ²⁹³	169	0	0	0
Pixels - SizeT ²⁹⁴	169	0	0	0
Pixels - SizeX ²⁹⁵	169	0	0	0
Pixels - SizeY ²⁹⁶	169	0	0	0
Pixels - SizeZ ²⁹⁷	169	0	0	0
Pixels - TimeIncrement ²⁹⁸	16	0	0	153

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²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_Medium²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Pixels - Type ²⁹⁹	169	0	0	0
Plane - Annotation-Ref ³⁰⁰	0	0	0	169
Plane - DeltaT ³⁰¹	24	0	0	145
Plane - Exposure-Time ³⁰²	31	0	0	138
Plane - HashSHA1 ³⁰³	0	0	0	169
Plane - PositionX ³⁰⁴	29	0	0	140
Plane - PositionY ³⁰⁵	29	0	0	140
Plane - PositionZ ³⁰⁶	22	0	0	147
Plane - TheC ³⁰⁷	169	0	0	0
Plane - TheT ³⁰⁸	169	0	0	0
Plane - TheZ ³⁰⁹	169	0	0	0
Plate - Annotation-Ref ³¹⁰	0	0	0	169
Plate - ColumnNamingConvention ³¹¹	8	0	0	161
Plate - Columns ³¹²	4	0	0	165
Plate - Description ³¹³	2	0	0	167
Plate - ExternalIdentifier ³¹⁴	3	0	0	166
Plate - ID ³¹⁵	11	0	0	158
Plate - Name ³¹⁶	10	0	0	159
Plate - RowNamingConvention ³¹⁷	8	0	0	161
Plate - Rows ³¹⁸	4	0	0	165
Plate - Status ³¹⁹	0	0	0	169
Plate - WellOriginX ³²⁰	1	0	0	168
Plate - WellOriginY ³²¹	1	0	0	168
PlateAcquisition - AnnotationRef ³²²	0	0	0	169
PlateAcquisition - Description ³²³	0	0	0	169

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²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_HashSHA1³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Columns³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Description³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ExternalIdentifier³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Rows³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Status³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_WellOriginX³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_WellOriginY³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_Description

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Field	Supported	Unsupported	Partial	Unknown/Missing
PlateAcquisition - EndTime ³²⁴	2	0	0	167
PlateAcquisition - ID ³²⁵	8	0	0	161
PlateAcquisition - MaximumFieldCount ³²⁶	8	0	0	161
PlateAcquisition - Name ³²⁷	0	0	0	169
PlateAcquisition - StartTime ³²⁸	3	0	0	166
PlateAcquisition - WellSampleRef ³²⁹	7	0	0	162
Point - FillColor ³³⁰	0	0	0	169
Point - FillRule ³³¹	0	0	0	169
Point - FontFamily ³³²	0	0	0	169
Point - FontSize ³³³	1	0	0	168
Point - FontStyle ³³⁴	0	0	0	169
Point - ID ³³⁵	4	0	0	165
Point - Locked ³³⁶	0	0	0	169
Point - StrokeColor ³³⁷	1	0	0	168
Point - StrokeDashArray ³³⁸	1	0	0	168
Point - StrokeWidth ³³⁹	2	0	0	167
Point - Text ³⁴⁰	1	0	0	168
Point - TheC ³⁴¹	0	0	0	169
Point - TheT ³⁴²	1	0	0	168
Point - TheZ ³⁴³	2	0	0	167
Point - Transform ³⁴⁴	0	0	0	169
Point - X ³⁴⁵	4	0	0	165
Point - Y ³⁴⁶	4	0	0	165
Polygon - FillColor ³⁴⁷	0	0	0	169
Polygon - FillRule ³⁴⁸	0	0	0	169

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³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_EndTime³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_Name³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_StartTime³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_X³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_Y³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule

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Field	Supported	Unsupported	Partial	Unknown/Missing
Polygon - FontFamily ³⁴⁹	0	0	0	169
Polygon - FontSize ³⁵⁰	2	0	0	167
Polygon - FontStyle ³⁵¹	0	0	0	169
Polygon - ID ³⁵²	8	0	0	161
Polygon - Locked ³⁵³	0	0	0	169
Polygon - Points ³⁵⁴	8	0	0	161
Polygon - StrokeColor ³⁵⁵	1	0	0	168
Polygon - StrokeDashArray ³⁵⁶	1	0	0	168
Polygon - StrokeWidth ³⁵⁷	3	0	0	166
Polygon - Text ³⁵⁸	2	0	0	167
Polygon - TheC ³⁵⁹	0	0	0	169
Polygon - TheT ³⁶⁰	1	0	0	168
Polygon - TheZ ³⁶¹	2	0	0	167
Polygon - Transform ³⁶²	1	0	0	168
Polyline - FillColor ³⁶³	0	0	0	169
Polyline - FillRule ³⁶⁴	0	0	0	169
Polyline - FontFamily ³⁶⁵	0	0	0	169
Polyline - FontSize ³⁶⁶	2	0	0	167
Polyline - FontStyle ³⁶⁷	0	0	0	169
Polyline - ID ³⁶⁸	6	0	0	163
Polyline - Locked ³⁶⁹	0	0	0	169
Polyline - MarkerEnd ³⁷⁰	0	0	0	169
Polyline - MarkerStart ³⁷¹	0	0	0	169
Polyline - Points ³⁷²	6	0	0	163

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³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_MarkerEnd³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_MarkerStart³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Polyline - Stroke-Color ³⁷³	1	0	0	168
Polyline - StrokeDashArray ³⁷⁴	1	0	0	168
Polyline - StrokeWidth ³⁷⁵	3	0	0	166
Polyline - Text ³⁷⁶	2	0	0	167
Polyline - TheC ³⁷⁷	0	0	0	169
Polyline - TheT ³⁷⁸	1	0	0	168
Polyline - TheZ ³⁷⁹	2	0	0	167
Polyline - Transform ³⁸⁰	1	0	0	168
Project - Annotation-Ref ³⁸¹	0	0	0	169
Project - DatasetRef ³⁸²	0	0	0	169
Project - Description ³⁸³	0	0	0	169
Project - ExperimenterGroupRef ³⁸⁴	0	0	0	169
Project - ExperimenterRef ³⁸⁵	0	0	0	169
Project - ID ³⁸⁶	0	0	0	169
Project - Name ³⁸⁷	0	0	0	169
ROI - Annotation-Ref ³⁸⁸	0	0	0	169
ROI - Description ³⁸⁹	1	0	0	168
ROI - ID ³⁹⁰	14	0	0	155
ROI - Name ³⁹¹	4	0	0	165
Reagent - AnnotationRef ³⁹²	0	0	0	169
Reagent - Description ³⁹³	0	0	0	169
Reagent - ID ³⁹⁴	0	0	0	169
Reagent - Name ³⁹⁵	0	0	0	169
Reagent - ReagentIdentifier ³⁹⁶	0	0	0	169

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³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DatasetRef_ID³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Project_Description³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterGroupRef_ID³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Project_ID³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Project_Name³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Description³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Name³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Reagent_Description³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Reagent_ID³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Reagent_Name³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Reagent_ReagentIdentifier

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Rectangle - Fill-Color ³⁹⁷	0	0	0	169
Rectangle - Fill-Rule ³⁹⁸	0	0	0	169
Rectangle - FontFamily ³⁹⁹	0	0	0	169
Rectangle - FontSize ⁴⁰⁰	2	0	0	167
Rectangle - FontStyle ⁴⁰¹	0	0	0	169
Rectangle - Height ⁴⁰²	10	0	0	159
Rectangle - ID ⁴⁰³	10	0	0	159
Rectangle - Locked ⁴⁰⁴	0	0	0	169
Rectangle - StrokeColor ⁴⁰⁵	1	0	0	168
Rectangle - StrokeDashArray ⁴⁰⁶	0	0	0	169
Rectangle - StrokeWidth ⁴⁰⁷	2	0	0	167
Rectangle - Text ⁴⁰⁸	3	0	0	166
Rectangle - TheC ⁴⁰⁹	1	0	0	168
Rectangle - TheT ⁴¹⁰	2	0	0	167
Rectangle - TheZ ⁴¹¹	2	0	0	167
Rectangle - Transform ⁴¹²	1	0	0	168
Rectangle - Width ⁴¹³	10	0	0	159
Rectangle - X ⁴¹⁴	10	0	0	159
Rectangle - Y ⁴¹⁵	10	0	0	159
Screen - AnnotationRef ⁴¹⁶	0	0	0	169
Screen - Description ⁴¹⁷	0	0	0	169
Screen - ID ⁴¹⁸	1	0	0	168
Screen - Name ⁴¹⁹	1	0	0	168
Screen - PlateRef ⁴²⁰	1	0	0	168

Continued on next page

³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillRule³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontFamily⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontStyle⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Locked⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Description⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ID⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Name⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Screen_PlateRef_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
Screen - ProtocolDescription ⁴²¹	0	0	0	169
Screen - ProtocolIdentifier ⁴²²	0	0	0	169
Screen - ReagentSetDescription ⁴²³	0	0	0	169
Screen - ReagentSetIdentifier ⁴²⁴	0	0	0	169
Screen - Type ⁴²⁵	0	0	0	169
StageLabel - Name ⁴²⁶	3	0	0	166
StageLabel - X ⁴²⁷	2	0	0	167
StageLabel - Y ⁴²⁸	2	0	0	167
StageLabel - Z ⁴²⁹	3	0	0	166
TagAnnotation - AnnotationRef ⁴³⁰	0	0	0	169
TagAnnotation - Description ⁴³¹	0	0	0	169
TagAnnotation - ID ⁴³²	1	0	0	168
TagAnnotation - Namespace ⁴³³	1	0	0	168
TagAnnotation - Value ⁴³⁴	1	0	0	168
TermAnnotation - AnnotationRef ⁴³⁵	0	0	0	169
TermAnnotation - Description ⁴³⁶	0	0	0	169
TermAnnotation - ID ⁴³⁷	1	0	0	168
TermAnnotation - Namespace ⁴³⁸	1	0	0	168
TermAnnotation - Value ⁴³⁹	1	0	0	168
TiffData - FirstC ⁴⁴⁰	0	0	0	169
TiffData - FirstT ⁴⁴¹	0	0	0	169
TiffData - FirstZ ⁴⁴²	0	0	0	169
TiffData - IFD ⁴⁴³	0	0	0	169

Continued on next page

⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ProtocolDescription⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ProtocolIdentifier⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ReagentSetDescription⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ReagentSetIdentifier⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Type⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Name⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_X⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Y⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Z⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TagAnnotation_Value⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TermAnnotation_Value⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_FirstC⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_FirstT⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_FirstZ⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_IFD

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
TiffData - PlaneCount ⁴⁴⁴	0	0	0	169
TimestampAnnotation - AnnotationRef ⁴⁴⁵	0	0	0	169
TimestampAnnotation - Description ⁴⁴⁶	0	0	0	169
TimestampAnnotation - ID ⁴⁴⁷	1	0	0	168
TimestampAnnotation - Namespace ⁴⁴⁸	1	0	0	168
TimestampAnnotation - Value ⁴⁴⁹	1	0	0	168
TransmittanceRange - CutIn ⁴⁵⁰	5	0	0	164
TransmittanceRange - CutInTolerance ⁴⁵¹	1	0	0	168
TransmittanceRange - CutOut ⁴⁵²	5	0	0	164
TransmittanceRange - CutOutTolerance ⁴⁵³	1	0	0	168
TransmittanceRange - Transmittance ⁴⁵⁴	1	0	0	168
UUID - FileName ⁴⁵⁵	0	0	0	169
UUID - Value ⁴⁵⁶	0	0	0	169
Well - AnnotationRef ⁴⁵⁷	0	0	0	169
Well - Color ⁴⁵⁸	0	0	0	169
Well - Column ⁴⁵⁹	12	0	0	157
Well - ExternalDescription ⁴⁶⁰	0	0	0	169
Well - ExternalIdentifier ⁴⁶¹	1	0	0	168
Well - ID ⁴⁶²	12	0	0	157
Well - ReagentRef ⁴⁶³	0	0	0	169
Well - Row ⁴⁶⁴	12	0	0	157
Well - Type ⁴⁶⁵	0	0	0	169
WellSample - AnnotationRef ⁴⁶⁶	0	0	0	169

Continued on next page

⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_PlaneCount⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Description⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TimestampAnnotation_Value⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutInTolerance⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOutTolerance⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_Transmittance⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TiffData_TiffData_UUID_FileName⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#UniversallyUniqueIdentifier⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Color⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ExternalDescription⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ExternalIdentifier⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ReagentRef_ID⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Type⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

Table 18.2 – continued from previous page

Field	Supported	Unsupported	Partial	Unknown/Missing
WellSample - ID ⁴⁶⁷	12	0	0	157
WellSample - ImageRef ⁴⁶⁸	11	0	0	158
WellSample - Index ⁴⁶⁹	12	0	0	157
WellSample - PositionX ⁴⁷⁰	5	0	0	164
WellSample - PositionY ⁴⁷¹	5	0	0	164
WellSample - Timepoint ⁴⁷²	0	0	0	169
XMLAnnotation - AnnotationRef ⁴⁷³	0	0	0	169
XMLAnnotation - ID ⁴⁷⁴	1	0	0	168
XMLAnnotation - Namespace ⁴⁷⁵	1	0	0	168
XMLAnnotation - Value ⁴⁷⁶	1	0	0	168

18.2.1 AFIREader

This page lists supported metadata fields for the Bio-Formats Aperio AFI format reader.

These fields are from the [OME data model](#)⁴⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 30 of them (6%).
- Of those, Bio-Formats fully or partially converts 30 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Aperio AFI format reader:

- Channel : EmissionWavelength⁴⁷⁸
- Channel : ExcitationWavelength⁴⁷⁹
- Channel : ID⁴⁸⁰
- Channel : Name⁴⁸¹
- Channel : SamplesPerPixel⁴⁸²

⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX

⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Timepoint

⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#XMLAnnotation_Value

⁴⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁴⁸³
- Image : ID⁴⁸⁴
- Image : InstrumentRef⁴⁸⁵
- Image : Name⁴⁸⁶
- Instrument : ID⁴⁸⁷
- Objective : ID⁴⁸⁸
- Objective : NominalMagnification⁴⁸⁹
- ObjectiveSettings : ID⁴⁹⁰
- Pixels : BigEndian⁴⁹¹
- Pixels : DimensionOrder⁴⁹²
- Pixels : ID⁴⁹³
- Pixels : Interleaved⁴⁹⁴
- Pixels : PhysicalSizeX⁴⁹⁵
- Pixels : PhysicalSizeY⁴⁹⁶
- Pixels : SignificantBits⁴⁹⁷
- Pixels : SizeC⁴⁹⁸
- Pixels : SizeT⁴⁹⁹
- Pixels : SizeX⁵⁰⁰
- Pixels : SizeY⁵⁰¹
- Pixels : SizeZ⁵⁰²
- Pixels : Type⁵⁰³
- Plane : ExposureTime⁵⁰⁴
- Plane : TheC⁵⁰⁵
- Plane : TheT⁵⁰⁶
- Plane : TheZ⁵⁰⁷

Total supported: 30

Total unknown or missing: 446

⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.2 AIMReader

This page lists supported metadata fields for the Bio-Formats AIM format reader.

These fields are from the [OME data model](#)⁵⁰⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 AIM format reader:

- Channel : ID⁵⁰⁹
- Channel : SamplesPerPixel⁵¹⁰
- Image : AcquisitionDate⁵¹¹
- Image : ID⁵¹²
- Image : Name⁵¹³
- Pixels : BigEndian⁵¹⁴
- Pixels : DimensionOrder⁵¹⁵
- Pixels : ID⁵¹⁶
- Pixels : Interleaved⁵¹⁷
- Pixels : PhysicalSizeX⁵¹⁸
- Pixels : PhysicalSizeY⁵¹⁹
- Pixels : PhysicalSizeZ⁵²⁰
- Pixels : SignificantBits⁵²¹
- Pixels : SizeC⁵²²
- Pixels : SizeT⁵²³
- Pixels : SizeX⁵²⁴
- Pixels : SizeY⁵²⁵
- Pixels : SizeZ⁵²⁶
- Pixels : Type⁵²⁷

⁵⁰⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁵²⁸
- Plane : TheT⁵²⁹
- Plane : TheZ⁵³⁰

Total supported: 22

Total unknown or missing: 454

18.2.3 APLReader

This page lists supported metadata fields for the Bio-Formats Olympus APL format reader.

These fields are from the [OME data model](#)⁵³¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁵³²
- Channel : SamplesPerPixel⁵³³
- Image : AcquisitionDate⁵³⁴
- Image : ID⁵³⁵
- Image : Name⁵³⁶
- Pixels : BigEndian⁵³⁷
- Pixels : DimensionOrder⁵³⁸
- Pixels : ID⁵³⁹
- Pixels : Interleaved⁵⁴⁰
- Pixels : PhysicalSizeX⁵⁴¹
- Pixels : PhysicalSizeY⁵⁴²
- Pixels : SignificantBits⁵⁴³
- Pixels : SizeC⁵⁴⁴
- Pixels : SizeT⁵⁴⁵

⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵³¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁵⁴⁶
- Pixels : SizeY⁵⁴⁷
- Pixels : SizeZ⁵⁴⁸
- Pixels : Type⁵⁴⁹
- Plane : TheC⁵⁵⁰
- Plane : TheT⁵⁵¹
- Plane : TheZ⁵⁵²

Total supported: 21

Total unknown or missing: 455

18.2.4 APNGReader

This page lists supported metadata fields for the Bio-Formats Animated PNG format reader.

These fields are from the [OME data model](#)⁵⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁵⁴
- Channel : SamplesPerPixel⁵⁵⁵
- Image : AcquisitionDate⁵⁵⁶
- Image : ID⁵⁵⁷
- Image : Name⁵⁵⁸
- Pixels : BigEndian⁵⁵⁹
- Pixels : DimensionOrder⁵⁶⁰
- Pixels : ID⁵⁶¹
- Pixels : Interleaved⁵⁶²
- Pixels : SignificantBits⁵⁶³

⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁵⁶⁴
- Pixels : SizeT⁵⁶⁵
- Pixels : SizeX⁵⁶⁶
- Pixels : SizeY⁵⁶⁷
- Pixels : SizeZ⁵⁶⁸
- Pixels : Type⁵⁶⁹
- Plane : TheC⁵⁷⁰
- Plane : TheT⁵⁷¹
- Plane : TheZ⁵⁷²

Total supported: 19

Total unknown or missing: 457

18.2.5 ARFReader

This page lists supported metadata fields for the Bio-Formats ARF format reader.

These fields are from the [OME data model](#)⁵⁷³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁷⁴
- Channel : SamplesPerPixel⁵⁷⁵
- Image : AcquisitionDate⁵⁷⁶
- Image : ID⁵⁷⁷
- Image : Name⁵⁷⁸
- Pixels : BigEndian⁵⁷⁹
- Pixels : DimensionOrder⁵⁸⁰
- Pixels : ID⁵⁸¹

⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁵⁸²
- Pixels : SignificantBits⁵⁸³
- Pixels : SizeC⁵⁸⁴
- Pixels : SizeT⁵⁸⁵
- Pixels : SizeX⁵⁸⁶
- Pixels : SizeY⁵⁸⁷
- Pixels : SizeZ⁵⁸⁸
- Pixels : Type⁵⁸⁹
- Plane : TheC⁵⁹⁰
- Plane : TheT⁵⁹¹
- Plane : TheZ⁵⁹²

Total supported: 19

Total unknown or missing: 457

18.2.6 AVIReader

This page lists supported metadata fields for the Bio-Formats Audio Video Interleave format reader.

These fields are from the [OME data model](#)⁵⁹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁹⁴
- Channel : SamplesPerPixel⁵⁹⁵
- Image : AcquisitionDate⁵⁹⁶
- Image : ID⁵⁹⁷
- Image : Name⁵⁹⁸
- Pixels : BigEndian⁵⁹⁹

⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁹³<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁶⁰⁰
- Pixels : ID⁶⁰¹
- Pixels : Interleaved⁶⁰²
- Pixels : SignificantBits⁶⁰³
- Pixels : SizeC⁶⁰⁴
- Pixels : SizeT⁶⁰⁵
- Pixels : SizeX⁶⁰⁶
- Pixels : SizeY⁶⁰⁷
- Pixels : SizeZ⁶⁰⁸
- Pixels : Type⁶⁰⁹
- Plane : TheC⁶¹⁰
- Plane : TheT⁶¹¹
- Plane : TheZ⁶¹²

Total supported: 19

Total unknown or missing: 457

18.2.7 AliconaReader

This page lists supported metadata fields for the Bio-Formats Alicona AL3D 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 476 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 : ID⁶¹⁴
- Channel : SamplesPerPixel⁶¹⁵
- Detector : ID⁶¹⁶
- Detector : Type⁶¹⁷

⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁶¹³<http://www.openmicroscopy.org/site/support/ome-model/>

⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

- DetectorSettings : ID⁶¹⁸
- DetectorSettings : Voltage⁶¹⁹
- Image : AcquisitionDate⁶²⁰
- Image : ID⁶²¹
- Image : InstrumentRef⁶²²
- Image : Name⁶²³
- Instrument : ID⁶²⁴
- Objective : CalibratedMagnification⁶²⁵
- Objective : Correction⁶²⁶
- Objective : ID⁶²⁷
- Objective : Immersion⁶²⁸
- Objective : WorkingDistance⁶²⁹
- ObjectiveSettings : ID⁶³⁰
- Pixels : BigEndian⁶³¹
- Pixels : DimensionOrder⁶³²
- Pixels : ID⁶³³
- Pixels : Interleaved⁶³⁴
- Pixels : PhysicalSizeX⁶³⁵
- Pixels : PhysicalSizeY⁶³⁶
- Pixels : SignificantBits⁶³⁷
- Pixels : SizeC⁶³⁸
- Pixels : SizeT⁶³⁹
- Pixels : SizeX⁶⁴⁰
- Pixels : SizeY⁶⁴¹
- Pixels : SizeZ⁶⁴²
- Pixels : Type⁶⁴³

⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁶⁴⁴
- Plane : TheT⁶⁴⁵
- Plane : TheZ⁶⁴⁶

Total supported: 33

Total unknown or missing: 443

18.2.8 AmiraReader

This page lists supported metadata fields for the Bio-Formats Amira format reader.

These fields are from the [OME data model](#)⁶⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Amira format reader:

- Channel : ID⁶⁴⁸
- Channel : SamplesPerPixel⁶⁴⁹
- Image : AcquisitionDate⁶⁵⁰
- Image : ID⁶⁵¹
- Image : Name⁶⁵²
- Pixels : BigEndian⁶⁵³
- Pixels : DimensionOrder⁶⁵⁴
- Pixels : ID⁶⁵⁵
- Pixels : Interleaved⁶⁵⁶
- Pixels : PhysicalSizeX⁶⁵⁷
- Pixels : PhysicalSizeY⁶⁵⁸
- Pixels : PhysicalSizeZ⁶⁵⁹
- Pixels : SignificantBits⁶⁶⁰
- Pixels : SizeC⁶⁶¹

⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁶⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT⁶⁶²
- Pixels : SizeX⁶⁶³
- Pixels : SizeY⁶⁶⁴
- Pixels : SizeZ⁶⁶⁵
- Pixels : Type⁶⁶⁶
- Plane : TheC⁶⁶⁷
- Plane : TheT⁶⁶⁸
- Plane : TheZ⁶⁶⁹

Total supported: 22

Total unknown or missing: 454

18.2.9 AnalyzeReader

This page lists supported metadata fields for the Bio-Formats Analyze 7.5 format reader.

These fields are from the [OME data model](#)⁶⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁶⁷¹
- Channel : SamplesPerPixel⁶⁷²
- Image : AcquisitionDate⁶⁷³
- Image : Description⁶⁷⁴
- Image : ID⁶⁷⁵
- Image : Name⁶⁷⁶
- Pixels : BigEndian⁶⁷⁷
- Pixels : DimensionOrder⁶⁷⁸
- Pixels : ID⁶⁷⁹

⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁶⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁶⁸⁰
- Pixels : PhysicalSizeX⁶⁸¹
- Pixels : PhysicalSizeY⁶⁸²
- Pixels : PhysicalSizeZ⁶⁸³
- Pixels : SignificantBits⁶⁸⁴
- Pixels : SizeC⁶⁸⁵
- Pixels : SizeT⁶⁸⁶
- Pixels : SizeX⁶⁸⁷
- Pixels : SizeY⁶⁸⁸
- Pixels : SizeZ⁶⁸⁹
- Pixels : TimeIncrement⁶⁹⁰
- Pixels : Type⁶⁹¹
- Plane : TheC⁶⁹²
- Plane : TheT⁶⁹³
- Plane : TheZ⁶⁹⁴

Total supported: 24

Total unknown or missing: 452

18.2.10 BDReader

This page lists supported metadata fields for the Bio-Formats BD Pathway format reader.

These fields are from the [OME data model](#)⁶⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 57 of them (11%).
- 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 : EmissionWavelength⁶⁹⁶
- Channel : ExcitationWavelength⁶⁹⁷

⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁶⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

- Channel : ID⁶⁹⁸
- Channel : Name⁶⁹⁹
- Channel : SamplesPerPixel⁷⁰⁰
- Detector : ID⁷⁰¹
- DetectorSettings : Binning⁷⁰²
- DetectorSettings : Gain⁷⁰³
- DetectorSettings : ID⁷⁰⁴
- DetectorSettings : Offset⁷⁰⁵
- Image : AcquisitionDate⁷⁰⁶
- Image : ID⁷⁰⁷
- Image : InstrumentRef⁷⁰⁸
- Image : Name⁷⁰⁹
- Image : ROIRef⁷¹⁰
- Instrument : ID⁷¹¹
- Objective : ID⁷¹²
- Objective : LensNA⁷¹³
- Objective : Manufacturer⁷¹⁴
- Objective : NominalMagnification⁷¹⁵
- ObjectiveSettings : ID⁷¹⁶
- Pixels : BigEndian⁷¹⁷
- Pixels : DimensionOrder⁷¹⁸
- Pixels : ID⁷¹⁹
- Pixels : Interleaved⁷²⁰
- Pixels : SignificantBits⁷²¹
- Pixels : SizeC⁷²²
- Pixels : SizeT⁷²³

⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁷²⁴
- Pixels : SizeY⁷²⁵
- Pixels : SizeZ⁷²⁶
- Pixels : Type⁷²⁷
- Plane : DeltaT⁷²⁸
- Plane : ExposureTime⁷²⁹
- Plane : TheC⁷³⁰
- Plane : TheT⁷³¹
- Plane : TheZ⁷³²
- Plate : ColumnNamingConvention⁷³³
- Plate : Description⁷³⁴
- Plate : ID⁷³⁵
- Plate : Name⁷³⁶
- Plate : RowNamingConvention⁷³⁷
- PlateAcquisition : ID⁷³⁸
- PlateAcquisition : MaximumFieldCount⁷³⁹
- PlateAcquisition : WellSampleRef⁷⁴⁰
- ROI : ID⁷⁴¹
- Rectangle : Height⁷⁴²
- Rectangle : ID⁷⁴³
- Rectangle : Width⁷⁴⁴
- Rectangle : X⁷⁴⁵
- Rectangle : Y⁷⁴⁶
- Well : Column⁷⁴⁷
- Well : ID⁷⁴⁸
- Well : Row⁷⁴⁹

⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Description

⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID

⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

- WellSample : ID⁷⁵⁰
- WellSample : ImageRef⁷⁵¹
- WellSample : Index⁷⁵²

Total supported: 57

Total unknown or missing: 419

18.2.11 BIFormatReader

This page lists supported metadata fields for the Bio-Formats BIFormatReader.

These fields are from the [OME data model](#)⁷⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats BIFormatReader:

- Channel : ID⁷⁵⁴
- Channel : SamplesPerPixel⁷⁵⁵
- Image : AcquisitionDate⁷⁵⁶
- Image : ID⁷⁵⁷
- Image : Name⁷⁵⁸
- Pixels : BigEndian⁷⁵⁹
- Pixels : DimensionOrder⁷⁶⁰
- Pixels : ID⁷⁶¹
- Pixels : Interleaved⁷⁶²
- Pixels : SignificantBits⁷⁶³
- Pixels : SizeC⁷⁶⁴
- Pixels : SizeT⁷⁶⁵
- Pixels : SizeX⁷⁶⁶
- Pixels : SizeY⁷⁶⁷

⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

⁷⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁷⁶⁸
- Pixels : Type⁷⁶⁹
- Plane : TheC⁷⁷⁰
- Plane : TheT⁷⁷¹
- Plane : TheZ⁷⁷²

Total supported: 19

Total unknown or missing: 457

18.2.12 BMPReader

This page lists supported metadata fields for the Bio-Formats Windows Bitmap format reader.

These fields are from the [OME data model](#)⁷⁷³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁷⁷⁴
- Channel : SamplesPerPixel⁷⁷⁵
- Image : AcquisitionDate⁷⁷⁶
- Image : ID⁷⁷⁷
- Image : Name⁷⁷⁸
- Pixels : BigEndian⁷⁷⁹
- Pixels : DimensionOrder⁷⁸⁰
- Pixels : ID⁷⁸¹
- Pixels : Interleaved⁷⁸²
- Pixels : PhysicalSizeX⁷⁸³
- Pixels : PhysicalSizeY⁷⁸⁴
- Pixels : SignificantBits⁷⁸⁵

⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁷⁷³<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁷⁸⁶
- Pixels : SizeT⁷⁸⁷
- Pixels : SizeX⁷⁸⁸
- Pixels : SizeY⁷⁸⁹
- Pixels : SizeZ⁷⁹⁰
- Pixels : Type⁷⁹¹
- Plane : TheC⁷⁹²
- Plane : TheT⁷⁹³
- Plane : TheZ⁷⁹⁴

Total supported: 21

Total unknown or missing: 455

18.2.13 BaseTiffReader

This page lists supported metadata fields for the Bio-Formats BaseTiffReader.

These fields are from the [OME data model](#)⁷⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 28 of them (5%).
- Of those, Bio-Formats fully or partially converts 28 (100%).

Supported fields

These fields are fully supported by the Bio-Formats BaseTiffReader:

- Channel : ID⁷⁹⁶
- Channel : SamplesPerPixel⁷⁹⁷
- Experimenter : Email⁷⁹⁸
- Experimenter : FirstName⁷⁹⁹
- Experimenter : ID⁸⁰⁰
- Experimenter : LastName⁸⁰¹
- Image : AcquisitionDate⁸⁰²
- Image : Description⁸⁰³

⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁷⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Email

⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName

⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

- Image : ID⁸⁰⁴
- Image : Name⁸⁰⁵
- Pixels : BigEndian⁸⁰⁶
- Pixels : DimensionOrder⁸⁰⁷
- Pixels : ID⁸⁰⁸
- Pixels : Interleaved⁸⁰⁹
- Pixels : PhysicalSizeX⁸¹⁰
- Pixels : PhysicalSizeY⁸¹¹
- Pixels : PhysicalSizeZ⁸¹²
- Pixels : SignificantBits⁸¹³
- Pixels : SizeC⁸¹⁴
- Pixels : SizeT⁸¹⁵
- Pixels : SizeX⁸¹⁶
- Pixels : SizeY⁸¹⁷
- Pixels : SizeZ⁸¹⁸
- Pixels : Type⁸¹⁹
- Plane : ExposureTime⁸²⁰
- Plane : TheC⁸²¹
- Plane : TheT⁸²²
- Plane : TheZ⁸²³

Total supported: 28

Total unknown or missing: 448

18.2.14 BaseZeissReader

This page lists supported metadata fields for the Bio-Formats BaseZeissReader.

These fields are from the [OME data model](#)⁸²⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁸²⁴<http://www.openmicroscopy.org/site/support/ome-model/>

- The file format itself supports 83 of them (17%).
- Of those, Bio-Formats fully or partially converts 83 (100%).

Supported fields

These fields are fully supported by the Bio-Formats BaseZeissReader:

- Channel : EmissionWavelength⁸²⁵
- Channel : ExcitationWavelength⁸²⁶
- Channel : ID⁸²⁷
- Channel : Name⁸²⁸
- Channel : SamplesPerPixel⁸²⁹
- Detector : ID⁸³⁰
- Detector : Type⁸³¹
- DetectorSettings : Gain⁸³²
- DetectorSettings : ID⁸³³
- DetectorSettings : Offset⁸³⁴
- Ellipse : ID⁸³⁵
- Ellipse : RadiusX⁸³⁶
- Ellipse : RadiusY⁸³⁷
- Ellipse : Text⁸³⁸
- Ellipse : X⁸³⁹
- Ellipse : Y⁸⁴⁰
- Experimenter : FirstName⁸⁴¹
- Experimenter : ID⁸⁴²
- Experimenter : Institution⁸⁴³
- Experimenter : LastName⁸⁴⁴
- Image : AcquisitionDate⁸⁴⁵
- Image : Description⁸⁴⁶
- Image : ID⁸⁴⁷

⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName

⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Institution

⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : InstrumentRef⁸⁴⁸
- Image : Name⁸⁴⁹
- Image : ROIRef⁸⁵⁰
- Instrument : ID⁸⁵¹
- Label : ID⁸⁵²
- Label : Text⁸⁵³
- Label : X⁸⁵⁴
- Label : Y⁸⁵⁵
- Line : ID⁸⁵⁶
- Line : Text⁸⁵⁷
- Line : X1⁸⁵⁸
- Line : X2⁸⁵⁹
- Line : Y1⁸⁶⁰
- Line : Y2⁸⁶¹
- Objective : Correction⁸⁶²
- Objective : ID⁸⁶³
- Objective : Immersion⁸⁶⁴
- Objective : LensNA⁸⁶⁵
- Objective : NominalMagnification⁸⁶⁶
- Objective : WorkingDistance⁸⁶⁷
- ObjectiveSettings : ID⁸⁶⁸
- Pixels : BigEndian⁸⁶⁹
- Pixels : DimensionOrder⁸⁷⁰
- Pixels : ID⁸⁷¹
- Pixels : Interleaved⁸⁷²
- Pixels : PhysicalSizeX⁸⁷³

⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X

⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y

⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁸⁷⁴
- Pixels : PhysicalSizeZ⁸⁷⁵
- Pixels : SignificantBits⁸⁷⁶
- Pixels : SizeC⁸⁷⁷
- Pixels : SizeT⁸⁷⁸
- Pixels : SizeX⁸⁷⁹
- Pixels : SizeY⁸⁸⁰
- Pixels : SizeZ⁸⁸¹
- Pixels : Type⁸⁸²
- Plane : DeltaT⁸⁸³
- Plane : ExposureTime⁸⁸⁴
- Plane : PositionX⁸⁸⁵
- Plane : PositionY⁸⁸⁶
- Plane : TheC⁸⁸⁷
- Plane : TheT⁸⁸⁸
- Plane : TheZ⁸⁸⁹
- Point : ID⁸⁹⁰
- Point : Text⁸⁹¹
- Point : X⁸⁹²
- Point : Y⁸⁹³
- Polygon : ID⁸⁹⁴
- Polygon : Points⁸⁹⁵
- Polygon : Text⁸⁹⁶
- Polyline : ID⁸⁹⁷
- Polyline : Points⁸⁹⁸
- Polyline : Text⁸⁹⁹

⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_X

⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_Y

⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

- ROI : ID⁹⁰⁰
- ROI : Name⁹⁰¹
- Rectangle : Height⁹⁰²
- Rectangle : ID⁹⁰³
- Rectangle : Text⁹⁰⁴
- Rectangle : Width⁹⁰⁵
- Rectangle : X⁹⁰⁶
- Rectangle : Y⁹⁰⁷

Total supported: 83

Total unknown or missing: 393

18.2.15 BioRadGelReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad GEL format reader.

These fields are from the [OME data model](#)⁹⁰⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁹⁰⁹
- Channel : SamplesPerPixel⁹¹⁰
- Image : AcquisitionDate⁹¹¹
- Image : ID⁹¹²
- Image : Name⁹¹³
- Pixels : BigEndian⁹¹⁴
- Pixels : DimensionOrder⁹¹⁵
- Pixels : ID⁹¹⁶
- Pixels : Interleaved⁹¹⁷

⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Name

⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

⁹⁰⁸<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

- Pixels : PhysicalSizeX⁹¹⁸
- Pixels : PhysicalSizeY⁹¹⁹
- Pixels : SignificantBits⁹²⁰
- Pixels : SizeC⁹²¹
- Pixels : SizeT⁹²²
- Pixels : SizeX⁹²³
- Pixels : SizeY⁹²⁴
- Pixels : SizeZ⁹²⁵
- Pixels : Type⁹²⁶
- Plane : TheC⁹²⁷
- Plane : TheT⁹²⁸
- Plane : TheZ⁹²⁹

Total supported: 21

Total unknown or missing: 455

18.2.16 BioRadReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad PIC format reader.

These fields are from the [OME data model](#)⁹³⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁹³¹
- Channel : SamplesPerPixel⁹³²
- Detector : Gain⁹³³
- Detector : ID⁹³⁴
- Detector : Offset⁹³⁵

⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁹³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

- Detector : Type⁹³⁶
- DetectorSettings : Gain⁹³⁷
- DetectorSettings : ID⁹³⁸
- DetectorSettings : Offset⁹³⁹
- Experiment : ID⁹⁴⁰
- Experiment : Type⁹⁴¹
- Image : AcquisitionDate⁹⁴²
- Image : ID⁹⁴³
- Image : InstrumentRef⁹⁴⁴
- Image : Name⁹⁴⁵
- Instrument : ID⁹⁴⁶
- Objective : Correction⁹⁴⁷
- Objective : ID⁹⁴⁸
- Objective : Immersion⁹⁴⁹
- Objective : LensNA⁹⁵⁰
- Objective : Model⁹⁵¹
- Objective : NominalMagnification⁹⁵²
- ObjectiveSettings : ID⁹⁵³
- Pixels : BigEndian⁹⁵⁴
- Pixels : DimensionOrder⁹⁵⁵
- Pixels : ID⁹⁵⁶
- Pixels : Interleaved⁹⁵⁷
- Pixels : PhysicalSizeX⁹⁵⁸
- Pixels : PhysicalSizeY⁹⁵⁹
- Pixels : PhysicalSizeZ⁹⁶⁰
- Pixels : SignificantBits⁹⁶¹

⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID

⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type

⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁹⁶²
- Pixels : SizeT⁹⁶³
- Pixels : SizeX⁹⁶⁴
- Pixels : SizeY⁹⁶⁵
- Pixels : SizeZ⁹⁶⁶
- Pixels : Type⁹⁶⁷
- Plane : TheC⁹⁶⁸
- Plane : TheT⁹⁶⁹
- Plane : TheZ⁹⁷⁰

Total supported: 40

Total unknown or missing: 436

18.2.17 BioRadSCNReader

This page lists supported metadata fields for the Bio-Formats Bio-Rad SCN format reader.

These fields are from the [OME data model](#)⁹⁷¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁹⁷²
- Channel : SamplesPerPixel⁹⁷³
- Detector : ID⁹⁷⁴
- DetectorSettings : Binning⁹⁷⁵
- DetectorSettings : Gain⁹⁷⁶
- DetectorSettings : ID⁹⁷⁷
- Image : AcquisitionDate⁹⁷⁸
- Image : ID⁹⁷⁹

⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁹⁷¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name⁹⁸⁰
- Instrument : ID⁹⁸¹
- Microscope : Model⁹⁸²
- Microscope : SerialNumber⁹⁸³
- Pixels : BigEndian⁹⁸⁴
- Pixels : DimensionOrder⁹⁸⁵
- Pixels : ID⁹⁸⁶
- Pixels : Interleaved⁹⁸⁷
- Pixels : PhysicalSizeX⁹⁸⁸
- Pixels : PhysicalSizeY⁹⁸⁹
- Pixels : SignificantBits⁹⁹⁰
- Pixels : SizeC⁹⁹¹
- Pixels : SizeT⁹⁹²
- Pixels : SizeX⁹⁹³
- Pixels : SizeY⁹⁹⁴
- Pixels : SizeZ⁹⁹⁵
- Pixels : Type⁹⁹⁶
- Plane : ExposureTime⁹⁹⁷
- Plane : TheC⁹⁹⁸
- Plane : TheT⁹⁹⁹
- Plane : TheZ¹⁰⁰⁰

Total supported: 29

Total unknown or missing: 447

18.2.18 BrukerReader

This page lists supported metadata fields for the Bio-Formats Bruker format reader.

These fields are from the [OME data model](#)¹⁰⁰¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁰⁰¹<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 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 : ID¹⁰⁰²
- Channel : SamplesPerPixel¹⁰⁰³
- Experimenter : ID¹⁰⁰⁴
- Experimenter : Institution¹⁰⁰⁵
- Experimenter : LastName¹⁰⁰⁶
- Image : AcquisitionDate¹⁰⁰⁷
- Image : ExperimenterRef¹⁰⁰⁸
- Image : ID¹⁰⁰⁹
- Image : Name¹⁰¹⁰
- Pixels : BigEndian¹⁰¹¹
- Pixels : DimensionOrder¹⁰¹²
- Pixels : ID¹⁰¹³
- Pixels : Interleaved¹⁰¹⁴
- Pixels : SignificantBits¹⁰¹⁵
- Pixels : SizeC¹⁰¹⁶
- Pixels : SizeT¹⁰¹⁷
- Pixels : SizeX¹⁰¹⁸
- Pixels : SizeY¹⁰¹⁹
- Pixels : SizeZ¹⁰²⁰
- Pixels : Type¹⁰²¹
- Plane : TheC¹⁰²²
- Plane : TheT¹⁰²³

¹⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

¹⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Institution

¹⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

¹⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

¹⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁰²⁴

Total supported: 23

Total unknown or missing: 453

18.2.19 BurleighReader

This page lists supported metadata fields for the Bio-Formats Burleigh format reader.

These fields are from the [OME data model](#)¹⁰²⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Burleigh format reader:

- Channel : ID¹⁰²⁶
- Channel : SamplesPerPixel¹⁰²⁷
- Image : AcquisitionDate¹⁰²⁸
- Image : ID¹⁰²⁹
- Image : Name¹⁰³⁰
- Pixels : BigEndian¹⁰³¹
- Pixels : DimensionOrder¹⁰³²
- Pixels : ID¹⁰³³
- Pixels : Interleaved¹⁰³⁴
- Pixels : PhysicalSizeX¹⁰³⁵
- Pixels : PhysicalSizeY¹⁰³⁶
- Pixels : PhysicalSizeZ¹⁰³⁷
- Pixels : SignificantBits¹⁰³⁸
- Pixels : SizeC¹⁰³⁹
- Pixels : SizeT¹⁰⁴⁰
- Pixels : SizeX¹⁰⁴¹

¹⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁰²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹⁰⁴²
- Pixels : SizeZ¹⁰⁴³
- Pixels : Type¹⁰⁴⁴
- Plane : TheC¹⁰⁴⁵
- Plane : TheT¹⁰⁴⁶
- Plane : TheZ¹⁰⁴⁷

Total supported: 22

Total unknown or missing: 454

18.2.20 CanonRawReader

This page lists supported metadata fields for the Bio-Formats Canon RAW format reader.

These fields are from the [OME data model](#)¹⁰⁴⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Canon RAW format reader:

- Channel : ID¹⁰⁴⁹
- Channel : SamplesPerPixel¹⁰⁵⁰
- Image : AcquisitionDate¹⁰⁵¹
- Image : ID¹⁰⁵²
- Image : Name¹⁰⁵³
- Pixels : BigEndian¹⁰⁵⁴
- Pixels : DimensionOrder¹⁰⁵⁵
- Pixels : ID¹⁰⁵⁶
- Pixels : Interleaved¹⁰⁵⁷
- Pixels : SignificantBits¹⁰⁵⁸
- Pixels : SizeC¹⁰⁵⁹

¹⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁰⁴⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹⁰⁶⁰
- Pixels : SizeX¹⁰⁶¹
- Pixels : SizeY¹⁰⁶²
- Pixels : SizeZ¹⁰⁶³
- Pixels : Type¹⁰⁶⁴
- Plane : TheC¹⁰⁶⁵
- Plane : TheT¹⁰⁶⁶
- Plane : TheZ¹⁰⁶⁷

Total supported: 19

Total unknown or missing: 457

18.2.21 CellH5Reader

This page lists supported metadata fields for the Bio-Formats CellH5 (HDF) format reader.

These fields are from the [OME data model](#)¹⁰⁶⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats CellH5 (HDF) format reader:

- Channel : ID¹⁰⁶⁹
- Channel : SamplesPerPixel¹⁰⁷⁰
- Image : AcquisitionDate¹⁰⁷¹
- Image : ID¹⁰⁷²
- Image : Name¹⁰⁷³
- Image : ROIRef¹⁰⁷⁴
- Pixels : BigEndian¹⁰⁷⁵
- Pixels : DimensionOrder¹⁰⁷⁶
- Pixels : ID¹⁰⁷⁷

¹⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁰⁶⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

¹⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹⁰⁷⁸
- Pixels : SignificantBits¹⁰⁷⁹
- Pixels : SizeC¹⁰⁸⁰
- Pixels : SizeT¹⁰⁸¹
- Pixels : SizeX¹⁰⁸²
- Pixels : SizeY¹⁰⁸³
- Pixels : SizeZ¹⁰⁸⁴
- Pixels : Type¹⁰⁸⁵
- Plane : TheC¹⁰⁸⁶
- Plane : TheT¹⁰⁸⁷
- Plane : TheZ¹⁰⁸⁸
- Plate : ID¹⁰⁸⁹
- Plate : Name¹⁰⁹⁰
- ROI : ID¹⁰⁹¹
- ROI : Name¹⁰⁹²
- Rectangle : Height¹⁰⁹³
- Rectangle : ID¹⁰⁹⁴
- Rectangle : StrokeColor¹⁰⁹⁵
- Rectangle : Text¹⁰⁹⁶
- Rectangle : TheC¹⁰⁹⁷
- Rectangle : TheT¹⁰⁹⁸
- Rectangle : TheZ¹⁰⁹⁹
- Rectangle : Width¹¹⁰⁰
- Rectangle : X¹¹⁰¹
- Rectangle : Y¹¹⁰²
- Well : Column¹¹⁰³

¹⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

¹⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

¹⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

¹⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Name

¹⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

¹⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

¹⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

¹⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheC

¹⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

¹¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

¹¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

¹¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

- Well : ExternalIdentifier¹¹⁰⁴
- Well : ID¹¹⁰⁵
- Well : Row¹¹⁰⁶
- WellSample : ID¹¹⁰⁷
- WellSample : ImageRef¹¹⁰⁸
- WellSample : Index¹¹⁰⁹

Total supported: 41

Total unknown or missing: 435

18.2.22 CellSensReader

This page lists supported metadata fields for the Bio-Formats CellSens VSI format reader.

These fields are from the [OME data model](#)¹¹¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 46 of them (9%).
- Of those, Bio-Formats fully or partially converts 46 (100%).

Supported fields

These fields are fully supported by the Bio-Formats CellSens VSI format reader:

- Channel : EmissionWavelength¹¹¹¹
- Channel : ID¹¹¹²
- Channel : Name¹¹¹³
- Channel : SamplesPerPixel¹¹¹⁴
- Detector : Gain¹¹¹⁵
- Detector : ID¹¹¹⁶
- Detector : Manufacturer¹¹¹⁷
- Detector : Model¹¹¹⁸
- Detector : Offset¹¹¹⁹
- Detector : SerialNumber¹¹²⁰
- Detector : Type¹¹²¹

¹¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ExternalIdentifier

¹¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

¹¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

¹¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

¹¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

¹¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

¹¹¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

¹¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

¹¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

¹¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

- DetectorSettings : Binning¹¹²²
- DetectorSettings : Gain¹¹²³
- DetectorSettings : ID¹¹²⁴
- DetectorSettings : Offset¹¹²⁵
- Image : AcquisitionDate¹¹²⁶
- Image : ID¹¹²⁷
- Image : InstrumentRef¹¹²⁸
- Image : Name¹¹²⁹
- Instrument : ID¹¹³⁰
- Objective : ID¹¹³¹
- Objective : LensNA¹¹³²
- Objective : Model¹¹³³
- Objective : NominalMagnification¹¹³⁴
- Objective : WorkingDistance¹¹³⁵
- ObjectiveSettings : ID¹¹³⁶
- ObjectiveSettings : RefractiveIndex¹¹³⁷
- Pixels : BigEndian¹¹³⁸
- Pixels : DimensionOrder¹¹³⁹
- Pixels : ID¹¹⁴⁰
- Pixels : Interleaved¹¹⁴¹
- Pixels : PhysicalSizeX¹¹⁴²
- Pixels : PhysicalSizeY¹¹⁴³
- Pixels : SignificantBits¹¹⁴⁴
- Pixels : SizeC¹¹⁴⁵
- Pixels : SizeT¹¹⁴⁶
- Pixels : SizeX¹¹⁴⁷

¹¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

¹¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

¹¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

¹¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

¹¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

¹¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

¹¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

¹¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

¹¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹¹⁴⁸
- Pixels : SizeZ¹¹⁴⁹
- Pixels : Type¹¹⁵⁰
- Plane : ExposureTime¹¹⁵¹
- Plane : PositionX¹¹⁵²
- Plane : PositionY¹¹⁵³
- Plane : TheC¹¹⁵⁴
- Plane : TheT¹¹⁵⁵
- Plane : TheZ¹¹⁵⁶

Total supported: 46

Total unknown or missing: 430

18.2.23 CellVoyagerReader

This page lists supported metadata fields for the Bio-Formats CellVoyager format reader.

These fields are from the [OME data model](#)¹¹⁵⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 34 of them (7%).
- Of those, Bio-Formats fully or partially converts 34 (100%).

Supported fields

These fields are fully supported by the Bio-Formats CellVoyager format reader:

- Channel : ID¹¹⁵⁸
- Channel : Name¹¹⁵⁹
- Channel : PinholeSize¹¹⁶⁰
- Channel : SamplesPerPixel¹¹⁶¹
- Image : AcquisitionDate¹¹⁶²
- Image : ID¹¹⁶³
- Image : Name¹¹⁶⁴
- Pixels : BigEndian¹¹⁶⁵

¹¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

¹¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

¹¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

¹¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹¹⁵⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

¹¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder¹¹⁶⁶
- Pixels : ID¹¹⁶⁷
- Pixels : Interleaved¹¹⁶⁸
- Pixels : SignificantBits¹¹⁶⁹
- Pixels : SizeC¹¹⁷⁰
- Pixels : SizeT¹¹⁷¹
- Pixels : SizeX¹¹⁷²
- Pixels : SizeY¹¹⁷³
- Pixels : SizeZ¹¹⁷⁴
- Pixels : Type¹¹⁷⁵
- Plane : TheC¹¹⁷⁶
- Plane : TheT¹¹⁷⁷
- Plane : TheZ¹¹⁷⁸
- Plate : Columns¹¹⁷⁹
- Plate : Rows¹¹⁸⁰
- PlateAcquisition : EndTime¹¹⁸¹
- PlateAcquisition : ID¹¹⁸²
- PlateAcquisition : MaximumFieldCount¹¹⁸³
- PlateAcquisition : StartTime¹¹⁸⁴
- Well : Column¹¹⁸⁵
- Well : ID¹¹⁸⁶
- Well : Row¹¹⁸⁷
- WellSample : ID¹¹⁸⁸
- WellSample : Index¹¹⁸⁹
- WellSample : PositionX¹¹⁹⁰
- WellSample : PositionY¹¹⁹¹

¹¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Columns

¹¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Rows

¹¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_EndTime

¹¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

¹¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

¹¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_StartTime

¹¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

¹¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

¹¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

¹¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

¹¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

¹¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX

¹¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

Total supported: 34

Total unknown or missing: 442

18.2.24 CellWorxReader

This page lists supported metadata fields for the Bio-Formats CellWorx format reader.

These fields are from the [OME data model](#)¹¹⁹². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : EmissionWavelength¹¹⁹³
- Channel : ExcitationWavelength¹¹⁹⁴
- Channel : ID¹¹⁹⁵
- Channel : Name¹¹⁹⁶
- Channel : SamplesPerPixel¹¹⁹⁷
- Detector : ID¹¹⁹⁸
- DetectorSettings : Gain¹¹⁹⁹
- DetectorSettings : ID¹²⁰⁰
- Image : AcquisitionDate¹²⁰¹
- Image : ID¹²⁰²
- Image : InstrumentRef¹²⁰³
- Image : Name¹²⁰⁴
- Instrument : ID¹²⁰⁵
- Microscope : SerialNumber¹²⁰⁶
- Pixels : BigEndian¹²⁰⁷
- Pixels : DimensionOrder¹²⁰⁸
- Pixels : ID¹²⁰⁹

¹¹⁹²<http://www.openmicroscopy.org/site/support/ome-model/>

¹¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

¹¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

¹¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

¹²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

¹²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved¹²¹⁰
- Pixels : PhysicalSizeX¹²¹¹
- Pixels : PhysicalSizeY¹²¹²
- Pixels : SignificantBits¹²¹³
- Pixels : SizeC¹²¹⁴
- Pixels : SizeT¹²¹⁵
- Pixels : SizeX¹²¹⁶
- Pixels : SizeY¹²¹⁷
- Pixels : SizeZ¹²¹⁸
- Pixels : Type¹²¹⁹
- Plane : TheC¹²²⁰
- Plane : TheT¹²²¹
- Plane : TheZ¹²²²
- Plate : ID¹²²³
- Plate : Name¹²²⁴
- PlateAcquisition : EndTime¹²²⁵
- PlateAcquisition : ID¹²²⁶
- PlateAcquisition : MaximumFieldCount¹²²⁷
- PlateAcquisition : StartTime¹²²⁸
- PlateAcquisition : WellSampleRef¹²²⁹
- Well : Column¹²³⁰
- Well : ID¹²³¹
- Well : Row¹²³²
- WellSample : ID¹²³³
- WellSample : ImageRef¹²³⁴
- WellSample : Index¹²³⁵

¹²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

¹²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

¹²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_EndTime

¹²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

¹²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

¹²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_StartTime

¹²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID

¹²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

¹²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

¹²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

¹²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

¹²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

¹²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

- WellSample : PositionX¹²³⁶
- WellSample : PositionY¹²³⁷

Total supported: 45

Total unknown or missing: 431

18.2.25 CellomicsReader

This page lists supported metadata fields for the Bio-Formats Cellomics C01 format reader.

These fields are from the [OME data model](#)¹²³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID¹²³⁹
- Channel : SamplesPerPixel¹²⁴⁰
- Image : AcquisitionDate¹²⁴¹
- Image : ID¹²⁴²
- Image : Name¹²⁴³
- Pixels : BigEndian¹²⁴⁴
- Pixels : DimensionOrder¹²⁴⁵
- Pixels : ID¹²⁴⁶
- Pixels : Interleaved¹²⁴⁷
- Pixels : PhysicalSizeX¹²⁴⁸
- Pixels : PhysicalSizeY¹²⁴⁹
- Pixels : SignificantBits¹²⁵⁰
- Pixels : SizeC¹²⁵¹
- Pixels : SizeT¹²⁵²
- Pixels : SizeX¹²⁵³

¹²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX

¹²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

¹²³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

¹²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹²⁵⁴
- Pixels : SizeZ¹²⁵⁵
- Pixels : Type¹²⁵⁶
- Plane : TheC¹²⁵⁷
- Plane : TheT¹²⁵⁸
- Plane : TheZ¹²⁵⁹
- Plate : ColumnNamingConvention¹²⁶⁰
- Plate : ID¹²⁶¹
- Plate : Name¹²⁶²
- Plate : RowNamingConvention¹²⁶³
- Well : Column¹²⁶⁴
- Well : ID¹²⁶⁵
- Well : Row¹²⁶⁶
- WellSample : ID¹²⁶⁷
- WellSample : ImageRef¹²⁶⁸
- WellSample : Index¹²⁶⁹

Total supported: 31

Total unknown or missing: 445

18.2.26 DNGReader

This page lists supported metadata fields for the Bio-Formats DNG format reader.

These fields are from the [OME data model](#)¹²⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID¹²⁷¹

¹²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

¹²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

¹²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

¹²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

¹²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

¹²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

¹²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

¹²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

¹²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

¹²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

¹²⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹²⁷²
- Image : AcquisitionDate¹²⁷³
- Image : ID¹²⁷⁴
- Image : Name¹²⁷⁵
- Pixels : BigEndian¹²⁷⁶
- Pixels : DimensionOrder¹²⁷⁷
- Pixels : ID¹²⁷⁸
- Pixels : Interleaved¹²⁷⁹
- Pixels : SignificantBits¹²⁸⁰
- Pixels : SizeC¹²⁸¹
- Pixels : SizeT¹²⁸²
- Pixels : SizeX¹²⁸³
- Pixels : SizeY¹²⁸⁴
- Pixels : SizeZ¹²⁸⁵
- Pixels : Type¹²⁸⁶
- Plane : TheC¹²⁸⁷
- Plane : TheT¹²⁸⁸
- Plane : TheZ¹²⁸⁹

Total supported: 19

Total unknown or missing: 457

18.2.27 DeltavisionReader

This page lists supported metadata fields for the Bio-Formats Deltavision format reader.

These fields are from the [OME data model](#)¹²⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

¹²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹²⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Deltavision format reader:

- Channel : EmissionWavelength¹²⁹¹
- Channel : ExcitationWavelength¹²⁹²
- Channel : ID¹²⁹³
- Channel : NDFilter¹²⁹⁴
- Channel : Name¹²⁹⁵
- Channel : SamplesPerPixel¹²⁹⁶
- Detector : ID¹²⁹⁷
- Detector : Model¹²⁹⁸
- Detector : Type¹²⁹⁹
- DetectorSettings : Binning¹³⁰⁰
- DetectorSettings : Gain¹³⁰¹
- DetectorSettings : ID¹³⁰²
- DetectorSettings : ReadOutRate¹³⁰³
- Image : AcquisitionDate¹³⁰⁴
- Image : Description¹³⁰⁵
- Image : ID¹³⁰⁶
- Image : InstrumentRef¹³⁰⁷
- Image : Name¹³⁰⁸
- ImagingEnvironment : Temperature¹³⁰⁹
- Instrument : ID¹³¹⁰
- Objective : CalibratedMagnification¹³¹¹
- Objective : Correction¹³¹²
- Objective : ID¹³¹³
- Objective : Immersion¹³¹⁴

¹²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

¹²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

¹²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_NDFilter

¹²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

¹³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

¹³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate

¹³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

¹³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

¹³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

¹³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

- Objective : LensNA¹³¹⁵
- Objective : Manufacturer¹³¹⁶
- Objective : Model¹³¹⁷
- Objective : NominalMagnification¹³¹⁸
- Objective : WorkingDistance¹³¹⁹
- ObjectiveSettings : ID¹³²⁰
- Pixels : BigEndian¹³²¹
- Pixels : DimensionOrder¹³²²
- Pixels : ID¹³²³
- Pixels : Interleaved¹³²⁴
- Pixels : PhysicalSizeX¹³²⁵
- Pixels : PhysicalSizeY¹³²⁶
- Pixels : PhysicalSizeZ¹³²⁷
- Pixels : SignificantBits¹³²⁸
- Pixels : SizeC¹³²⁹
- Pixels : SizeT¹³³⁰
- Pixels : SizeX¹³³¹
- Pixels : SizeY¹³³²
- Pixels : SizeZ¹³³³
- Pixels : Type¹³³⁴
- Plane : DeltaT¹³³⁵
- Plane : ExposureTime¹³³⁶
- Plane : PositionX¹³³⁷
- Plane : PositionY¹³³⁸
- Plane : PositionZ¹³³⁹
- Plane : TheC¹³⁴⁰

¹³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

¹³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

¹³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

¹³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

¹³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

¹³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

¹³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

¹³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

¹³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

¹³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

- Plane : TheT¹³⁴¹
- Plane : TheZ¹³⁴²

Total supported: 52

Total unknown or missing: 424

18.2.28 DicomReader

This page lists supported metadata fields for the Bio-Formats DICOM format reader.

These fields are from the [OME data model](#)¹³⁴³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 23 of them (4%).
- Of those, Bio-Formats fully or partially converts 23 (100%).

Supported fields

These fields are fully supported by the Bio-Formats DICOM format reader:

- Channel : ID¹³⁴⁴
- Channel : SamplesPerPixel¹³⁴⁵
- Image : AcquisitionDate¹³⁴⁶
- Image : Description¹³⁴⁷
- Image : ID¹³⁴⁸
- Image : Name¹³⁴⁹
- Pixels : BigEndian¹³⁵⁰
- Pixels : DimensionOrder¹³⁵¹
- Pixels : ID¹³⁵²
- Pixels : Interleaved¹³⁵³
- Pixels : PhysicalSizeX¹³⁵⁴
- Pixels : PhysicalSizeY¹³⁵⁵
- Pixels : PhysicalSizeZ¹³⁵⁶
- Pixels : SignificantBits¹³⁵⁷
- Pixels : SizeC¹³⁵⁸

¹³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹³⁴³<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT¹³⁵⁹
- Pixels : SizeX¹³⁶⁰
- Pixels : SizeY¹³⁶¹
- Pixels : SizeZ¹³⁶²
- Pixels : Type¹³⁶³
- Plane : TheC¹³⁶⁴
- Plane : TheT¹³⁶⁵
- Plane : TheZ¹³⁶⁶

Total supported: 23

Total unknown or missing: 453

18.2.29 EPSReader

This page lists supported metadata fields for the Bio-Formats Encapsulated PostScript format reader.

These fields are from the [OME data model](#)¹³⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- 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 : ID¹³⁶⁸
- Channel : SamplesPerPixel¹³⁶⁹
- Image : AcquisitionDate¹³⁷⁰
- Image : ID¹³⁷¹
- Image : Name¹³⁷²
- Pixels : BigEndian¹³⁷³
- Pixels : DimensionOrder¹³⁷⁴
- Pixels : ID¹³⁷⁵
- Pixels : Interleaved¹³⁷⁶

¹³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹³⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

- Pixels : SignificantBits¹³⁷⁷
- Pixels : SizeC¹³⁷⁸
- Pixels : SizeT¹³⁷⁹
- Pixels : SizeX¹³⁸⁰
- Pixels : SizeY¹³⁸¹
- Pixels : SizeZ¹³⁸²
- Pixels : Type¹³⁸³
- Plane : TheC¹³⁸⁴
- Plane : TheT¹³⁸⁵
- Plane : TheZ¹³⁸⁶

Total supported: 19

Total unknown or missing: 457

18.2.30 Ecat7Reader

This page lists supported metadata fields for the Bio-Formats ECAT7 format reader.

These fields are from the [OME data model](#)¹³⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID¹³⁸⁸
- Channel : SamplesPerPixel¹³⁸⁹
- Image : AcquisitionDate¹³⁹⁰
- Image : Description¹³⁹¹
- Image : ID¹³⁹²
- Image : Name¹³⁹³
- Pixels : BigEndian¹³⁹⁴

¹³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹³⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

¹³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder¹³⁹⁵
- Pixels : ID¹³⁹⁶
- Pixels : Interleaved¹³⁹⁷
- Pixels : PhysicalSizeX¹³⁹⁸
- Pixels : PhysicalSizeY¹³⁹⁹
- Pixels : PhysicalSizeZ¹⁴⁰⁰
- Pixels : SignificantBits¹⁴⁰¹
- Pixels : SizeC¹⁴⁰²
- Pixels : SizeT¹⁴⁰³
- Pixels : SizeX¹⁴⁰⁴
- Pixels : SizeY¹⁴⁰⁵
- Pixels : SizeZ¹⁴⁰⁶
- Pixels : Type¹⁴⁰⁷
- Plane : TheC¹⁴⁰⁸
- Plane : TheT¹⁴⁰⁹
- Plane : TheZ¹⁴¹⁰

Total supported: 23

Total unknown or missing: 453

18.2.31 FEIReader

This page lists supported metadata fields for the Bio-Formats FEI/Philips format reader.

These fields are from the [OME data model](#)¹⁴¹¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID¹⁴¹²

¹³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁴¹¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹⁴¹³
- Image : AcquisitionDate¹⁴¹⁴
- Image : ID¹⁴¹⁵
- Image : Name¹⁴¹⁶
- Pixels : BigEndian¹⁴¹⁷
- Pixels : DimensionOrder¹⁴¹⁸
- Pixels : ID¹⁴¹⁹
- Pixels : Interleaved¹⁴²⁰
- Pixels : SignificantBits¹⁴²¹
- Pixels : SizeC¹⁴²²
- Pixels : SizeT¹⁴²³
- Pixels : SizeX¹⁴²⁴
- Pixels : SizeY¹⁴²⁵
- Pixels : SizeZ¹⁴²⁶
- Pixels : Type¹⁴²⁷
- Plane : TheC¹⁴²⁸
- Plane : TheT¹⁴²⁹
- Plane : TheZ¹⁴³⁰

Total supported: 19

Total unknown or missing: 457

18.2.32 FEITiffReader

This page lists supported metadata fields for the Bio-Formats FEI TIFF format reader.

These fields are from the [OME data model](#)¹⁴³¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

¹⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁴³¹<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats FEI TIFF format reader:

- Channel : ID¹⁴³²
- Channel : SamplesPerPixel¹⁴³³
- Detector : ID¹⁴³⁴
- Detector : Model¹⁴³⁵
- Detector : Type¹⁴³⁶
- Experimenter : ID¹⁴³⁷
- Experimenter : LastName¹⁴³⁸
- Image : AcquisitionDate¹⁴³⁹
- Image : Description¹⁴⁴⁰
- Image : ID¹⁴⁴¹
- Image : InstrumentRef¹⁴⁴²
- Image : Name¹⁴⁴³
- Instrument : ID¹⁴⁴⁴
- Microscope : Model¹⁴⁴⁵
- Objective : Correction¹⁴⁴⁶
- Objective : ID¹⁴⁴⁷
- Objective : Immersion¹⁴⁴⁸
- Objective : NominalMagnification¹⁴⁴⁹
- Pixels : BigEndian¹⁴⁵⁰
- Pixels : DimensionOrder¹⁴⁵¹
- Pixels : ID¹⁴⁵²
- Pixels : Interleaved¹⁴⁵³
- Pixels : PhysicalSizeX¹⁴⁵⁴
- Pixels : PhysicalSizeY¹⁴⁵⁵

¹⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

¹⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

¹⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

¹⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

¹⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

¹⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SignificantBits¹⁴⁵⁶
- Pixels : SizeC¹⁴⁵⁷
- Pixels : SizeT¹⁴⁵⁸
- Pixels : SizeX¹⁴⁵⁹
- Pixels : SizeY¹⁴⁶⁰
- Pixels : SizeZ¹⁴⁶¹
- Pixels : TimeIncrement¹⁴⁶²
- Pixels : Type¹⁴⁶³
- Plane : TheC¹⁴⁶⁴
- Plane : TheT¹⁴⁶⁵
- Plane : TheZ¹⁴⁶⁶
- StageLabel : Name¹⁴⁶⁷
- StageLabel : X¹⁴⁶⁸
- StageLabel : Y¹⁴⁶⁹
- StageLabel : Z¹⁴⁷⁰

Total supported: 39

Total unknown or missing: 437

18.2.33 FV1000Reader

This page lists supported metadata fields for the Bio-Formats Olympus FV1000 format reader.

These fields are from the OME data model¹⁴⁷¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : EmissionWavelength¹⁴⁷²
- Channel : ExcitationWavelength¹⁴⁷³

¹⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

¹⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Name

¹⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_X

¹⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Y

¹⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Z

¹⁴⁷¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

¹⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

- Channel : ID¹⁴⁷⁴
- Channel : IlluminationType¹⁴⁷⁵
- Channel : LightSourceSettingsID¹⁴⁷⁶
- Channel : LightSourceSettingsWavelength¹⁴⁷⁷
- Channel : Name¹⁴⁷⁸
- Channel : SamplesPerPixel¹⁴⁷⁹
- Detector : Gain¹⁴⁸⁰
- Detector : ID¹⁴⁸¹
- Detector : Type¹⁴⁸²
- Detector : Voltage¹⁴⁸³
- DetectorSettings : ID¹⁴⁸⁴
- Dichroic : ID¹⁴⁸⁵
- Dichroic : Model¹⁴⁸⁶
- Ellipse : FontSize¹⁴⁸⁷
- Ellipse : ID¹⁴⁸⁸
- Ellipse : RadiusX¹⁴⁸⁹
- Ellipse : RadiusY¹⁴⁹⁰
- Ellipse : StrokeWidth¹⁴⁹¹
- Ellipse : TheT¹⁴⁹²
- Ellipse : TheZ¹⁴⁹³
- Ellipse : Transform¹⁴⁹⁴
- Ellipse : X¹⁴⁹⁵
- Ellipse : Y¹⁴⁹⁶
- Filter : ID¹⁴⁹⁷
- Filter : Model¹⁴⁹⁸
- Image : AcquisitionDate¹⁴⁹⁹

¹⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_IlluminationType

¹⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID

¹⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Wavelength

¹⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

¹⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Voltage

¹⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

¹⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

¹⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

¹⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

¹⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

¹⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

¹⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

¹⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

¹⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID¹⁵⁰⁰
- Image : InstrumentRef¹⁵⁰¹
- Image : Name¹⁵⁰²
- Image : ROIRef¹⁵⁰³
- Instrument : ID¹⁵⁰⁴
- Laser : ID¹⁵⁰⁵
- Laser : LaserMedium¹⁵⁰⁶
- Laser : Type¹⁵⁰⁷
- Laser : Wavelength¹⁵⁰⁸
- LightPath : DichroicRef¹⁵⁰⁹
- LightPath : EmissionFilterRef¹⁵¹⁰
- Line : FontSize¹⁵¹¹
- Line : ID¹⁵¹²
- Line : StrokeWidth¹⁵¹³
- Line : TheT¹⁵¹⁴
- Line : TheZ¹⁵¹⁵
- Line : Transform¹⁵¹⁶
- Line : X1¹⁵¹⁷
- Line : X2¹⁵¹⁸
- Line : Y1¹⁵¹⁹
- Line : Y2¹⁵²⁰
- Objective : Correction¹⁵²¹
- Objective : ID¹⁵²²
- Objective : Immersion¹⁵²³
- Objective : LensNA¹⁵²⁴
- Objective : Model¹⁵²⁵

¹⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

¹⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

¹⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

¹⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

¹⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

¹⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID

¹⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

¹⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

¹⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

¹⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

¹⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

¹⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

¹⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

¹⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

¹⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

¹⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

¹⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

- Objective : NominalMagnification¹⁵²⁶
- Objective : WorkingDistance¹⁵²⁷
- ObjectiveSettings : ID¹⁵²⁸
- Pixels : BigEndian¹⁵²⁹
- Pixels : DimensionOrder¹⁵³⁰
- Pixels : ID¹⁵³¹
- Pixels : Interleaved¹⁵³²
- Pixels : PhysicalSizeX¹⁵³³
- Pixels : PhysicalSizeY¹⁵³⁴
- Pixels : PhysicalSizeZ¹⁵³⁵
- Pixels : SignificantBits¹⁵³⁶
- Pixels : SizeC¹⁵³⁷
- Pixels : SizeT¹⁵³⁸
- Pixels : SizeX¹⁵³⁹
- Pixels : SizeY¹⁵⁴⁰
- Pixels : SizeZ¹⁵⁴¹
- Pixels : TimeIncrement¹⁵⁴²
- Pixels : Type¹⁵⁴³
- Plane : DeltaT¹⁵⁴⁴
- Plane : PositionX¹⁵⁴⁵
- Plane : PositionY¹⁵⁴⁶
- Plane : PositionZ¹⁵⁴⁷
- Plane : TheC¹⁵⁴⁸
- Plane : TheT¹⁵⁴⁹
- Plane : TheZ¹⁵⁵⁰
- Point : FontSize¹⁵⁵¹

¹⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

¹⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

¹⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

¹⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

¹⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

¹⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

¹⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

¹⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

¹⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

- Point : ID¹⁵⁵²
- Point : StrokeWidth¹⁵⁵³
- Point : TheT¹⁵⁵⁴
- Point : TheZ¹⁵⁵⁵
- Point : X¹⁵⁵⁶
- Point : Y¹⁵⁵⁷
- Polygon : FontSize¹⁵⁵⁸
- Polygon : ID¹⁵⁵⁹
- Polygon : Points¹⁵⁶⁰
- Polygon : StrokeWidth¹⁵⁶¹
- Polygon : TheT¹⁵⁶²
- Polygon : TheZ¹⁵⁶³
- Polygon : Transform¹⁵⁶⁴
- Polyline : FontSize¹⁵⁶⁵
- Polyline : ID¹⁵⁶⁶
- Polyline : Points¹⁵⁶⁷
- Polyline : StrokeWidth¹⁵⁶⁸
- Polyline : TheT¹⁵⁶⁹
- Polyline : TheZ¹⁵⁷⁰
- Polyline : Transform¹⁵⁷¹
- ROI : ID¹⁵⁷²
- Rectangle : FontSize¹⁵⁷³
- Rectangle : Height¹⁵⁷⁴
- Rectangle : ID¹⁵⁷⁵
- Rectangle : StrokeWidth¹⁵⁷⁶
- Rectangle : TheT¹⁵⁷⁷

¹⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_X

¹⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_Y

¹⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

¹⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

¹⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

¹⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

¹⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

¹⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

¹⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

¹⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

¹⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

¹⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

¹⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

¹⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

- Rectangle : TheZ¹⁵⁷⁸
- Rectangle : Transform¹⁵⁷⁹
- Rectangle : Width¹⁵⁸⁰
- Rectangle : X¹⁵⁸¹
- Rectangle : Y¹⁵⁸²
- TransmittanceRange : CutIn¹⁵⁸³
- TransmittanceRange : CutOut¹⁵⁸⁴

Total supported: 113

Total unknown or missing: 363

18.2.34 FakeReader

This page lists supported metadata fields for the Bio-Formats Simulated data format reader.

These fields are from the [OME data model](#)¹⁵⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 84 of them (17%).
- Of those, Bio-Formats fully or partially converts 84 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Simulated data format reader:

- BooleanAnnotation : ID¹⁵⁸⁶
- BooleanAnnotation : Namespace¹⁵⁸⁷
- BooleanAnnotation : Value¹⁵⁸⁸
- Channel : Color¹⁵⁸⁹
- Channel : ID¹⁵⁹⁰
- Channel : SamplesPerPixel¹⁵⁹¹
- CommentAnnotation : ID¹⁵⁹²
- CommentAnnotation : Namespace¹⁵⁹³
- CommentAnnotation : Value¹⁵⁹⁴
- DoubleAnnotation : ID¹⁵⁹⁵

¹⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

¹⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

¹⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

¹⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

¹⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

¹⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn

¹⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut

¹⁵⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

¹⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

¹⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BooleanAnnotation_Value

¹⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

¹⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

¹⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

¹⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#CommentAnnotation_Value

¹⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

- DoubleAnnotation : Namespace¹⁵⁹⁶
- DoubleAnnotation : Value¹⁵⁹⁷
- Ellipse : ID¹⁵⁹⁸
- Ellipse : RadiusX¹⁵⁹⁹
- Ellipse : RadiusY¹⁶⁰⁰
- Ellipse : X¹⁶⁰¹
- Ellipse : Y¹⁶⁰²
- Image : AcquisitionDate¹⁶⁰³
- Image : AnnotationRef¹⁶⁰⁴
- Image : ID¹⁶⁰⁵
- Image : Name¹⁶⁰⁶
- Image : ROIRef¹⁶⁰⁷
- Label : ID¹⁶⁰⁸
- Label : Text¹⁶⁰⁹
- Label : X¹⁶¹⁰
- Label : Y¹⁶¹¹
- Line : ID¹⁶¹²
- Line : X1¹⁶¹³
- Line : X2¹⁶¹⁴
- Line : Y1¹⁶¹⁵
- Line : Y2¹⁶¹⁶
- LongAnnotation : ID¹⁶¹⁷
- LongAnnotation : Namespace¹⁶¹⁸
- LongAnnotation : Value¹⁶¹⁹
- Mask : BinData¹⁶²⁰
- Mask : BinDataBigEndian¹⁶²¹

¹⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

¹⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DoubleAnnotation_Value

¹⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

¹⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

¹⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

¹⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

¹⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#AnnotationRef_ID

¹⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

¹⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

¹⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X

¹⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y

¹⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

¹⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

¹⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

¹⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

¹⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID

¹⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace

¹⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LongAnnotation_Value

¹⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData

¹⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData_BigEndian

- Mask : Height¹⁶²²
- Mask : ID¹⁶²³
- Mask : Width¹⁶²⁴
- Mask : X¹⁶²⁵
- Mask : Y¹⁶²⁶
- Pixels : BigEndian¹⁶²⁷
- Pixels : DimensionOrder¹⁶²⁸
- Pixels : ID¹⁶²⁹
- Pixels : Interleaved¹⁶³⁰
- Pixels : PhysicalSizeX¹⁶³¹
- Pixels : PhysicalSizeY¹⁶³²
- Pixels : PhysicalSizeZ¹⁶³³
- Pixels : SignificantBits¹⁶³⁴
- Pixels : SizeC¹⁶³⁵
- Pixels : SizeT¹⁶³⁶
- Pixels : SizeX¹⁶³⁷
- Pixels : SizeY¹⁶³⁸
- Pixels : SizeZ¹⁶³⁹
- Pixels : Type¹⁶⁴⁰
- Plane : ExposureTime¹⁶⁴¹
- Plane : TheC¹⁶⁴²
- Plane : TheT¹⁶⁴³
- Plane : TheZ¹⁶⁴⁴
- Point : ID¹⁶⁴⁵
- Point : X¹⁶⁴⁶
- Point : Y¹⁶⁴⁷

¹⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Height

¹⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Width

¹⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_X

¹⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Y

¹⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

¹⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

¹⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_X

¹⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_Y

- Polygon : ID¹⁶⁴⁸
- Polygon : Points¹⁶⁴⁹
- Polyline : ID¹⁶⁵⁰
- Polyline : Points¹⁶⁵¹
- ROI : ID¹⁶⁵²
- Rectangle : Height¹⁶⁵³
- Rectangle : ID¹⁶⁵⁴
- Rectangle : Width¹⁶⁵⁵
- Rectangle : X¹⁶⁵⁶
- Rectangle : Y¹⁶⁵⁷
- TagAnnotation : ID¹⁶⁵⁸
- TagAnnotation : Namespace¹⁶⁵⁹
- TagAnnotation : Value¹⁶⁶⁰
- TermAnnotation : ID¹⁶⁶¹
- TermAnnotation : Namespace¹⁶⁶²
- TermAnnotation : Value¹⁶⁶³
- TimestampAnnotation : ID¹⁶⁶⁴
- TimestampAnnotation : Namespace¹⁶⁶⁵
- TimestampAnnotation : Value¹⁶⁶⁶
- XMLAnnotation : ID¹⁶⁶⁷
- XMLAnnotation : Namespace¹⁶⁶⁸
- XMLAnnotation : Value¹⁶⁶⁹

Total supported: 84

Total unknown or missing: 392

18.2.35 FilePatternReader

This page lists supported metadata fields for the Bio-Formats File pattern format reader.

- ¹⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID
- ¹⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points
- ¹⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID
- ¹⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points
- ¹⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID
- ¹⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height
- ¹⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID
- ¹⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width
- ¹⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X
- ¹⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y
- ¹⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID
- ¹⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace
- ¹⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TagAnnotation_Value
- ¹⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID
- ¹⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace
- ¹⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TermAnnotation_Value
- ¹⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID
- ¹⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace
- ¹⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TimestampAnnotation_Value
- ¹⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_ID
- ¹⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Annotation_Namespace
- ¹⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#XMLAnnotation_Value

These fields are from the [OME data model](#)¹⁶⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats File pattern format reader:

- Channel : ID¹⁶⁷¹
- Channel : SamplesPerPixel¹⁶⁷²
- Image : AcquisitionDate¹⁶⁷³
- Image : ID¹⁶⁷⁴
- Image : Name¹⁶⁷⁵
- Pixels : BigEndian¹⁶⁷⁶
- Pixels : DimensionOrder¹⁶⁷⁷
- Pixels : ID¹⁶⁷⁸
- Pixels : Interleaved¹⁶⁷⁹
- Pixels : SignificantBits¹⁶⁸⁰
- Pixels : SizeC¹⁶⁸¹
- Pixels : SizeT¹⁶⁸²
- Pixels : SizeX¹⁶⁸³
- Pixels : SizeY¹⁶⁸⁴
- Pixels : SizeZ¹⁶⁸⁵
- Pixels : Type¹⁶⁸⁶
- Plane : TheC¹⁶⁸⁷
- Plane : TheT¹⁶⁸⁸
- Plane : TheZ¹⁶⁸⁹

Total supported: 19

Total unknown or missing: 457

¹⁶⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.36 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](#)¹⁶⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID¹⁶⁹¹
- Channel : SamplesPerPixel¹⁶⁹²
- Image : AcquisitionDate¹⁶⁹³
- Image : ID¹⁶⁹⁴
- Image : Name¹⁶⁹⁵
- Pixels : BigEndian¹⁶⁹⁶
- Pixels : DimensionOrder¹⁶⁹⁷
- Pixels : ID¹⁶⁹⁸
- Pixels : Interleaved¹⁶⁹⁹
- Pixels : SignificantBits¹⁷⁰⁰
- Pixels : SizeC¹⁷⁰¹
- Pixels : SizeT¹⁷⁰²
- Pixels : SizeX¹⁷⁰³
- Pixels : SizeY¹⁷⁰⁴
- Pixels : SizeZ¹⁷⁰⁵
- Pixels : Type¹⁷⁰⁶
- Plane : TheC¹⁷⁰⁷
- Plane : TheT¹⁷⁰⁸

¹⁶⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ¹⁷⁰⁹

Total supported: 19

Total unknown or missing: 457

18.2.37 FlexReader

This page lists supported metadata fields for the Bio-Formats Evotec Flex format reader.

These fields are from the [OME data model](#)¹⁷¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID¹⁷¹¹
- Channel : LightSourceSettingsID¹⁷¹²
- Channel : Name¹⁷¹³
- Channel : SamplesPerPixel¹⁷¹⁴
- Detector : ID¹⁷¹⁵
- Detector : Type¹⁷¹⁶
- DetectorSettings : Binning¹⁷¹⁷
- DetectorSettings : ID¹⁷¹⁸
- Dichroic : ID¹⁷¹⁹
- Dichroic : Model¹⁷²⁰
- Filter : FilterWheel¹⁷²¹
- Filter : ID¹⁷²²
- Filter : Model¹⁷²³
- Image : AcquisitionDate¹⁷²⁴
- Image : ID¹⁷²⁵
- Image : InstrumentRef¹⁷²⁶

¹⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁷¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID

¹⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

¹⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

¹⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_FilterWheel

¹⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

¹⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

- Image : Name¹⁷²⁷
- Instrument : ID¹⁷²⁸
- Laser : ID¹⁷²⁹
- Laser : LaserMedium¹⁷³⁰
- Laser : Type¹⁷³¹
- Laser : Wavelength¹⁷³²
- LightPath : DichroicRef¹⁷³³
- LightPath : EmissionFilterRef¹⁷³⁴
- LightPath : ExcitationFilterRef¹⁷³⁵
- Objective : CalibratedMagnification¹⁷³⁶
- Objective : Correction¹⁷³⁷
- Objective : ID¹⁷³⁸
- Objective : Immersion¹⁷³⁹
- Objective : LensNA¹⁷⁴⁰
- ObjectiveSettings : ID¹⁷⁴¹
- Pixels : BigEndian¹⁷⁴²
- Pixels : DimensionOrder¹⁷⁴³
- Pixels : ID¹⁷⁴⁴
- Pixels : Interleaved¹⁷⁴⁵
- Pixels : PhysicalSizeX¹⁷⁴⁶
- Pixels : PhysicalSizeY¹⁷⁴⁷
- Pixels : SignificantBits¹⁷⁴⁸
- Pixels : SizeC¹⁷⁴⁹
- Pixels : SizeT¹⁷⁵⁰
- Pixels : SizeX¹⁷⁵¹
- Pixels : SizeY¹⁷⁵²

¹⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

¹⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

¹⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

¹⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

¹⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID

¹⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

¹⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

¹⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

¹⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

¹⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

¹⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

¹⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ¹⁷⁵³
- Pixels : Type¹⁷⁵⁴
- Plane : DeltaT¹⁷⁵⁵
- Plane : ExposureTime¹⁷⁵⁶
- Plane : PositionX¹⁷⁵⁷
- Plane : PositionY¹⁷⁵⁸
- Plane : PositionZ¹⁷⁵⁹
- Plane : TheC¹⁷⁶⁰
- Plane : TheT¹⁷⁶¹
- Plane : TheZ¹⁷⁶²
- Plate : ColumnNamingConvention¹⁷⁶³
- Plate : ExternalIdentifier¹⁷⁶⁴
- Plate : ID¹⁷⁶⁵
- Plate : Name¹⁷⁶⁶
- Plate : RowNamingConvention¹⁷⁶⁷
- PlateAcquisition : ID¹⁷⁶⁸
- PlateAcquisition : MaximumFieldCount¹⁷⁶⁹
- PlateAcquisition : StartTime¹⁷⁷⁰
- PlateAcquisition : WellSampleRef¹⁷⁷¹
- Well : Column¹⁷⁷²
- Well : ID¹⁷⁷³
- Well : Row¹⁷⁷⁴
- WellSample : ID¹⁷⁷⁵
- WellSample : ImageRef¹⁷⁷⁶
- WellSample : Index¹⁷⁷⁷
- WellSample : PositionX¹⁷⁷⁸

¹⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

¹⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

¹⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

¹⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

¹⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

¹⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

¹⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ExternalIdentifier

¹⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

¹⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

¹⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

¹⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

¹⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

¹⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_StartTime

¹⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID

¹⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

¹⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

¹⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

¹⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

¹⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

¹⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

¹⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX

- WellSample : PositionY¹⁷⁷⁹

Total supported: 69

Total unknown or missing: 407

18.2.38 FlowSightReader

This page lists supported metadata fields for the Bio-Formats FlowSight format reader.

These fields are from the [OME data model](#)¹⁷⁸⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 FlowSight format reader:

- Channel : ID¹⁷⁸¹
- Channel : Name¹⁷⁸²
- Channel : SamplesPerPixel¹⁷⁸³
- Image : AcquisitionDate¹⁷⁸⁴
- Image : ID¹⁷⁸⁵
- Image : Name¹⁷⁸⁶
- Pixels : BigEndian¹⁷⁸⁷
- Pixels : DimensionOrder¹⁷⁸⁸
- Pixels : ID¹⁷⁸⁹
- Pixels : Interleaved¹⁷⁹⁰
- Pixels : SignificantBits¹⁷⁹¹
- Pixels : SizeC¹⁷⁹²
- Pixels : SizeT¹⁷⁹³
- Pixels : SizeX¹⁷⁹⁴
- Pixels : SizeY¹⁷⁹⁵
- Pixels : SizeZ¹⁷⁹⁶

¹⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

¹⁷⁸⁰<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type¹⁷⁹⁷
- Plane : TheC¹⁷⁹⁸
- Plane : TheT¹⁷⁹⁹
- Plane : TheZ¹⁸⁰⁰

Total supported: 20

Total unknown or missing: 456

18.2.39 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](#)¹⁸⁰¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID¹⁸⁰²
- Channel : Name¹⁸⁰³
- Channel : SamplesPerPixel¹⁸⁰⁴
- Detector : ID¹⁸⁰⁵
- Detector : Manufacturer¹⁸⁰⁶
- Detector : Model¹⁸⁰⁷
- Detector : Type¹⁸⁰⁸
- DetectorSettings : Gain¹⁸⁰⁹
- DetectorSettings : ID¹⁸¹⁰
- DetectorSettings : Offset¹⁸¹¹
- DetectorSettings : ReadOutRate¹⁸¹²
- DetectorSettings : Voltage¹⁸¹³
- Image : AcquisitionDate¹⁸¹⁴

¹⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁸⁰¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

¹⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

¹⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

¹⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

¹⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate

¹⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

¹⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

- Image : Description¹⁸¹⁵
- Image : ID¹⁸¹⁶
- Image : InstrumentRef¹⁸¹⁷
- Image : Name¹⁸¹⁸
- ImagingEnvironment : Temperature¹⁸¹⁹
- Instrument : ID¹⁸²⁰
- Objective : CalibratedMagnification¹⁸²¹
- Objective : Correction¹⁸²²
- Objective : ID¹⁸²³
- Objective : Immersion¹⁸²⁴
- Objective : LensNA¹⁸²⁵
- Objective : Model¹⁸²⁶
- ObjectiveSettings : ID¹⁸²⁷
- Pixels : BigEndian¹⁸²⁸
- Pixels : DimensionOrder¹⁸²⁹
- Pixels : ID¹⁸³⁰
- Pixels : Interleaved¹⁸³¹
- Pixels : PhysicalSizeX¹⁸³²
- Pixels : PhysicalSizeY¹⁸³³
- Pixels : PhysicalSizeZ¹⁸³⁴
- Pixels : SignificantBits¹⁸³⁵
- Pixels : SizeC¹⁸³⁶
- Pixels : SizeT¹⁸³⁷
- Pixels : SizeX¹⁸³⁸
- Pixels : SizeY¹⁸³⁹
- Pixels : SizeZ¹⁸⁴⁰

¹⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

¹⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

¹⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

¹⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

¹⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

¹⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

¹⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

¹⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

¹⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

¹⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

¹⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : TimeIncrement¹⁸⁴¹
- Pixels : Type¹⁸⁴²
- Plane : DeltaT¹⁸⁴³
- Plane : ExposureTime¹⁸⁴⁴
- Plane : PositionX¹⁸⁴⁵
- Plane : PositionY¹⁸⁴⁶
- Plane : PositionZ¹⁸⁴⁷
- Plane : TheC¹⁸⁴⁸
- Plane : TheT¹⁸⁴⁹
- Plane : TheZ¹⁸⁵⁰

Total supported: 49

Total unknown or missing: 427

18.2.40 FujiReader

This page lists supported metadata fields for the Bio-Formats Fuji LAS 3000 format reader.

These fields are from the [OME data model](#)¹⁸⁵¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Fuji LAS 3000 format reader:

- Channel : ID¹⁸⁵²
- Channel : SamplesPerPixel¹⁸⁵³
- Image : AcquisitionDate¹⁸⁵⁴
- Image : ID¹⁸⁵⁵
- Image : Name¹⁸⁵⁶
- Instrument : ID¹⁸⁵⁷
- Microscope : Model¹⁸⁵⁸

¹⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

¹⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

¹⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

¹⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

¹⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

¹⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

¹⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁸⁵¹<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

- Pixels : BigEndian¹⁸⁵⁹
- Pixels : DimensionOrder¹⁸⁶⁰
- Pixels : ID¹⁸⁶¹
- Pixels : Interleaved¹⁸⁶²
- Pixels : PhysicalSizeX¹⁸⁶³
- Pixels : PhysicalSizeY¹⁸⁶⁴
- Pixels : SignificantBits¹⁸⁶⁵
- Pixels : SizeC¹⁸⁶⁶
- Pixels : SizeT¹⁸⁶⁷
- Pixels : SizeX¹⁸⁶⁸
- Pixels : SizeY¹⁸⁶⁹
- Pixels : SizeZ¹⁸⁷⁰
- Pixels : Type¹⁸⁷¹
- Plane : TheC¹⁸⁷²
- Plane : TheT¹⁸⁷³
- Plane : TheZ¹⁸⁷⁴

Total supported: 23

Total unknown or missing: 453

18.2.41 GIFReader

This page lists supported metadata fields for the Bio-Formats Graphics Interchange Format format reader.

These fields are from the [OME data model](#)¹⁸⁷⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID¹⁸⁷⁶

¹⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
¹⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
¹⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
¹⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
¹⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX
¹⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY
¹⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
¹⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
¹⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
¹⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
¹⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
¹⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
¹⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
¹⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
¹⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
¹⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
¹⁸⁷⁵<http://www.openmicroscopy.org/site/support/ome-model/>
¹⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel¹⁸⁷⁷
- Image : AcquisitionDate¹⁸⁷⁸
- Image : ID¹⁸⁷⁹
- Image : Name¹⁸⁸⁰
- Pixels : BigEndian¹⁸⁸¹
- Pixels : DimensionOrder¹⁸⁸²
- Pixels : ID¹⁸⁸³
- Pixels : Interleaved¹⁸⁸⁴
- Pixels : SignificantBits¹⁸⁸⁵
- Pixels : SizeC¹⁸⁸⁶
- Pixels : SizeT¹⁸⁸⁷
- Pixels : SizeX¹⁸⁸⁸
- Pixels : SizeY¹⁸⁸⁹
- Pixels : SizeZ¹⁸⁹⁰
- Pixels : Type¹⁸⁹¹
- Plane : TheC¹⁸⁹²
- Plane : TheT¹⁸⁹³
- Plane : TheZ¹⁸⁹⁴

Total supported: 19

Total unknown or missing: 457

18.2.42 GatanDM2Reader

This page lists supported metadata fields for the Bio-Formats Gatan DM2 format reader.

These fields are from the [OME data model](#)¹⁸⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

¹⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁸⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Gatan DM2 format reader:

- Channel : ID¹⁸⁹⁶
- Channel : SamplesPerPixel¹⁸⁹⁷
- Detector : ID¹⁸⁹⁸
- DetectorSettings : Binning¹⁸⁹⁹
- DetectorSettings : ID¹⁹⁰⁰
- Experimenter : FirstName¹⁹⁰¹
- Experimenter : ID¹⁹⁰²
- Experimenter : LastName¹⁹⁰³
- Image : AcquisitionDate¹⁹⁰⁴
- Image : ExperimenterRef¹⁹⁰⁵
- Image : ID¹⁹⁰⁶
- Image : InstrumentRef¹⁹⁰⁷
- Image : Name¹⁹⁰⁸
- Instrument : ID¹⁹⁰⁹
- Pixels : BigEndian¹⁹¹⁰
- Pixels : DimensionOrder¹⁹¹¹
- Pixels : ID¹⁹¹²
- Pixels : Interleaved¹⁹¹³
- Pixels : PhysicalSizeX¹⁹¹⁴
- Pixels : PhysicalSizeY¹⁹¹⁵
- Pixels : SignificantBits¹⁹¹⁶
- Pixels : SizeC¹⁹¹⁷
- Pixels : SizeT¹⁹¹⁸
- Pixels : SizeX¹⁹¹⁹

¹⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

¹⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName

¹⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

¹⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

¹⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

¹⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY¹⁹²⁰
- Pixels : SizeZ¹⁹²¹
- Pixels : Type¹⁹²²
- Plane : TheC¹⁹²³
- Plane : TheT¹⁹²⁴
- Plane : TheZ¹⁹²⁵

Total supported: 30

Total unknown or missing: 446

18.2.43 GatanReader

This page lists supported metadata fields for the Bio-Formats Gatan Digital Micrograph format reader.

These fields are from the [OME data model](#)¹⁹²⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 36 of them (7%).
- Of those, Bio-Formats fully or partially converts 36 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Gatan Digital Micrograph format reader:

- Channel : AcquisitionMode¹⁹²⁷
- Channel : ID¹⁹²⁸
- Channel : SamplesPerPixel¹⁹²⁹
- Detector : ID¹⁹³⁰
- DetectorSettings : ID¹⁹³¹
- DetectorSettings : Voltage¹⁹³²
- Image : AcquisitionDate¹⁹³³
- Image : ID¹⁹³⁴
- Image : Name¹⁹³⁵
- Instrument : ID¹⁹³⁶
- Objective : Correction¹⁹³⁷

¹⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

¹⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁹²⁶<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_AcquisitionMode

¹⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

¹⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

- Objective : ID¹⁹³⁸
- Objective : Immersion¹⁹³⁹
- Objective : NominalMagnification¹⁹⁴⁰
- ObjectiveSettings : ID¹⁹⁴¹
- Pixels : BigEndian¹⁹⁴²
- Pixels : DimensionOrder¹⁹⁴³
- Pixels : ID¹⁹⁴⁴
- Pixels : Interleaved¹⁹⁴⁵
- Pixels : PhysicalSizeX¹⁹⁴⁶
- Pixels : PhysicalSizeY¹⁹⁴⁷
- Pixels : PhysicalSizeZ¹⁹⁴⁸
- Pixels : SignificantBits¹⁹⁴⁹
- Pixels : SizeC¹⁹⁵⁰
- Pixels : SizeT¹⁹⁵¹
- Pixels : SizeX¹⁹⁵²
- Pixels : SizeY¹⁹⁵³
- Pixels : SizeZ¹⁹⁵⁴
- Pixels : Type¹⁹⁵⁵
- Plane : ExposureTime¹⁹⁵⁶
- Plane : PositionX¹⁹⁵⁷
- Plane : PositionY¹⁹⁵⁸
- Plane : PositionZ¹⁹⁵⁹
- Plane : TheC¹⁹⁶⁰
- Plane : TheT¹⁹⁶¹
- Plane : TheZ¹⁹⁶²

Total supported: 36

Total unknown or missing: 440

- ¹⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID
- ¹⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion
- ¹⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification
- ¹⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID
- ¹⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
- ¹⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
- ¹⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
- ¹⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
- ¹⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX
- ¹⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY
- ¹⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ
- ¹⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
- ¹⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
- ¹⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
- ¹⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
- ¹⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
- ¹⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
- ¹⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ¹⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime
- ¹⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX
- ¹⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY
- ¹⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ
- ¹⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ¹⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ¹⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.44 GelReader

This page lists supported metadata fields for the Bio-Formats Amersham Biosciences GEL format reader.

These fields are from the [OME data model](#)¹⁹⁶³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID¹⁹⁶⁴
- Channel : SamplesPerPixel¹⁹⁶⁵
- Image : AcquisitionDate¹⁹⁶⁶
- Image : ID¹⁹⁶⁷
- Image : Name¹⁹⁶⁸
- Pixels : BigEndian¹⁹⁶⁹
- Pixels : DimensionOrder¹⁹⁷⁰
- Pixels : ID¹⁹⁷¹
- Pixels : Interleaved¹⁹⁷²
- Pixels : PhysicalSizeX¹⁹⁷³
- Pixels : PhysicalSizeY¹⁹⁷⁴
- Pixels : SignificantBits¹⁹⁷⁵
- Pixels : SizeC¹⁹⁷⁶
- Pixels : SizeT¹⁹⁷⁷
- Pixels : SizeX¹⁹⁷⁸
- Pixels : SizeY¹⁹⁷⁹
- Pixels : SizeZ¹⁹⁸⁰
- Pixels : Type¹⁹⁸¹

¹⁹⁶³<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

¹⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

¹⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

¹⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

¹⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

¹⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

¹⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

¹⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

¹⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

¹⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

¹⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

¹⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC¹⁹⁸²
- Plane : TheT¹⁹⁸³
- Plane : TheZ¹⁹⁸⁴

Total supported: 21

Total unknown or missing: 455

18.2.45 HISReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu HIS format reader.

These fields are from the [OME data model](#)¹⁹⁸⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 27 of them (5%).
- Of those, Bio-Formats fully or partially converts 27 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu HIS format reader:

- Channel : ID¹⁹⁸⁶
- Channel : SamplesPerPixel¹⁹⁸⁷
- Detector : ID¹⁹⁸⁸
- Detector : Offset¹⁹⁸⁹
- Detector : Type¹⁹⁹⁰
- DetectorSettings : Binning¹⁹⁹¹
- DetectorSettings : ID¹⁹⁹²
- Image : AcquisitionDate¹⁹⁹³
- Image : ID¹⁹⁹⁴
- Image : InstrumentRef¹⁹⁹⁵
- Image : Name¹⁹⁹⁶
- Instrument : ID¹⁹⁹⁷
- Pixels : BigEndian¹⁹⁹⁸
- Pixels : DimensionOrder¹⁹⁹⁹

¹⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

¹⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

¹⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

¹⁹⁸⁵<http://www.openmicroscopy.org/site/support/ome-model/>

¹⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

¹⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

¹⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

¹⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

¹⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

¹⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

¹⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

¹⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

¹⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

¹⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

¹⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

¹⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

¹⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

¹⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

- Pixels : ID²⁰⁰⁰
- Pixels : Interleaved²⁰⁰¹
- Pixels : SignificantBits²⁰⁰²
- Pixels : SizeC²⁰⁰³
- Pixels : SizeT²⁰⁰⁴
- Pixels : SizeX²⁰⁰⁵
- Pixels : SizeY²⁰⁰⁶
- Pixels : SizeZ²⁰⁰⁷
- Pixels : Type²⁰⁰⁸
- Plane : ExposureTime²⁰⁰⁹
- Plane : TheC²⁰¹⁰
- Plane : TheT²⁰¹¹
- Plane : TheZ²⁰¹²

Total supported: 27

Total unknown or missing: 449

18.2.46 HRDGDFReader

This page lists supported metadata fields for the Bio-Formats NOAA-HRD Gridded Data Format format reader.

These fields are from the [OME data model](#)²⁰¹³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 NOAA-HRD Gridded Data Format format reader:

- Channel : ID²⁰¹⁴
- Channel : SamplesPerPixel²⁰¹⁵
- Image : AcquisitionDate²⁰¹⁶
- Image : ID²⁰¹⁷

²⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

²⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁰¹³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name²⁰¹⁸
- Pixels : BigEndian²⁰¹⁹
- Pixels : DimensionOrder²⁰²⁰
- Pixels : ID²⁰²¹
- Pixels : Interleaved²⁰²²
- Pixels : PhysicalSizeX²⁰²³
- Pixels : PhysicalSizeY²⁰²⁴
- Pixels : SignificantBits²⁰²⁵
- Pixels : SizeC²⁰²⁶
- Pixels : SizeT²⁰²⁷
- Pixels : SizeX²⁰²⁸
- Pixels : SizeY²⁰²⁹
- Pixels : SizeZ²⁰³⁰
- Pixels : Type²⁰³¹
- Plane : TheC²⁰³²
- Plane : TheT²⁰³³
- Plane : TheZ²⁰³⁴

Total supported: 21

Total unknown or missing: 455

18.2.47 HamamatsuVMSReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu VMS format reader.

These fields are from the OME data model²⁰³⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

²⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁰³⁵<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu VMS format reader:

- Channel : ID²⁰³⁶
- Channel : SamplesPerPixel²⁰³⁷
- Image : AcquisitionDate²⁰³⁸
- Image : ID²⁰³⁹
- Image : InstrumentRef²⁰⁴⁰
- Image : Name²⁰⁴¹
- Instrument : ID²⁰⁴²
- Objective : ID²⁰⁴³
- Objective : NominalMagnification²⁰⁴⁴
- ObjectiveSettings : ID²⁰⁴⁵
- Pixels : BigEndian²⁰⁴⁶
- Pixels : DimensionOrder²⁰⁴⁷
- Pixels : ID²⁰⁴⁸
- Pixels : Interleaved²⁰⁴⁹
- Pixels : PhysicalSizeX²⁰⁵⁰
- Pixels : PhysicalSizeY²⁰⁵¹
- Pixels : SignificantBits²⁰⁵²
- Pixels : SizeC²⁰⁵³
- Pixels : SizeT²⁰⁵⁴
- Pixels : SizeX²⁰⁵⁵
- Pixels : SizeY²⁰⁵⁶
- Pixels : SizeZ²⁰⁵⁷
- Pixels : Type²⁰⁵⁸
- Plane : TheC²⁰⁵⁹

²⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

²⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

- Plane : TheT²⁰⁶⁰
- Plane : TheZ²⁰⁶¹

Total supported: 26

Total unknown or missing: 450

18.2.48 HitachiReader

This page lists supported metadata fields for the Bio-Formats Hitachi format reader.

These fields are from the [OME data model](#)²⁰⁶². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²⁰⁶³
- Channel : SamplesPerPixel²⁰⁶⁴
- Image : AcquisitionDate²⁰⁶⁵
- Image : ID²⁰⁶⁶
- Image : InstrumentRef²⁰⁶⁷
- Image : Name²⁰⁶⁸
- Instrument : ID²⁰⁶⁹
- Microscope : Model²⁰⁷⁰
- Microscope : SerialNumber²⁰⁷¹
- Objective : ID²⁰⁷²
- Objective : WorkingDistance²⁰⁷³
- ObjectiveSettings : ID²⁰⁷⁴
- Pixels : BigEndian²⁰⁷⁵
- Pixels : DimensionOrder²⁰⁷⁶
- Pixels : ID²⁰⁷⁷

²⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁰⁶²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

²⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

²⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁰⁷⁸
- Pixels : PhysicalSizeX²⁰⁷⁹
- Pixels : PhysicalSizeY²⁰⁸⁰
- Pixels : SignificantBits²⁰⁸¹
- Pixels : SizeC²⁰⁸²
- Pixels : SizeT²⁰⁸³
- Pixels : SizeX²⁰⁸⁴
- Pixels : SizeY²⁰⁸⁵
- Pixels : SizeZ²⁰⁸⁶
- Pixels : Type²⁰⁸⁷
- Plane : PositionX²⁰⁸⁸
- Plane : PositionY²⁰⁸⁹
- Plane : PositionZ²⁰⁹⁰
- Plane : TheC²⁰⁹¹
- Plane : TheT²⁰⁹²
- Plane : TheZ²⁰⁹³

Total supported: 31

Total unknown or missing: 445

18.2.49 I2IReader

This page lists supported metadata fields for the Bio-Formats I2I format reader.

These fields are from the [OME data model](#)²⁰⁹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats I2I format reader:

- Channel : ID²⁰⁹⁵

²⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

²⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

²⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

²⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁰⁹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

²⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel²⁰⁹⁶
- Image : AcquisitionDate²⁰⁹⁷
- Image : ID²⁰⁹⁸
- Image : Name²⁰⁹⁹
- Pixels : BigEndian²¹⁰⁰
- Pixels : DimensionOrder²¹⁰¹
- Pixels : ID²¹⁰²
- Pixels : Interleaved²¹⁰³
- Pixels : SignificantBits²¹⁰⁴
- Pixels : SizeC²¹⁰⁵
- Pixels : SizeT²¹⁰⁶
- Pixels : SizeX²¹⁰⁷
- Pixels : SizeY²¹⁰⁸
- Pixels : SizeZ²¹⁰⁹
- Pixels : Type²¹¹⁰
- Plane : TheC²¹¹¹
- Plane : TheT²¹¹²
- Plane : TheZ²¹¹³

Total supported: 19

Total unknown or missing: 457

18.2.50 ICSReader

This page lists supported metadata fields for the Bio-Formats Image Cytometry Standard format reader.

These fields are from the [OME data model](#)²¹¹⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

²⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²¹¹⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Image Cytometry Standard format reader:

- Channel : EmissionWavelength²¹¹⁵
- Channel : ExcitationWavelength²¹¹⁶
- Channel : ID²¹¹⁷
- Channel : Name²¹¹⁸
- Channel : PinholeSize²¹¹⁹
- Channel : SamplesPerPixel²¹²⁰
- Detector : ID²¹²¹
- Detector : Manufacturer²¹²²
- Detector : Model²¹²³
- Detector : Type²¹²⁴
- DetectorSettings : Gain²¹²⁵
- DetectorSettings : ID²¹²⁶
- Dichroic : ID²¹²⁷
- Dichroic : Model²¹²⁸
- Experiment : ID²¹²⁹
- Experiment : Type²¹³⁰
- Experimenter : ID²¹³¹
- Experimenter : LastName²¹³²
- Filter : ID²¹³³
- Filter : Model²¹³⁴
- FilterSet : DichroicRef²¹³⁵
- FilterSet : EmissionFilterRef²¹³⁶
- FilterSet : ExcitationFilterRef²¹³⁷
- FilterSet : ID²¹³⁸

²¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

²¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

²¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

²¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

²¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

²¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

²¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

²¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

²¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

²¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID

²¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type

²¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

²¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

²¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

²¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID

²¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

²¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

²¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterSet_ID

- FilterSet : Model²¹³⁹
- Image : AcquisitionDate²¹⁴⁰
- Image : Description²¹⁴¹
- Image : ID²¹⁴²
- Image : InstrumentRef²¹⁴³
- Image : Name²¹⁴⁴
- Instrument : ID²¹⁴⁵
- Laser : ID²¹⁴⁶
- Laser : LaserMedium²¹⁴⁷
- Laser : Manufacturer²¹⁴⁸
- Laser : Model²¹⁴⁹
- Laser : Power²¹⁵⁰
- Laser : RepetitionRate²¹⁵¹
- Laser : Type²¹⁵²
- Laser : Wavelength²¹⁵³
- Microscope : Manufacturer²¹⁵⁴
- Microscope : Model²¹⁵⁵
- Objective : CalibratedMagnification²¹⁵⁶
- Objective : Correction²¹⁵⁷
- Objective : ID²¹⁵⁸
- Objective : Immersion²¹⁵⁹
- Objective : LensNA²¹⁶⁰
- Objective : Model²¹⁶¹
- Objective : WorkingDistance²¹⁶²
- ObjectiveSettings : ID²¹⁶³
- Pixels : BigEndian²¹⁶⁴

²¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

²¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

²¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

²¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_RepetitionRate

²¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

²¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

²¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

²¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

²¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

²¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

²¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

²¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²¹⁶⁵
- Pixels : ID²¹⁶⁶
- Pixels : Interleaved²¹⁶⁷
- Pixels : PhysicalSizeX²¹⁶⁸
- Pixels : PhysicalSizeY²¹⁶⁹
- Pixels : PhysicalSizeZ²¹⁷⁰
- Pixels : SignificantBits²¹⁷¹
- Pixels : SizeC²¹⁷²
- Pixels : SizeT²¹⁷³
- Pixels : SizeX²¹⁷⁴
- Pixels : SizeY²¹⁷⁵
- Pixels : SizeZ²¹⁷⁶
- Pixels : TimeIncrement²¹⁷⁷
- Pixels : Type²¹⁷⁸
- Plane : DeltaT²¹⁷⁹
- Plane : ExposureTime²¹⁸⁰
- Plane : PositionX²¹⁸¹
- Plane : PositionY²¹⁸²
- Plane : PositionZ²¹⁸³
- Plane : TheC²¹⁸⁴
- Plane : TheT²¹⁸⁵
- Plane : TheZ²¹⁸⁶

Total supported: 72

Total unknown or missing: 404

18.2.51 IM3Reader

This page lists supported metadata fields for the Bio-Formats Perkin-Elmer Nuance IM3 format reader.

These fields are from the OME data model²¹⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME

²¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

²¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

²¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

²¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

²¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

²¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²¹⁸⁷<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 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Perkin-Elmer Nuance IM3 format reader:

- Channel : ID²¹⁸⁸
- Channel : SamplesPerPixel²¹⁸⁹
- Image : AcquisitionDate²¹⁹⁰
- Image : ID²¹⁹¹
- Image : Name²¹⁹²
- Pixels : BigEndian²¹⁹³
- Pixels : DimensionOrder²¹⁹⁴
- Pixels : ID²¹⁹⁵
- Pixels : Interleaved²¹⁹⁶
- Pixels : SignificantBits²¹⁹⁷
- Pixels : SizeC²¹⁹⁸
- Pixels : SizeT²¹⁹⁹
- Pixels : SizeX²²⁰⁰
- Pixels : SizeY²²⁰¹
- Pixels : SizeZ²²⁰²
- Pixels : Type²²⁰³
- Plane : TheC²²⁰⁴
- Plane : TheT²²⁰⁵
- Plane : TheZ²²⁰⁶

Total supported: 19

Total unknown or missing: 457

²¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.52 IMODReader

This page lists supported metadata fields for the Bio-Formats IMOD format reader.

These fields are from the [OME data model](#)²²⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²²⁰⁸
- Channel : SamplesPerPixel²²⁰⁹
- Image : AcquisitionDate²²¹⁰
- Image : ID²²¹¹
- Image : Name²²¹²
- Image : ROIRef²²¹³
- Pixels : BigEndian²²¹⁴
- Pixels : DimensionOrder²²¹⁵
- Pixels : ID²²¹⁶
- Pixels : Interleaved²²¹⁷
- Pixels : PhysicalSizeX²²¹⁸
- Pixels : PhysicalSizeY²²¹⁹
- Pixels : PhysicalSizeZ²²²⁰
- Pixels : SignificantBits²²²¹
- Pixels : SizeC²²²²
- Pixels : SizeT²²²³
- Pixels : SizeX²²²⁴
- Pixels : SizeY²²²⁵

²²⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

²²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²²²⁶
- Pixels : Type²²²⁷
- Plane : TheC²²²⁸
- Plane : TheT²²²⁹
- Plane : TheZ²²³⁰
- Point : ID²²³¹
- Point : StrokeColor²²³²
- Point : StrokeDashArray²²³³
- Point : StrokeWidth²²³⁴
- Point : TheZ²²³⁵
- Point : X²²³⁶
- Point : Y²²³⁷
- Polygon : ID²²³⁸
- Polygon : Points²²³⁹
- Polygon : StrokeColor²²⁴⁰
- Polygon : StrokeDashArray²²⁴¹
- Polygon : StrokeWidth²²⁴²
- Polygon : TheZ²²⁴³
- Polyline : ID²²⁴⁴
- Polyline : Points²²⁴⁵
- Polyline : StrokeColor²²⁴⁶
- Polyline : StrokeDashArray²²⁴⁷
- Polyline : StrokeWidth²²⁴⁸
- Polyline : TheZ²²⁴⁹
- ROI : ID²²⁵⁰
- ROI : Name²²⁵¹

²²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

²²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray

²²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

²²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

²²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_X

²²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Point_Y

²²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

²²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

²²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray

²²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

²²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

²²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

²²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

²²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeDashArray

²²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

²²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

²²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

²²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Name

Total supported: 44

Total unknown or missing: 432

18.2.53 INRReader

This page lists supported metadata fields for the Bio-Formats INR format reader.

These fields are from the [OME data model](#)²²⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²²⁵³
- Channel : SamplesPerPixel²²⁵⁴
- Image : AcquisitionDate²²⁵⁵
- Image : ID²²⁵⁶
- Image : Name²²⁵⁷
- Pixels : BigEndian²²⁵⁸
- Pixels : DimensionOrder²²⁵⁹
- Pixels : ID²²⁶⁰
- Pixels : Interleaved²²⁶¹
- Pixels : PhysicalSizeX²²⁶²
- Pixels : PhysicalSizeY²²⁶³
- Pixels : PhysicalSizeZ²²⁶⁴
- Pixels : SignificantBits²²⁶⁵
- Pixels : SizeC²²⁶⁶
- Pixels : SizeT²²⁶⁷
- Pixels : SizeX²²⁶⁸
- Pixels : SizeY²²⁶⁹

²²⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²²⁷⁰
- Pixels : Type²²⁷¹
- Plane : TheC²²⁷²
- Plane : TheT²²⁷³
- Plane : TheZ²²⁷⁴

Total supported: 22

Total unknown or missing: 454

18.2.54 IPLabReader

This page lists supported metadata fields for the Bio-Formats IPLab format reader.

These fields are from the [OME data model](#)²²⁷⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²²⁷⁶
- Channel : SamplesPerPixel²²⁷⁷
- Image : AcquisitionDate²²⁷⁸
- Image : Description²²⁷⁹
- Image : ID²²⁸⁰
- Image : Name²²⁸¹
- Image : ROIRef²²⁸²
- Pixels : BigEndian²²⁸³
- Pixels : DimensionOrder²²⁸⁴
- Pixels : ID²²⁸⁵
- Pixels : Interleaved²²⁸⁶
- Pixels : PhysicalSizeX²²⁸⁷

²²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²²⁷⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

²²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY²²⁸⁸
- Pixels : SignificantBits²²⁸⁹
- Pixels : SizeC²²⁹⁰
- Pixels : SizeT²²⁹¹
- Pixels : SizeX²²⁹²
- Pixels : SizeY²²⁹³
- Pixels : SizeZ²²⁹⁴
- Pixels : TimeIncrement²²⁹⁵
- Pixels : Type²²⁹⁶
- Plane : DeltaT²²⁹⁷
- Plane : TheC²²⁹⁸
- Plane : TheT²²⁹⁹
- Plane : TheZ²³⁰⁰
- ROI : ID²³⁰¹
- Rectangle : Height²³⁰²
- Rectangle : ID²³⁰³
- Rectangle : Width²³⁰⁴
- Rectangle : X²³⁰⁵
- Rectangle : Y²³⁰⁶

Total supported: 31

Total unknown or missing: 445

18.2.55 IPWReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Workspace format reader.

These fields are from the [OME data model](#)²³⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

²²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

²²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

²³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

²³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

²³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

²³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

²³⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Image-Pro Workspace format reader:

- Channel : ID²³⁰⁸
- Channel : SamplesPerPixel²³⁰⁹
- Image : AcquisitionDate²³¹⁰
- Image : Description²³¹¹
- Image : ID²³¹²
- Image : Name²³¹³
- Pixels : BigEndian²³¹⁴
- Pixels : DimensionOrder²³¹⁵
- Pixels : ID²³¹⁶
- Pixels : Interleaved²³¹⁷
- Pixels : SignificantBits²³¹⁸
- Pixels : SizeC²³¹⁹
- Pixels : SizeT²³²⁰
- Pixels : SizeX²³²¹
- Pixels : SizeY²³²²
- Pixels : SizeZ²³²³
- Pixels : Type²³²⁴
- Plane : TheC²³²⁵
- Plane : TheT²³²⁶
- Plane : TheZ²³²⁷

Total supported: 20

Total unknown or missing: 456

18.2.56 ImaconReader

This page lists supported metadata fields for the Bio-Formats Imacon format reader.

- ²³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID
- ²³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel
- ²³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate
- ²³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description
- ²³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID
- ²³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name
- ²³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
- ²³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
- ²³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
- ²³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
- ²³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
- ²³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
- ²³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
- ²³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
- ²³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
- ²³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
- ²³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ²³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ²³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ²³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

These fields are from the [OME data model](#)²³²⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²³²⁹
- Channel : SamplesPerPixel²³³⁰
- Experimenter : FirstName²³³¹
- Experimenter : ID²³³²
- Experimenter : LastName²³³³
- Image : AcquisitionDate²³³⁴
- Image : ExperimenterRef²³³⁵
- Image : ID²³³⁶
- Image : Name²³³⁷
- Pixels : BigEndian²³³⁸
- Pixels : DimensionOrder²³³⁹
- Pixels : ID²³⁴⁰
- Pixels : Interleaved²³⁴¹
- Pixels : SignificantBits²³⁴²
- Pixels : SizeC²³⁴³
- Pixels : SizeT²³⁴⁴
- Pixels : SizeX²³⁴⁵
- Pixels : SizeY²³⁴⁶
- Pixels : SizeZ²³⁴⁷
- Pixels : Type²³⁴⁸

²³²⁸<http://www.openmicroscopy.org/site/support/ome-model/>

²³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName

²³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

²³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

²³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

²³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC²³⁴⁹
- Plane : TheT²³⁵⁰
- Plane : TheZ²³⁵¹

Total supported: 23

Total unknown or missing: 453

18.2.57 ImageIOReader

This page lists supported metadata fields for the Bio-Formats ImageIOReader.

These fields are from the [OME data model](#)²³⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats ImageIOReader:

- Channel : ID²³⁵³
- Channel : SamplesPerPixel²³⁵⁴
- Image : AcquisitionDate²³⁵⁵
- Image : ID²³⁵⁶
- Image : Name²³⁵⁷
- Pixels : BigEndian²³⁵⁸
- Pixels : DimensionOrder²³⁵⁹
- Pixels : ID²³⁶⁰
- Pixels : Interleaved²³⁶¹
- Pixels : SignificantBits²³⁶²
- Pixels : SizeC²³⁶³
- Pixels : SizeT²³⁶⁴
- Pixels : SizeX²³⁶⁵
- Pixels : SizeY²³⁶⁶

²³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²³⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²³⁶⁷
- Pixels : Type²³⁶⁸
- Plane : TheC²³⁶⁹
- Plane : TheT²³⁷⁰
- Plane : TheZ²³⁷¹

Total supported: 19

Total unknown or missing: 457

18.2.58 ImagicReader

This page lists supported metadata fields for the Bio-Formats IMAGIC format reader.

These fields are from the [OME data model](#)²³⁷². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IMAGIC format reader:

- Channel : ID²³⁷³
- Channel : SamplesPerPixel²³⁷⁴
- Image : AcquisitionDate²³⁷⁵
- Image : ID²³⁷⁶
- Image : Name²³⁷⁷
- Pixels : BigEndian²³⁷⁸
- Pixels : DimensionOrder²³⁷⁹
- Pixels : ID²³⁸⁰
- Pixels : Interleaved²³⁸¹
- Pixels : PhysicalSizeX²³⁸²
- Pixels : PhysicalSizeY²³⁸³
- Pixels : PhysicalSizeZ²³⁸⁴

²³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²³⁷²<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SignificantBits²³⁸⁵
- Pixels : SizeC²³⁸⁶
- Pixels : SizeT²³⁸⁷
- Pixels : SizeX²³⁸⁸
- Pixels : SizeY²³⁸⁹
- Pixels : SizeZ²³⁹⁰
- Pixels : Type²³⁹¹
- Plane : TheC²³⁹²
- Plane : TheT²³⁹³
- Plane : TheZ²³⁹⁴

Total supported: 22

Total unknown or missing: 454

18.2.59 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](#)²³⁹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : Color²³⁹⁶
- Channel : ID²³⁹⁷
- Channel : SamplesPerPixel²³⁹⁸
- Image : AcquisitionDate²³⁹⁹
- Image : ID²⁴⁰⁰
- Image : Name²⁴⁰¹
- Pixels : BigEndian²⁴⁰²

²³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²³⁹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

²³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

²³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²⁴⁰³
- Pixels : ID²⁴⁰⁴
- Pixels : Interleaved²⁴⁰⁵
- Pixels : PhysicalSizeX²⁴⁰⁶
- Pixels : PhysicalSizeY²⁴⁰⁷
- Pixels : PhysicalSizeZ²⁴⁰⁸
- Pixels : SignificantBits²⁴⁰⁹
- Pixels : SizeC²⁴¹⁰
- Pixels : SizeT²⁴¹¹
- Pixels : SizeX²⁴¹²
- Pixels : SizeY²⁴¹³
- Pixels : SizeZ²⁴¹⁴
- Pixels : Type²⁴¹⁵
- Plane : TheC²⁴¹⁶
- Plane : TheT²⁴¹⁷
- Plane : TheZ²⁴¹⁸

Total supported: 23

Total unknown or missing: 453

18.2.60 ImarisReader

This page lists supported metadata fields for the Bio-Formats Bitplane Imaris format reader.

These fields are from the [OME data model](#)²⁴¹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Bitplane Imaris format reader:

- Channel : ID²⁴²⁰

²⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁴¹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : PinholeSize²⁴²¹
- Channel : SamplesPerPixel²⁴²²
- Detector : ID²⁴²³
- Detector : Type²⁴²⁴
- DetectorSettings : Gain²⁴²⁵
- DetectorSettings : ID²⁴²⁶
- DetectorSettings : Offset²⁴²⁷
- Image : AcquisitionDate²⁴²⁸
- Image : Description²⁴²⁹
- Image : ID²⁴³⁰
- Image : InstrumentRef²⁴³¹
- Image : Name²⁴³²
- Instrument : ID²⁴³³
- Pixels : BigEndian²⁴³⁴
- Pixels : DimensionOrder²⁴³⁵
- Pixels : ID²⁴³⁶
- Pixels : Interleaved²⁴³⁷
- Pixels : PhysicalSizeX²⁴³⁸
- Pixels : PhysicalSizeY²⁴³⁹
- Pixels : PhysicalSizeZ²⁴⁴⁰
- Pixels : SignificantBits²⁴⁴¹
- Pixels : SizeC²⁴⁴²
- Pixels : SizeT²⁴⁴³
- Pixels : SizeX²⁴⁴⁴
- Pixels : SizeY²⁴⁴⁵
- Pixels : SizeZ²⁴⁴⁶

²⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

²⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

²⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

²⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

²⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

²⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

²⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : TimeIncrement²⁴⁴⁷
- Pixels : Type²⁴⁴⁸
- Plane : TheC²⁴⁴⁹
- Plane : TheT²⁴⁵⁰
- Plane : TheZ²⁴⁵¹

Total supported: 32

Total unknown or missing: 444

18.2.61 ImarisTiffReader

This page lists supported metadata fields for the Bio-Formats Bitplane Imaris 3 (TIFF) format reader.

These fields are from the [OME data model](#)²⁴⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 3 (TIFF) format reader:

- Channel : EmissionWavelength²⁴⁵³
- Channel : ExcitationWavelength²⁴⁵⁴
- Channel : ID²⁴⁵⁵
- Channel : Name²⁴⁵⁶
- Channel : SamplesPerPixel²⁴⁵⁷
- Image : AcquisitionDate²⁴⁵⁸
- Image : Description²⁴⁵⁹
- Image : ID²⁴⁶⁰
- Image : Name²⁴⁶¹
- Pixels : BigEndian²⁴⁶²
- Pixels : DimensionOrder²⁴⁶³
- Pixels : ID²⁴⁶⁴

²⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁴⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

²⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

²⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

²⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁴⁶⁵
- Pixels : SignificantBits²⁴⁶⁶
- Pixels : SizeC²⁴⁶⁷
- Pixels : SizeT²⁴⁶⁸
- Pixels : SizeX²⁴⁶⁹
- Pixels : SizeY²⁴⁷⁰
- Pixels : SizeZ²⁴⁷¹
- Pixels : Type²⁴⁷²
- Plane : TheC²⁴⁷³
- Plane : TheT²⁴⁷⁴
- Plane : TheZ²⁴⁷⁵

Total supported: 23

Total unknown or missing: 453

18.2.62 ImprovionTiffReader

This page lists supported metadata fields for the Bio-Formats Improvion TIFF format reader.

These fields are from the [OME data model](#)²⁴⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 25 of them (5%).
- Of those, Bio-Formats fully or partially converts 25 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Improvion TIFF format reader:

- Channel : ID²⁴⁷⁷
- Channel : Name²⁴⁷⁸
- Channel : SamplesPerPixel²⁴⁷⁹
- Image : AcquisitionDate²⁴⁸⁰
- Image : Description²⁴⁸¹
- Image : ID²⁴⁸²

²⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁴⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

²⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name²⁴⁸³
- Pixels : BigEndian²⁴⁸⁴
- Pixels : DimensionOrder²⁴⁸⁵
- Pixels : ID²⁴⁸⁶
- Pixels : Interleaved²⁴⁸⁷
- Pixels : PhysicalSizeX²⁴⁸⁸
- Pixels : PhysicalSizeY²⁴⁸⁹
- Pixels : PhysicalSizeZ²⁴⁹⁰
- Pixels : SignificantBits²⁴⁹¹
- Pixels : SizeC²⁴⁹²
- Pixels : SizeT²⁴⁹³
- Pixels : SizeX²⁴⁹⁴
- Pixels : SizeY²⁴⁹⁵
- Pixels : SizeZ²⁴⁹⁶
- Pixels : TimeIncrement²⁴⁹⁷
- Pixels : Type²⁴⁹⁸
- Plane : TheC²⁴⁹⁹
- Plane : TheT²⁵⁰⁰
- Plane : TheZ²⁵⁰¹

Total supported: 25

Total unknown or missing: 451

18.2.63 ImspectorReader

This page lists supported metadata fields for the Bio-Formats Lavisision Imspector format reader.

These fields are from the [OME data model](#)²⁵⁰². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

²⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁵⁰²<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Lavisoin Inspector format reader:

- Channel : ID²⁵⁰³
- Channel : SamplesPerPixel²⁵⁰⁴
- Image : AcquisitionDate²⁵⁰⁵
- Image : ID²⁵⁰⁶
- Image : Name²⁵⁰⁷
- Pixels : BigEndian²⁵⁰⁸
- Pixels : DimensionOrder²⁵⁰⁹
- Pixels : ID²⁵¹⁰
- Pixels : Interleaved²⁵¹¹
- Pixels : SignificantBits²⁵¹²
- Pixels : SizeC²⁵¹³
- Pixels : SizeT²⁵¹⁴
- Pixels : SizeX²⁵¹⁵
- Pixels : SizeY²⁵¹⁶
- Pixels : SizeZ²⁵¹⁷
- Pixels : Type²⁵¹⁸
- Plane : TheC²⁵¹⁹
- Plane : TheT²⁵²⁰
- Plane : TheZ²⁵²¹

Total supported: 19

Total unknown or missing: 457

18.2.64 InCell3000Reader

This page lists supported metadata fields for the Bio-Formats InCell 3000 format reader.

These fields are from the OME data model²⁵²². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

²⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁵²²<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁵²³
- Channel : SamplesPerPixel²⁵²⁴
- Image : AcquisitionDate²⁵²⁵
- Image : ID²⁵²⁶
- Image : Name²⁵²⁷
- Pixels : BigEndian²⁵²⁸
- Pixels : DimensionOrder²⁵²⁹
- Pixels : ID²⁵³⁰
- Pixels : Interleaved²⁵³¹
- Pixels : SignificantBits²⁵³²
- Pixels : SizeC²⁵³³
- Pixels : SizeT²⁵³⁴
- Pixels : SizeX²⁵³⁵
- Pixels : SizeY²⁵³⁶
- Pixels : SizeZ²⁵³⁷
- Pixels : Type²⁵³⁸
- Plane : TheC²⁵³⁹
- Plane : TheT²⁵⁴⁰
- Plane : TheZ²⁵⁴¹

Total supported: 19

Total unknown or missing: 457

²⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.65 InCellReader

This page lists supported metadata fields for the Bio-Formats InCell 1000/2000 format reader.

These fields are from the [OME data model](#)²⁵⁴². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : EmissionWavelength²⁵⁴³
- Channel : ExcitationWavelength²⁵⁴⁴
- Channel : ID²⁵⁴⁵
- Channel : Name²⁵⁴⁶
- Channel : SamplesPerPixel²⁵⁴⁷
- Detector : ID²⁵⁴⁸
- Detector : Model²⁵⁴⁹
- Detector : Type²⁵⁵⁰
- DetectorSettings : Binning²⁵⁵¹
- DetectorSettings : Gain²⁵⁵²
- DetectorSettings : ID²⁵⁵³
- Experiment : ID²⁵⁵⁴
- Experiment : Type²⁵⁵⁵
- Image : AcquisitionDate²⁵⁵⁶
- Image : Description²⁵⁵⁷
- Image : ExperimentRef²⁵⁵⁸
- Image : ID²⁵⁵⁹
- Image : InstrumentRef²⁵⁶⁰
- Image : Name²⁵⁶¹

²⁵⁴²<http://www.openmicroscopy.org/site/support/ome-model/>

²⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

²⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

²⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

²⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

²⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

²⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

²⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

²⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

²⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID

²⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type

²⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimentRef_ID

²⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

- `ImagingEnvironment : Temperature`²⁵⁶²
- `Instrument : ID`²⁵⁶³
- `Objective : Correction`²⁵⁶⁴
- `Objective : ID`²⁵⁶⁵
- `Objective : Immersion`²⁵⁶⁶
- `Objective : LensNA`²⁵⁶⁷
- `Objective : Manufacturer`²⁵⁶⁸
- `Objective : NominalMagnification`²⁵⁶⁹
- `ObjectiveSettings : ID`²⁵⁷⁰
- `ObjectiveSettings : RefractiveIndex`²⁵⁷¹
- `Pixels : BigEndian`²⁵⁷²
- `Pixels : DimensionOrder`²⁵⁷³
- `Pixels : ID`²⁵⁷⁴
- `Pixels : Interleaved`²⁵⁷⁵
- `Pixels : PhysicalSizeX`²⁵⁷⁶
- `Pixels : PhysicalSizeY`²⁵⁷⁷
- `Pixels : SignificantBits`²⁵⁷⁸
- `Pixels : SizeC`²⁵⁷⁹
- `Pixels : SizeT`²⁵⁸⁰
- `Pixels : SizeX`²⁵⁸¹
- `Pixels : SizeY`²⁵⁸²
- `Pixels : SizeZ`²⁵⁸³
- `Pixels : Type`²⁵⁸⁴
- `Plane : DeltaT`²⁵⁸⁵
- `Plane : ExposureTime`²⁵⁸⁶
- `Plane : PositionX`²⁵⁸⁷

²⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

²⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

²⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

²⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

²⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

²⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

²⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

²⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

²⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

- Plane : PositionY²⁵⁸⁸
- Plane : PositionZ²⁵⁸⁹
- Plane : TheC²⁵⁹⁰
- Plane : TheT²⁵⁹¹
- Plane : TheZ²⁵⁹²
- Plate : ColumnNamingConvention²⁵⁹³
- Plate : ID²⁵⁹⁴
- Plate : Name²⁵⁹⁵
- Plate : RowNamingConvention²⁵⁹⁶
- Plate : WellOriginX²⁵⁹⁷
- Plate : WellOriginY²⁵⁹⁸
- PlateAcquisition : ID²⁵⁹⁹
- PlateAcquisition : MaximumFieldCount²⁶⁰⁰
- PlateAcquisition : WellSampleRef²⁶⁰¹
- Well : Column²⁶⁰²
- Well : ID²⁶⁰³
- Well : Row²⁶⁰⁴
- WellSample : ID²⁶⁰⁵
- WellSample : ImageRef²⁶⁰⁶
- WellSample : Index²⁶⁰⁷
- WellSample : PositionX²⁶⁰⁸
- WellSample : PositionY²⁶⁰⁹

Total supported: 67

Total unknown or missing: 409

18.2.66 InveonReader

This page lists supported metadata fields for the Bio-Formats Inveon format reader.

- ²⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY
- ²⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ
- ²⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ²⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ²⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
- ²⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention
- ²⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID
- ²⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name
- ²⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention
- ²⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_WellOriginX
- ²⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_WellOriginY
- ²⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID
- ²⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount
- ²⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID
- ²⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column
- ²⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID
- ²⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row
- ²⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID
- ²⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID
- ²⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index
- ²⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX
- ²⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

These fields are from the [OME data model](#)²⁶¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²⁶¹¹
- Channel : SamplesPerPixel²⁶¹²
- Experimenter : ID²⁶¹³
- Experimenter : Institution²⁶¹⁴
- Experimenter : UserName²⁶¹⁵
- Image : AcquisitionDate²⁶¹⁶
- Image : Description²⁶¹⁷
- Image : ExperimenterRef²⁶¹⁸
- Image : ID²⁶¹⁹
- Image : InstrumentRef²⁶²⁰
- Image : Name²⁶²¹
- Instrument : ID²⁶²²
- Microscope : Model²⁶²³
- Pixels : BigEndian²⁶²⁴
- Pixels : DimensionOrder²⁶²⁵
- Pixels : ID²⁶²⁶
- Pixels : Interleaved²⁶²⁷
- Pixels : PhysicalSizeX²⁶²⁸
- Pixels : PhysicalSizeY²⁶²⁹
- Pixels : PhysicalSizeZ²⁶³⁰

²⁶¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

²⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Institution

²⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_UserName

²⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

²⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SignificantBits²⁶³¹
- Pixels : SizeC²⁶³²
- Pixels : SizeT²⁶³³
- Pixels : SizeX²⁶³⁴
- Pixels : SizeY²⁶³⁵
- Pixels : SizeZ²⁶³⁶
- Pixels : Type²⁶³⁷
- Plane : TheC²⁶³⁸
- Plane : TheT²⁶³⁹
- Plane : TheZ²⁶⁴⁰

Total supported: 30

Total unknown or missing: 446

18.2.67 IvisionReader

This page lists supported metadata fields for the Bio-Formats IVison format reader.

These fields are from the [OME data model](#)²⁶⁴¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 34 of them (7%).
- Of those, Bio-Formats fully or partially converts 34 (100%).

Supported fields

These fields are fully supported by the Bio-Formats IVison format reader:

- Channel : ID²⁶⁴²
- Channel : SamplesPerPixel²⁶⁴³
- Detector : ID²⁶⁴⁴
- Detector : Type²⁶⁴⁵
- DetectorSettings : Binning²⁶⁴⁶
- DetectorSettings : Gain²⁶⁴⁷
- DetectorSettings : ID²⁶⁴⁸

²⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁶⁴¹<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

²⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

²⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

²⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

²⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

- Image : AcquisitionDate²⁶⁴⁹
- Image : ID²⁶⁵⁰
- Image : InstrumentRef²⁶⁵¹
- Image : Name²⁶⁵²
- Instrument : ID²⁶⁵³
- Objective : Correction²⁶⁵⁴
- Objective : ID²⁶⁵⁵
- Objective : Immersion²⁶⁵⁶
- Objective : LensNA²⁶⁵⁷
- Objective : NominalMagnification²⁶⁵⁸
- ObjectiveSettings : ID²⁶⁵⁹
- ObjectiveSettings : RefractiveIndex²⁶⁶⁰
- Pixels : BigEndian²⁶⁶¹
- Pixels : DimensionOrder²⁶⁶²
- Pixels : ID²⁶⁶³
- Pixels : Interleaved²⁶⁶⁴
- Pixels : SignificantBits²⁶⁶⁵
- Pixels : SizeC²⁶⁶⁶
- Pixels : SizeT²⁶⁶⁷
- Pixels : SizeX²⁶⁶⁸
- Pixels : SizeY²⁶⁶⁹
- Pixels : SizeZ²⁶⁷⁰
- Pixels : TimeIncrement²⁶⁷¹
- Pixels : Type²⁶⁷²
- Plane : TheC²⁶⁷³
- Plane : TheT²⁶⁷⁴

²⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

²⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

²⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

²⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

²⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ²⁶⁷⁵

Total supported: 34

Total unknown or missing: 442

18.2.68 JEOLReader

This page lists supported metadata fields for the Bio-Formats JEOL format reader.

These fields are from the [OME data model](#)²⁶⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁶⁷⁷
- Channel : SamplesPerPixel²⁶⁷⁸
- Image : AcquisitionDate²⁶⁷⁹
- Image : ID²⁶⁸⁰
- Image : Name²⁶⁸¹
- Pixels : BigEndian²⁶⁸²
- Pixels : DimensionOrder²⁶⁸³
- Pixels : ID²⁶⁸⁴
- Pixels : Interleaved²⁶⁸⁵
- Pixels : SignificantBits²⁶⁸⁶
- Pixels : SizeC²⁶⁸⁷
- Pixels : SizeT²⁶⁸⁸
- Pixels : SizeX²⁶⁸⁹
- Pixels : SizeY²⁶⁹⁰
- Pixels : SizeZ²⁶⁹¹
- Pixels : Type²⁶⁹²

²⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁶⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC²⁶⁹³
- Plane : TheT²⁶⁹⁴
- Plane : TheZ²⁶⁹⁵

Total supported: 19

Total unknown or missing: 457

18.2.69 JPEG2000Reader

This page lists supported metadata fields for the Bio-Formats JPEG-2000 format reader.

These fields are from the [OME data model](#)²⁶⁹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁶⁹⁷
- Channel : SamplesPerPixel²⁶⁹⁸
- Image : AcquisitionDate²⁶⁹⁹
- Image : ID²⁷⁰⁰
- Image : Name²⁷⁰¹
- Pixels : BigEndian²⁷⁰²
- Pixels : DimensionOrder²⁷⁰³
- Pixels : ID²⁷⁰⁴
- Pixels : Interleaved²⁷⁰⁵
- Pixels : SignificantBits²⁷⁰⁶
- Pixels : SizeC²⁷⁰⁷
- Pixels : SizeT²⁷⁰⁸
- Pixels : SizeX²⁷⁰⁹
- Pixels : SizeY²⁷¹⁰

²⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁶⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ²⁷¹¹
- Pixels : Type²⁷¹²
- Plane : TheC²⁷¹³
- Plane : TheT²⁷¹⁴
- Plane : TheZ²⁷¹⁵

Total supported: 19

Total unknown or missing: 457

18.2.70 JPEGReader

This page lists supported metadata fields for the Bio-Formats JPEG format reader.

These fields are from the [OME data model](#)²⁷¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁷¹⁷
- Channel : SamplesPerPixel²⁷¹⁸
- Image : AcquisitionDate²⁷¹⁹
- Image : ID²⁷²⁰
- Image : Name²⁷²¹
- Pixels : BigEndian²⁷²²
- Pixels : DimensionOrder²⁷²³
- Pixels : ID²⁷²⁴
- Pixels : Interleaved²⁷²⁵
- Pixels : SignificantBits²⁷²⁶
- Pixels : SizeC²⁷²⁷
- Pixels : SizeT²⁷²⁸

²⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁷¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX²⁷²⁹
- Pixels : SizeY²⁷³⁰
- Pixels : SizeZ²⁷³¹
- Pixels : Type²⁷³²
- Plane : TheC²⁷³³
- Plane : TheT²⁷³⁴
- Plane : TheZ²⁷³⁵

Total supported: 19

Total unknown or missing: 457

18.2.71 JPKReader

This page lists supported metadata fields for the Bio-Formats JPK Instruments format reader.

These fields are from the [OME data model](#)²⁷³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- 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 : ID²⁷³⁷
- Channel : SamplesPerPixel²⁷³⁸
- Image : AcquisitionDate²⁷³⁹
- Image : ID²⁷⁴⁰
- Image : Name²⁷⁴¹
- Pixels : BigEndian²⁷⁴²
- Pixels : DimensionOrder²⁷⁴³
- Pixels : ID²⁷⁴⁴
- Pixels : Interleaved²⁷⁴⁵
- Pixels : SignificantBits²⁷⁴⁶

²⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁷³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC²⁷⁴⁷
- Pixels : SizeT²⁷⁴⁸
- Pixels : SizeX²⁷⁴⁹
- Pixels : SizeY²⁷⁵⁰
- Pixels : SizeZ²⁷⁵¹
- Pixels : Type²⁷⁵²
- Plane : TheC²⁷⁵³
- Plane : TheT²⁷⁵⁴
- Plane : TheZ²⁷⁵⁵

Total supported: 19

Total unknown or missing: 457

18.2.72 JPXReader

This page lists supported metadata fields for the Bio-Formats JPX format reader.

These fields are from the [OME data model](#)²⁷⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁷⁵⁷
- Channel : SamplesPerPixel²⁷⁵⁸
- Image : AcquisitionDate²⁷⁵⁹
- Image : ID²⁷⁶⁰
- Image : Name²⁷⁶¹
- Pixels : BigEndian²⁷⁶²
- Pixels : DimensionOrder²⁷⁶³
- Pixels : ID²⁷⁶⁴

²⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁷⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁷⁶⁵
- Pixels : SignificantBits²⁷⁶⁶
- Pixels : SizeC²⁷⁶⁷
- Pixels : SizeT²⁷⁶⁸
- Pixels : SizeX²⁷⁶⁹
- Pixels : SizeY²⁷⁷⁰
- Pixels : SizeZ²⁷⁷¹
- Pixels : Type²⁷⁷²
- Plane : TheC²⁷⁷³
- Plane : TheT²⁷⁷⁴
- Plane : TheZ²⁷⁷⁵

Total supported: 19

Total unknown or missing: 457

18.2.73 KhorosReader

This page lists supported metadata fields for the Bio-Formats Khoros XV format reader.

These fields are from the [OME data model](#)²⁷⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁷⁷⁷
- Channel : SamplesPerPixel²⁷⁷⁸
- Image : AcquisitionDate²⁷⁷⁹
- Image : ID²⁷⁸⁰
- Image : Name²⁷⁸¹
- Pixels : BigEndian²⁷⁸²

²⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁷⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²⁷⁸³
- Pixels : ID²⁷⁸⁴
- Pixels : Interleaved²⁷⁸⁵
- Pixels : SignificantBits²⁷⁸⁶
- Pixels : SizeC²⁷⁸⁷
- Pixels : SizeT²⁷⁸⁸
- Pixels : SizeX²⁷⁸⁹
- Pixels : SizeY²⁷⁹⁰
- Pixels : SizeZ²⁷⁹¹
- Pixels : Type²⁷⁹²
- Plane : TheC²⁷⁹³
- Plane : TheT²⁷⁹⁴
- Plane : TheZ²⁷⁹⁵

Total supported: 19

Total unknown or missing: 457

18.2.74 KodakReader

This page lists supported metadata fields for the Bio-Formats Kodak Molecular Imaging format reader.

These fields are from the [OME data model](#)²⁷⁹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²⁷⁹⁷
- Channel : SamplesPerPixel²⁷⁹⁸
- Image : AcquisitionDate²⁷⁹⁹
- Image : ID²⁸⁰⁰

²⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁷⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

²⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : InstrumentRef²⁸⁰¹
- Image : Name²⁸⁰²
- ImagingEnvironment : Temperature²⁸⁰³
- Instrument : ID²⁸⁰⁴
- Microscope : Model²⁸⁰⁵
- Pixels : BigEndian²⁸⁰⁶
- Pixels : DimensionOrder²⁸⁰⁷
- Pixels : ID²⁸⁰⁸
- Pixels : Interleaved²⁸⁰⁹
- Pixels : PhysicalSizeX²⁸¹⁰
- Pixels : PhysicalSizeY²⁸¹¹
- Pixels : SignificantBits²⁸¹²
- Pixels : SizeC²⁸¹³
- Pixels : SizeT²⁸¹⁴
- Pixels : SizeX²⁸¹⁵
- Pixels : SizeY²⁸¹⁶
- Pixels : SizeZ²⁸¹⁷
- Pixels : Type²⁸¹⁸
- Plane : ExposureTime²⁸¹⁹
- Plane : TheC²⁸²⁰
- Plane : TheT²⁸²¹
- Plane : TheZ²⁸²²

Total supported: 26

Total unknown or missing: 450

18.2.75 L2DReader

This page lists supported metadata fields for the Bio-Formats Li-Cor L2D format reader.

These fields are from the [OME data model](#)²⁸²³. Bio-Formats standardizes each format's original metadata to and from the OME

- ²⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID
- ²⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name
- ²⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature
- ²⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID
- ²⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model
- ²⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
- ²⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
- ²⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
- ²⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
- ²⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX
- ²⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY
- ²⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
- ²⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
- ²⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
- ²⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
- ²⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
- ²⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
- ²⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ²⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime
- ²⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ²⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ²⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
- ²⁸²³<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 476 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 : ID²⁸²⁴
- Channel : LightSourceSettingsID²⁸²⁵
- Channel : SamplesPerPixel²⁸²⁶
- Image : AcquisitionDate²⁸²⁷
- Image : Description²⁸²⁸
- Image : ID²⁸²⁹
- Image : InstrumentRef²⁸³⁰
- Image : Name²⁸³¹
- Instrument : ID²⁸³²
- Laser : ID²⁸³³
- Laser : LaserMedium²⁸³⁴
- Laser : Type²⁸³⁵
- Laser : Wavelength²⁸³⁶
- Microscope : Model²⁸³⁷
- Microscope : Type²⁸³⁸
- Pixels : BigEndian²⁸³⁹
- Pixels : DimensionOrder²⁸⁴⁰
- Pixels : ID²⁸⁴¹
- Pixels : Interleaved²⁸⁴²
- Pixels : SignificantBits²⁸⁴³
- Pixels : SizeC²⁸⁴⁴

²⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID

²⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

²⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

²⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

²⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

²⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Microscope_Type

²⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT²⁸⁴⁵
- Pixels : SizeX²⁸⁴⁶
- Pixels : SizeY²⁸⁴⁷
- Pixels : SizeZ²⁸⁴⁸
- Pixels : Type²⁸⁴⁹
- Plane : TheC²⁸⁵⁰
- Plane : TheT²⁸⁵¹
- Plane : TheZ²⁸⁵²

Total supported: 29

Total unknown or missing: 447

18.2.76 LEORReader

This page lists supported metadata fields for the Bio-Formats LEO format reader.

These fields are from the [OME data model](#)²⁸⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID²⁸⁵⁴
- Channel : SamplesPerPixel²⁸⁵⁵
- Image : AcquisitionDate²⁸⁵⁶
- Image : ID²⁸⁵⁷
- Image : InstrumentRef²⁸⁵⁸
- Image : Name²⁸⁵⁹
- Instrument : ID²⁸⁶⁰
- Objective : Correction²⁸⁶¹
- Objective : ID²⁸⁶²

²⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁸⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

²⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

²⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

- Objective : Immersion²⁸⁶³
- Objective : WorkingDistance²⁸⁶⁴
- Pixels : BigEndian²⁸⁶⁵
- Pixels : DimensionOrder²⁸⁶⁶
- Pixels : ID²⁸⁶⁷
- Pixels : Interleaved²⁸⁶⁸
- Pixels : PhysicalSizeX²⁸⁶⁹
- Pixels : PhysicalSizeY²⁸⁷⁰
- Pixels : SignificantBits²⁸⁷¹
- Pixels : SizeC²⁸⁷²
- Pixels : SizeT²⁸⁷³
- Pixels : SizeX²⁸⁷⁴
- Pixels : SizeY²⁸⁷⁵
- Pixels : SizeZ²⁸⁷⁶
- Pixels : Type²⁸⁷⁷
- Plane : TheC²⁸⁷⁸
- Plane : TheT²⁸⁷⁹
- Plane : TheZ²⁸⁸⁰

Total supported: 27

Total unknown or missing: 449

18.2.77 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](#)²⁸⁸¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

²⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

²⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

²⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁸⁸¹<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 : Color²⁸⁸²
- Channel : ExcitationWavelength²⁸⁸³
- Channel : ID²⁸⁸⁴
- Channel : LightSourceSettingsAttenuation²⁸⁸⁵
- Channel : LightSourceSettingsID²⁸⁸⁶
- Channel : Name²⁸⁸⁷
- Channel : PinholeSize²⁸⁸⁸
- Channel : SamplesPerPixel²⁸⁸⁹
- Detector : ID²⁸⁹⁰
- Detector : Model²⁸⁹¹
- Detector : Offset²⁸⁹²
- Detector : Type²⁸⁹³
- Detector : Zoom²⁸⁹⁴
- DetectorSettings : Gain²⁸⁹⁵
- DetectorSettings : ID²⁸⁹⁶
- DetectorSettings : Offset²⁸⁹⁷
- Filter : ID²⁸⁹⁸
- Filter : Model²⁸⁹⁹
- Image : AcquisitionDate²⁹⁰⁰
- Image : Description²⁹⁰¹
- Image : ID²⁹⁰²
- Image : InstrumentRef²⁹⁰³
- Image : Name²⁹⁰⁴
- Image : ROIRef²⁹⁰⁵

²⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

²⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

²⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Attenuation

²⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID

²⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

²⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

²⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

²⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

²⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

²⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Zoom

²⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

²⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

²⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

²⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

²⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

²⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

²⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

- Instrument : ID²⁹⁰⁶
- Label : FontSize²⁹⁰⁷
- Label : ID²⁹⁰⁸
- Label : StrokeWidth²⁹⁰⁹
- Label : Text²⁹¹⁰
- Label : X²⁹¹¹
- Label : Y²⁹¹²
- Laser : ID²⁹¹³
- Laser : LaserMedium²⁹¹⁴
- Laser : Type²⁹¹⁵
- Laser : Wavelength²⁹¹⁶
- LightPath : EmissionFilterRef²⁹¹⁷
- Line : ID²⁹¹⁸
- Line : X1²⁹¹⁹
- Line : X2²⁹²⁰
- Line : Y1²⁹²¹
- Line : Y2²⁹²²
- Microscope : Model²⁹²³
- Microscope : Type²⁹²⁴
- Objective : Correction²⁹²⁵
- Objective : ID²⁹²⁶
- Objective : Immersion²⁹²⁷
- Objective : LensNA²⁹²⁸
- Objective : Model²⁹²⁹
- Objective : NominalMagnification²⁹³⁰
- Objective : SerialNumber²⁹³¹

²⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

²⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

²⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

²⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

²⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X

²⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y

²⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

²⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

²⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

²⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

²⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

²⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

²⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

²⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

²⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

²⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Microscope_Type

²⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

²⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

²⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

²⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

²⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

²⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

²⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

- ObjectiveSettings : ID²⁹³²
- ObjectiveSettings : RefractiveIndex²⁹³³
- Pixels : BigEndian²⁹³⁴
- Pixels : DimensionOrder²⁹³⁵
- Pixels : ID²⁹³⁶
- Pixels : Interleaved²⁹³⁷
- Pixels : PhysicalSizeX²⁹³⁸
- Pixels : PhysicalSizeY²⁹³⁹
- Pixels : PhysicalSizeZ²⁹⁴⁰
- Pixels : SignificantBits²⁹⁴¹
- Pixels : SizeC²⁹⁴²
- Pixels : SizeT²⁹⁴³
- Pixels : SizeX²⁹⁴⁴
- Pixels : SizeY²⁹⁴⁵
- Pixels : SizeZ²⁹⁴⁶
- Pixels : TimeIncrement²⁹⁴⁷
- Pixels : Type²⁹⁴⁸
- Plane : DeltaT²⁹⁴⁹
- Plane : ExposureTime²⁹⁵⁰
- Plane : PositionX²⁹⁵¹
- Plane : PositionY²⁹⁵²
- Plane : PositionZ²⁹⁵³
- Plane : TheC²⁹⁵⁴
- Plane : TheT²⁹⁵⁵
- Plane : TheZ²⁹⁵⁶
- Polygon : ID²⁹⁵⁷

²⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

²⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

²⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

²⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

²⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

²⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

²⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

²⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

²⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

²⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

²⁹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

²⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

- Polygon : Points²⁹⁵⁸
- ROI : ID²⁹⁵⁹
- Rectangle : Height²⁹⁶⁰
- Rectangle : ID²⁹⁶¹
- Rectangle : Width²⁹⁶²
- Rectangle : X²⁹⁶³
- Rectangle : Y²⁹⁶⁴
- TransmittanceRange : CutIn²⁹⁶⁵
- TransmittanceRange : CutOut²⁹⁶⁶

Total supported: 85

Total unknown or missing: 391

18.2.78 LIMReader

This page lists supported metadata fields for the Bio-Formats Laboratory Imaging format reader.

These fields are from the [OME data model](#)²⁹⁶⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID²⁹⁶⁸
- Channel : SamplesPerPixel²⁹⁶⁹
- Image : AcquisitionDate²⁹⁷⁰
- Image : ID²⁹⁷¹
- Image : Name²⁹⁷²
- Pixels : BigEndian²⁹⁷³
- Pixels : DimensionOrder²⁹⁷⁴
- Pixels : ID²⁹⁷⁵

²⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

²⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

²⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

²⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

²⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

²⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

²⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

²⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn

²⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut

²⁹⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

²⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved²⁹⁷⁶
- Pixels : SignificantBits²⁹⁷⁷
- Pixels : SizeC²⁹⁷⁸
- Pixels : SizeT²⁹⁷⁹
- Pixels : SizeX²⁹⁸⁰
- Pixels : SizeY²⁹⁸¹
- Pixels : SizeZ²⁹⁸²
- Pixels : Type²⁹⁸³
- Plane : TheC²⁹⁸⁴
- Plane : TheT²⁹⁸⁵
- Plane : TheZ²⁹⁸⁶

Total supported: 19

Total unknown or missing: 457

18.2.79 LegacyND2Reader

This page lists supported metadata fields for the Bio-Formats Nikon ND2 (Legacy) format reader.

These fields are from the [OME data model](#)²⁹⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon ND2 (Legacy) format reader:

- Channel : ID²⁹⁸⁸
- Channel : SamplesPerPixel²⁹⁸⁹
- Image : AcquisitionDate²⁹⁹⁰
- Image : ID²⁹⁹¹
- Image : Name²⁹⁹²
- Pixels : BigEndian²⁹⁹³

²⁹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

²⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

²⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

²⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

²⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

²⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

²⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

²⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

²⁹⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

²⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

²⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

²⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

²⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

²⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

²⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder²⁹⁹⁴
- Pixels : ID²⁹⁹⁵
- Pixels : Interleaved²⁹⁹⁶
- Pixels : SignificantBits²⁹⁹⁷
- Pixels : SizeC²⁹⁹⁸
- Pixels : SizeT²⁹⁹⁹
- Pixels : SizeX³⁰⁰⁰
- Pixels : SizeY³⁰⁰¹
- Pixels : SizeZ³⁰⁰²
- Pixels : Type³⁰⁰³
- Plane : TheC³⁰⁰⁴
- Plane : TheT³⁰⁰⁵
- Plane : TheZ³⁰⁰⁶

Total supported: 19

Total unknown or missing: 457

18.2.80 LegacyQTReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the [OME data model](#)³⁰⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁰⁰⁸
- Channel : SamplesPerPixel³⁰⁰⁹
- Image : AcquisitionDate³⁰¹⁰
- Image : ID³⁰¹¹

²⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

²⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

²⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

²⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

²⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

²⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁰⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name³⁰¹²
- Pixels : BigEndian³⁰¹³
- Pixels : DimensionOrder³⁰¹⁴
- Pixels : ID³⁰¹⁵
- Pixels : Interleaved³⁰¹⁶
- Pixels : SignificantBits³⁰¹⁷
- Pixels : SizeC³⁰¹⁸
- Pixels : SizeT³⁰¹⁹
- Pixels : SizeX³⁰²⁰
- Pixels : SizeY³⁰²¹
- Pixels : SizeZ³⁰²²
- Pixels : Type³⁰²³
- Plane : TheC³⁰²⁴
- Plane : TheT³⁰²⁵
- Plane : TheZ³⁰²⁶

Total supported: 19

Total unknown or missing: 457

18.2.81 LeicaReader

This page lists supported metadata fields for the Bio-Formats Leica format reader.

These fields are from the [OME data model](#)³⁰²⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : Color³⁰²⁸
- Channel : EmissionWavelength³⁰²⁹

³⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁰²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

³⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

- Channel : ExcitationWavelength³⁰³⁰
- Channel : ID³⁰³¹
- Channel : Name³⁰³²
- Channel : PinholeSize³⁰³³
- Channel : SamplesPerPixel³⁰³⁴
- Detector : ID³⁰³⁵
- Detector : Offset³⁰³⁶
- Detector : Type³⁰³⁷
- Detector : Voltage³⁰³⁸
- DetectorSettings : ID³⁰³⁹
- Filter : ID³⁰⁴⁰
- Filter : Model³⁰⁴¹
- Image : AcquisitionDate³⁰⁴²
- Image : Description³⁰⁴³
- Image : ID³⁰⁴⁴
- Image : InstrumentRef³⁰⁴⁵
- Image : Name³⁰⁴⁶
- Instrument : ID³⁰⁴⁷
- LightPath : EmissionFilterRef³⁰⁴⁸
- Objective : Correction³⁰⁴⁹
- Objective : ID³⁰⁵⁰
- Objective : Immersion³⁰⁵¹
- Objective : LensNA³⁰⁵²
- Objective : Model³⁰⁵³
- Objective : NominalMagnification³⁰⁵⁴
- Objective : SerialNumber³⁰⁵⁵

³⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

³⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

³⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

³⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Voltage

³⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

³⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

³⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

³⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

³⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

³⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

³⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

- ObjectiveSettings : ID³⁰⁵⁶
- ObjectiveSettings : RefractiveIndex³⁰⁵⁷
- Pixels : BigEndian³⁰⁵⁸
- Pixels : DimensionOrder³⁰⁵⁹
- Pixels : ID³⁰⁶⁰
- Pixels : Interleaved³⁰⁶¹
- Pixels : PhysicalSizeX³⁰⁶²
- Pixels : PhysicalSizeY³⁰⁶³
- Pixels : PhysicalSizeZ³⁰⁶⁴
- Pixels : SignificantBits³⁰⁶⁵
- Pixels : SizeC³⁰⁶⁶
- Pixels : SizeT³⁰⁶⁷
- Pixels : SizeX³⁰⁶⁸
- Pixels : SizeY³⁰⁶⁹
- Pixels : SizeZ³⁰⁷⁰
- Pixels : TimeIncrement³⁰⁷¹
- Pixels : Type³⁰⁷²
- Plane : DeltaT³⁰⁷³
- Plane : ExposureTime³⁰⁷⁴
- Plane : PositionX³⁰⁷⁵
- Plane : PositionY³⁰⁷⁶
- Plane : TheC³⁰⁷⁷
- Plane : TheT³⁰⁷⁸
- Plane : TheZ³⁰⁷⁹
- StageLabel : Name³⁰⁸⁰
- StageLabel : Z³⁰⁸¹

³⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

³⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Name

³⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Z

- TransmittanceRange : CutIn³⁰⁸²
- TransmittanceRange : CutOut³⁰⁸³

Total supported: 56

Total unknown or missing: 420

18.2.82 LeicaSCNReader

This page lists supported metadata fields for the Bio-Formats Leica SCN format reader.

These fields are from the [OME data model](#)³⁰⁸⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁰⁸⁵
- Channel : IlluminationType³⁰⁸⁶
- Channel : SamplesPerPixel³⁰⁸⁷
- Image : AcquisitionDate³⁰⁸⁸
- Image : Description³⁰⁸⁹
- Image : ID³⁰⁹⁰
- Image : InstrumentRef³⁰⁹¹
- Image : Name³⁰⁹²
- Instrument : ID³⁰⁹³
- Objective : CalibratedMagnification³⁰⁹⁴
- Objective : ID³⁰⁹⁵
- Objective : LensNA³⁰⁹⁶
- Objective : NominalMagnification³⁰⁹⁷
- ObjectiveSettings : ID³⁰⁹⁸
- Pixels : BigEndian³⁰⁹⁹

³⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn

³⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut

³⁰⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_IlluminationType

³⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

³⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

³⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

³⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder³¹⁰⁰
- Pixels : ID³¹⁰¹
- Pixels : Interleaved³¹⁰²
- Pixels : PhysicalSizeX³¹⁰³
- Pixels : PhysicalSizeY³¹⁰⁴
- Pixels : PhysicalSizeZ³¹⁰⁵
- Pixels : SignificantBits³¹⁰⁶
- Pixels : SizeC³¹⁰⁷
- Pixels : SizeT³¹⁰⁸
- Pixels : SizeX³¹⁰⁹
- Pixels : SizeY³¹¹⁰
- Pixels : SizeZ³¹¹¹
- Pixels : Type³¹¹²
- Plane : PositionX³¹¹³
- Plane : PositionY³¹¹⁴
- Plane : TheC³¹¹⁵
- Plane : TheT³¹¹⁶
- Plane : TheZ³¹¹⁷

Total supported: 33

Total unknown or missing: 443

18.2.83 LiFlimReader

This page lists supported metadata fields for the Bio-Formats LI-FLIM format reader.

These fields are from the OME data model³¹¹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

³¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³¹¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats LI-FLIM format reader:

- Channel : ID³¹¹⁹
- Channel : SamplesPerPixel³¹²⁰
- Image : AcquisitionDate³¹²¹
- Image : ID³¹²²
- Image : Name³¹²³
- Image : ROIRef³¹²⁴
- Pixels : BigEndian³¹²⁵
- Pixels : DimensionOrder³¹²⁶
- Pixels : ID³¹²⁷
- Pixels : Interleaved³¹²⁸
- Pixels : SignificantBits³¹²⁹
- Pixels : SizeC³¹³⁰
- Pixels : SizeT³¹³¹
- Pixels : SizeX³¹³²
- Pixels : SizeY³¹³³
- Pixels : SizeZ³¹³⁴
- Pixels : Type³¹³⁵
- Plane : DeltaT³¹³⁶
- Plane : ExposureTime³¹³⁷
- Plane : TheC³¹³⁸
- Plane : TheT³¹³⁹
- Plane : TheZ³¹⁴⁰
- Polygon : ID³¹⁴¹
- Polygon : Points³¹⁴²

³¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

³¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

³¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

- ROI : ID³¹⁴³

Total supported: 25

Total unknown or missing: 451

18.2.84 MIASReader

This page lists supported metadata fields for the Bio-Formats MIAS format reader.

These fields are from the [OME data model](#)³¹⁴⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 65 of them (13%).
- Of those, Bio-Formats fully or partially converts 65 (100%).

Supported fields

These fields are fully supported by the Bio-Formats MIAS format reader:

- Channel : Color³¹⁴⁵
- Channel : ID³¹⁴⁶
- Channel : Name³¹⁴⁷
- Channel : SamplesPerPixel³¹⁴⁸
- Ellipse : ID³¹⁴⁹
- Ellipse : RadiusX³¹⁵⁰
- Ellipse : RadiusY³¹⁵¹
- Ellipse : Text³¹⁵²
- Ellipse : TheT³¹⁵³
- Ellipse : TheZ³¹⁵⁴
- Ellipse : X³¹⁵⁵
- Ellipse : Y³¹⁵⁶
- Experiment : Description³¹⁵⁷
- Experiment : ID³¹⁵⁸
- Experiment : Type³¹⁵⁹
- Image : AcquisitionDate³¹⁶⁰

³¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

³¹⁴⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

³¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

³¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

³¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

³¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

³¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheT

³¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_TheZ

³¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

³¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

³¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Description

³¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID

³¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type

³¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

- Image : ExperimentRef³¹⁶¹
- Image : ID³¹⁶²
- Image : InstrumentRef³¹⁶³
- Image : Name³¹⁶⁴
- Image : ROIRef³¹⁶⁵
- Instrument : ID³¹⁶⁶
- Mask : BinData³¹⁶⁷
- Mask : FillColor³¹⁶⁸
- Mask : Height³¹⁶⁹
- Mask : ID³¹⁷⁰
- Mask : StrokeColor³¹⁷¹
- Mask : Width³¹⁷²
- Mask : X³¹⁷³
- Mask : Y³¹⁷⁴
- Objective : ID³¹⁷⁵
- Objective : Model³¹⁷⁶
- Objective : NominalMagnification³¹⁷⁷
- Pixels : BigEndian³¹⁷⁸
- Pixels : DimensionOrder³¹⁷⁹
- Pixels : ID³¹⁸⁰
- Pixels : Interleaved³¹⁸¹
- Pixels : PhysicalSizeX³¹⁸²
- Pixels : PhysicalSizeY³¹⁸³
- Pixels : SignificantBits³¹⁸⁴
- Pixels : SizeC³¹⁸⁵
- Pixels : SizeT³¹⁸⁶

³¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimentRef_ID

³¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

³¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData

³¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FillColor

³¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Height

³¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

³¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeColor

³¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Width

³¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_X

³¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Y

³¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

³¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³¹⁸⁷
- Pixels : SizeY³¹⁸⁸
- Pixels : SizeZ³¹⁸⁹
- Pixels : Type³¹⁹⁰
- Plane : ExposureTime³¹⁹¹
- Plane : TheC³¹⁹²
- Plane : TheT³¹⁹³
- Plane : TheZ³¹⁹⁴
- Plate : ColumnNamingConvention³¹⁹⁵
- Plate : ExternalIdentifier³¹⁹⁶
- Plate : ID³¹⁹⁷
- Plate : Name³¹⁹⁸
- Plate : RowNamingConvention³¹⁹⁹
- PlateAcquisition : ID³²⁰⁰
- PlateAcquisition : MaximumFieldCount³²⁰¹
- PlateAcquisition : WellSampleRef³²⁰²
- ROI : ID³²⁰³
- Well : Column³²⁰⁴
- Well : ID³²⁰⁵
- Well : Row³²⁰⁶
- WellSample : ID³²⁰⁷
- WellSample : ImageRef³²⁰⁸
- WellSample : Index³²⁰⁹

Total supported: 65

Total unknown or missing: 411

³¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

³¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ExternalIdentifier

³¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

³¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

³¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

³²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

³²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

³²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID

³²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

³²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

³²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

³²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

³²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

³²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

³²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

18.2.85 MINCReader

This page lists supported metadata fields for the Bio-Formats MINC MRI format reader.

These fields are from the [OME data model](#)³²¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³²¹¹
- Channel : SamplesPerPixel³²¹²
- Image : AcquisitionDate³²¹³
- Image : Description³²¹⁴
- Image : ID³²¹⁵
- Image : Name³²¹⁶
- Pixels : BigEndian³²¹⁷
- Pixels : DimensionOrder³²¹⁸
- Pixels : ID³²¹⁹
- Pixels : Interleaved³²²⁰
- Pixels : PhysicalSizeX³²²¹
- Pixels : PhysicalSizeY³²²²
- Pixels : PhysicalSizeZ³²²³
- Pixels : SignificantBits³²²⁴
- Pixels : SizeC³²²⁵
- Pixels : SizeT³²²⁶
- Pixels : SizeX³²²⁷
- Pixels : SizeY³²²⁸

³²¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

³²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ³²²⁹
- Pixels : Type³²³⁰
- Plane : TheC³²³¹
- Plane : TheT³²³²
- Plane : TheZ³²³³

Total supported: 23

Total unknown or missing: 453

18.2.86 MNGReader

This page lists supported metadata fields for the Bio-Formats Multiple-image Network Graphics format reader.

These fields are from the [OME data model](#)³²³⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Multiple-image Network Graphics format reader:

- Channel : ID³²³⁵
- Channel : SamplesPerPixel³²³⁶
- Image : AcquisitionDate³²³⁷
- Image : ID³²³⁸
- Image : Name³²³⁹
- Pixels : BigEndian³²⁴⁰
- Pixels : DimensionOrder³²⁴¹
- Pixels : ID³²⁴²
- Pixels : Interleaved³²⁴³
- Pixels : SignificantBits³²⁴⁴
- Pixels : SizeC³²⁴⁵
- Pixels : SizeT³²⁴⁶

³²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³²³⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³²⁴⁷
- Pixels : SizeY³²⁴⁸
- Pixels : SizeZ³²⁴⁹
- Pixels : Type³²⁵⁰
- Plane : TheC³²⁵¹
- Plane : TheT³²⁵²
- Plane : TheZ³²⁵³

Total supported: 19

Total unknown or missing: 457

18.2.87 MRCReader

This page lists supported metadata fields for the Bio-Formats Medical Research Council format reader.

These fields are from the [OME data model](#)³²⁵⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³²⁵⁵
- Channel : SamplesPerPixel³²⁵⁶
- Image : AcquisitionDate³²⁵⁷
- Image : ID³²⁵⁸
- Image : Name³²⁵⁹
- Pixels : BigEndian³²⁶⁰
- Pixels : DimensionOrder³²⁶¹
- Pixels : ID³²⁶²
- Pixels : Interleaved³²⁶³
- Pixels : PhysicalSizeX³²⁶⁴

³²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³²⁵⁴<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY³²⁶⁵
- Pixels : PhysicalSizeZ³²⁶⁶
- Pixels : SignificantBits³²⁶⁷
- Pixels : SizeC³²⁶⁸
- Pixels : SizeT³²⁶⁹
- Pixels : SizeX³²⁷⁰
- Pixels : SizeY³²⁷¹
- Pixels : SizeZ³²⁷²
- Pixels : Type³²⁷³
- Plane : TheC³²⁷⁴
- Plane : TheT³²⁷⁵
- Plane : TheZ³²⁷⁶

Total supported: 22

Total unknown or missing: 454

18.2.88 MRWReader

This page lists supported metadata fields for the Bio-Formats Minolta MRW format reader.

These fields are from the OME data model³²⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³²⁷⁸
- Channel : SamplesPerPixel³²⁷⁹
- Image : AcquisitionDate³²⁸⁰
- Image : ID³²⁸¹
- Image : Name³²⁸²

³²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³²⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³²⁸³
- Pixels : DimensionOrder³²⁸⁴
- Pixels : ID³²⁸⁵
- Pixels : Interleaved³²⁸⁶
- Pixels : SignificantBits³²⁸⁷
- Pixels : SizeC³²⁸⁸
- Pixels : SizeT³²⁸⁹
- Pixels : SizeX³²⁹⁰
- Pixels : SizeY³²⁹¹
- Pixels : SizeZ³²⁹²
- Pixels : Type³²⁹³
- Plane : TheC³²⁹⁴
- Plane : TheT³²⁹⁵
- Plane : TheZ³²⁹⁶

Total supported: 19

Total unknown or missing: 457

18.2.89 MetamorphReader

This page lists supported metadata fields for the Bio-Formats Metamorph STK format reader.

These fields are from the OME data model³²⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 46 of them (9%).
- Of those, Bio-Formats fully or partially converts 46 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Metamorph STK format reader:

- Channel : ID³²⁹⁸
- Channel : LightSourceSettingsID³²⁹⁹
- Channel : LightSourceSettingsWavelength³³⁰⁰

³²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³²⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_ID

³³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSourceSettings_Wavelength

- Channel : Name³³⁰¹
- Channel : SamplesPerPixel³³⁰²
- Detector : ID³³⁰³
- Detector : Type³³⁰⁴
- DetectorSettings : Binning³³⁰⁵
- DetectorSettings : Gain³³⁰⁶
- DetectorSettings : ID³³⁰⁷
- DetectorSettings : ReadOutRate³³⁰⁸
- Image : AcquisitionDate³³⁰⁹
- Image : Description³³¹⁰
- Image : ID³³¹¹
- Image : InstrumentRef³³¹²
- Image : Name³³¹³
- ImagingEnvironment : Temperature³³¹⁴
- Instrument : ID³³¹⁵
- Laser : ID³³¹⁶
- Laser : LaserMedium³³¹⁷
- Laser : Type³³¹⁸
- Objective : ID³³¹⁹
- Objective : LensNA³³²⁰
- ObjectiveSettings : ID³³²¹
- Pixels : BigEndian³³²²
- Pixels : DimensionOrder³³²³
- Pixels : ID³³²⁴
- Pixels : Interleaved³³²⁵
- Pixels : PhysicalSizeX³³²⁶

³³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

³³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

³³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate

³³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

³³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

³³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

³³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

³³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

³³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY³³²⁷
- Pixels : PhysicalSizeZ³³²⁸
- Pixels : SignificantBits³³²⁹
- Pixels : SizeC³³³⁰
- Pixels : SizeT³³³¹
- Pixels : SizeX³³³²
- Pixels : SizeY³³³³
- Pixels : SizeZ³³³⁴
- Pixels : Type³³³⁵
- Plane : DeltaT³³³⁶
- Plane : ExposureTime³³³⁷
- Plane : PositionX³³³⁸
- Plane : PositionY³³³⁹
- Plane : PositionZ³³⁴⁰
- Plane : TheC³³⁴¹
- Plane : TheT³³⁴²
- Plane : TheZ³³⁴³

Total supported: 46

Total unknown or missing: 430

18.2.90 MetamorphTiffReader

This page lists supported metadata fields for the Bio-Formats Metamorph TIFF format reader.

These fields are from the OME data model³³⁴⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 38 of them (7%).
- Of those, Bio-Formats fully or partially converts 38 (100%).

³³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

³³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³³⁴⁴<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Metamorph TIFF format reader:

- Channel : ID³³⁴⁵
- Channel : Name³³⁴⁶
- Channel : SamplesPerPixel³³⁴⁷
- Image : AcquisitionDate³³⁴⁸
- Image : Description³³⁴⁹
- Image : ID³³⁵⁰
- Image : Name³³⁵¹
- ImagingEnvironment : Temperature³³⁵²
- Pixels : BigEndian³³⁵³
- Pixels : DimensionOrder³³⁵⁴
- Pixels : ID³³⁵⁵
- Pixels : Interleaved³³⁵⁶
- Pixels : PhysicalSizeX³³⁵⁷
- Pixels : PhysicalSizeY³³⁵⁸
- Pixels : PhysicalSizeZ³³⁵⁹
- Pixels : SignificantBits³³⁶⁰
- Pixels : SizeC³³⁶¹
- Pixels : SizeT³³⁶²
- Pixels : SizeX³³⁶³
- Pixels : SizeY³³⁶⁴
- Pixels : SizeZ³³⁶⁵
- Pixels : Type³³⁶⁶
- Plane : DeltaT³³⁶⁷
- Plane : ExposureTime³³⁶⁸

³³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

³³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

- Plane : PositionX³³⁶⁹
- Plane : PositionY³³⁷⁰
- Plane : TheC³³⁷¹
- Plane : TheT³³⁷²
- Plane : TheZ³³⁷³
- Plate : ColumnNamingConvention³³⁷⁴
- Plate : ID³³⁷⁵
- Plate : RowNamingConvention³³⁷⁶
- Well : Column³³⁷⁷
- Well : ID³³⁷⁸
- Well : Row³³⁷⁹
- WellSample : ID³³⁸⁰
- WellSample : ImageRef³³⁸¹
- WellSample : Index³³⁸²

Total supported: 38

Total unknown or missing: 438

18.2.91 MicromanageReader

This page lists supported metadata fields for the Bio-Formats Micro-Manager format reader.

These fields are from the OME data model³³⁸³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 41 of them (8%).
- Of those, Bio-Formats fully or partially converts 41 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Micro-Manager format reader:

- Channel : ID³³⁸⁴
- Channel : Name³³⁸⁵
- Channel : SamplesPerPixel³³⁸⁶

³³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

³³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

³³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

³³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

³³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

³³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

³³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

³³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

³³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

³³⁸³<http://www.openmicroscopy.org/site/support/ome-model/>

³³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Detector : ID³³⁸⁷
- Detector : Manufacturer³³⁸⁸
- Detector : Model³³⁸⁹
- Detector : SerialNumber³³⁹⁰
- Detector : Type³³⁹¹
- DetectorSettings : Binning³³⁹²
- DetectorSettings : Gain³³⁹³
- DetectorSettings : ID³³⁹⁴
- DetectorSettings : Voltage³³⁹⁵
- Image : AcquisitionDate³³⁹⁶
- Image : Description³³⁹⁷
- Image : ID³³⁹⁸
- Image : InstrumentRef³³⁹⁹
- Image : Name³⁴⁰⁰
- ImagingEnvironment : Temperature³⁴⁰¹
- Instrument : ID³⁴⁰²
- Pixels : BigEndian³⁴⁰³
- Pixels : DimensionOrder³⁴⁰⁴
- Pixels : ID³⁴⁰⁵
- Pixels : Interleaved³⁴⁰⁶
- Pixels : PhysicalSizeX³⁴⁰⁷
- Pixels : PhysicalSizeY³⁴⁰⁸
- Pixels : PhysicalSizeZ³⁴⁰⁹
- Pixels : SignificantBits³⁴¹⁰
- Pixels : SizeC³⁴¹¹
- Pixels : SizeT³⁴¹²

³³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

³³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

³³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

³³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

³³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

³³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁴¹³
- Pixels : SizeY³⁴¹⁴
- Pixels : SizeZ³⁴¹⁵
- Pixels : Type³⁴¹⁶
- Plane : DeltaT³⁴¹⁷
- Plane : ExposureTime³⁴¹⁸
- Plane : PositionX³⁴¹⁹
- Plane : PositionY³⁴²⁰
- Plane : PositionZ³⁴²¹
- Plane : TheC³⁴²²
- Plane : TheT³⁴²³
- Plane : TheZ³⁴²⁴

Total supported: 41

Total unknown or missing: 435

18.2.92 MinimalTiffReader

This page lists supported metadata fields for the Bio-Formats Minimal TIFF format reader.

These fields are from the [OME data model](#)³⁴²⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Minimal TIFF format reader:

- Channel : ID³⁴²⁶
- Channel : SamplesPerPixel³⁴²⁷
- Image : AcquisitionDate³⁴²⁸
- Image : ID³⁴²⁹
- Image : Name³⁴³⁰

³⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

³⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁴²⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

- Pixels : BigEndian³⁴³¹
- Pixels : DimensionOrder³⁴³²
- Pixels : ID³⁴³³
- Pixels : Interleaved³⁴³⁴
- Pixels : SignificantBits³⁴³⁵
- Pixels : SizeC³⁴³⁶
- Pixels : SizeT³⁴³⁷
- Pixels : SizeX³⁴³⁸
- Pixels : SizeY³⁴³⁹
- Pixels : SizeZ³⁴⁴⁰
- Pixels : Type³⁴⁴¹
- Plane : TheC³⁴⁴²
- Plane : TheT³⁴⁴³
- Plane : TheZ³⁴⁴⁴

Total supported: 19

Total unknown or missing: 457

18.2.93 MolecularImagingReader

This page lists supported metadata fields for the Bio-Formats Molecular Imaging format reader.

These fields are from the OME data model³⁴⁴⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁴⁴⁶
- Channel : SamplesPerPixel³⁴⁴⁷
- Image : AcquisitionDate³⁴⁴⁸

³⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁴⁴⁵<http://www.openmicroscopy.org/site/support/ome-model/>

³⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID³⁴⁴⁹
- Image : Name³⁴⁵⁰
- Pixels : BigEndian³⁴⁵¹
- Pixels : DimensionOrder³⁴⁵²
- Pixels : ID³⁴⁵³
- Pixels : Interleaved³⁴⁵⁴
- Pixels : PhysicalSizeX³⁴⁵⁵
- Pixels : PhysicalSizeY³⁴⁵⁶
- Pixels : SignificantBits³⁴⁵⁷
- Pixels : SizeC³⁴⁵⁸
- Pixels : SizeT³⁴⁵⁹
- Pixels : SizeX³⁴⁶⁰
- Pixels : SizeY³⁴⁶¹
- Pixels : SizeZ³⁴⁶²
- Pixels : Type³⁴⁶³
- Plane : TheC³⁴⁶⁴
- Plane : TheT³⁴⁶⁵
- Plane : TheZ³⁴⁶⁶

Total supported: 21

Total unknown or missing: 455

18.2.94 NAFReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu Aquacosmos 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 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

³⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁴⁶⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu Aquacosmos format reader:

- Channel : ID³⁴⁶⁸
- Channel : SamplesPerPixel³⁴⁶⁹
- Image : AcquisitionDate³⁴⁷⁰
- Image : ID³⁴⁷¹
- Image : Name³⁴⁷²
- Pixels : BigEndian³⁴⁷³
- Pixels : DimensionOrder³⁴⁷⁴
- Pixels : ID³⁴⁷⁵
- Pixels : Interleaved³⁴⁷⁶
- Pixels : SignificantBits³⁴⁷⁷
- Pixels : SizeC³⁴⁷⁸
- Pixels : SizeT³⁴⁷⁹
- Pixels : SizeX³⁴⁸⁰
- Pixels : SizeY³⁴⁸¹
- Pixels : SizeZ³⁴⁸²
- Pixels : Type³⁴⁸³
- Plane : TheC³⁴⁸⁴
- Plane : TheT³⁴⁸⁵
- Plane : TheZ³⁴⁸⁶

Total supported: 19

Total unknown or missing: 457

18.2.95 ND2Reader

This page lists supported metadata fields for the Bio-Formats Nikon ND2 format reader.

These fields are from the OME data model³⁴⁸⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

³⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁴⁸⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Nikon ND2 format reader:

- Channel : ID³⁴⁸⁸
- Channel : SamplesPerPixel³⁴⁸⁹
- Image : AcquisitionDate³⁴⁹⁰
- Image : ID³⁴⁹¹
- Image : Name³⁴⁹²
- Pixels : BigEndian³⁴⁹³
- Pixels : DimensionOrder³⁴⁹⁴
- Pixels : ID³⁴⁹⁵
- Pixels : Interleaved³⁴⁹⁶
- Pixels : SignificantBits³⁴⁹⁷
- Pixels : SizeC³⁴⁹⁸
- Pixels : SizeT³⁴⁹⁹
- Pixels : SizeX³⁵⁰⁰
- Pixels : SizeY³⁵⁰¹
- Pixels : SizeZ³⁵⁰²
- Pixels : Type³⁵⁰³
- Plane : TheC³⁵⁰⁴
- Plane : TheT³⁵⁰⁵
- Plane : TheZ³⁵⁰⁶

Total supported: 19

Total unknown or missing: 457

³⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.96 NDPIReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu NDPI format reader.

These fields are from the [OME data model](#)³⁵⁰⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 28 of them (5%).
- Of those, Bio-Formats fully or partially converts 28 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu NDPI format reader:

- Channel : ID³⁵⁰⁸
- Channel : SamplesPerPixel³⁵⁰⁹
- Image : AcquisitionDate³⁵¹⁰
- Image : Description³⁵¹¹
- Image : ID³⁵¹²
- Image : InstrumentRef³⁵¹³
- Image : Name³⁵¹⁴
- Instrument : ID³⁵¹⁵
- Microscope : Model³⁵¹⁶
- Objective : ID³⁵¹⁷
- Objective : NominalMagnification³⁵¹⁸
- ObjectiveSettings : ID³⁵¹⁹
- Pixels : BigEndian³⁵²⁰
- Pixels : DimensionOrder³⁵²¹
- Pixels : ID³⁵²²
- Pixels : Interleaved³⁵²³
- Pixels : PhysicalSizeX³⁵²⁴
- Pixels : PhysicalSizeY³⁵²⁵
- Pixels : SignificantBits³⁵²⁶

³⁵⁰⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

³⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC³⁵²⁷
- Pixels : SizeT³⁵²⁸
- Pixels : SizeX³⁵²⁹
- Pixels : SizeY³⁵³⁰
- Pixels : SizeZ³⁵³¹
- Pixels : Type³⁵³²
- Plane : TheC³⁵³³
- Plane : TheT³⁵³⁴
- Plane : TheZ³⁵³⁵

Total supported: 28

Total unknown or missing: 448

18.2.97 NDPISReader

This page lists supported metadata fields for the Bio-Formats Hamamatsu NDPIS format reader.

These fields are from the [OME data model](#)³⁵³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Hamamatsu NDPIS format reader:

- Channel : ID³⁵³⁷
- Channel : SamplesPerPixel³⁵³⁸
- Image : AcquisitionDate³⁵³⁹
- Image : ID³⁵⁴⁰
- Image : Name³⁵⁴¹
- Pixels : BigEndian³⁵⁴²
- Pixels : DimensionOrder³⁵⁴³
- Pixels : ID³⁵⁴⁴

³⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁵³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved³⁵⁴⁵
- Pixels : SignificantBits³⁵⁴⁶
- Pixels : SizeC³⁵⁴⁷
- Pixels : SizeT³⁵⁴⁸
- Pixels : SizeX³⁵⁴⁹
- Pixels : SizeY³⁵⁵⁰
- Pixels : SizeZ³⁵⁵¹
- Pixels : Type³⁵⁵²
- Plane : TheC³⁵⁵³
- Plane : TheT³⁵⁵⁴
- Plane : TheZ³⁵⁵⁵

Total supported: 19

Total unknown or missing: 457

18.2.98 NRRDReader

This page lists supported metadata fields for the Bio-Formats NRRD format reader.

These fields are from the [OME data model](#)³⁵⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁵⁵⁷
- Channel : SamplesPerPixel³⁵⁵⁸
- Image : AcquisitionDate³⁵⁵⁹
- Image : ID³⁵⁶⁰
- Image : Name³⁵⁶¹
- Pixels : BigEndian³⁵⁶²

³⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁵⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder³⁵⁶³
- Pixels : ID³⁵⁶⁴
- Pixels : Interleaved³⁵⁶⁵
- Pixels : PhysicalSizeX³⁵⁶⁶
- Pixels : PhysicalSizeY³⁵⁶⁷
- Pixels : PhysicalSizeZ³⁵⁶⁸
- Pixels : SignificantBits³⁵⁶⁹
- Pixels : SizeC³⁵⁷⁰
- Pixels : SizeT³⁵⁷¹
- Pixels : SizeX³⁵⁷²
- Pixels : SizeY³⁵⁷³
- Pixels : SizeZ³⁵⁷⁴
- Pixels : Type³⁵⁷⁵
- Plane : TheC³⁵⁷⁶
- Plane : TheT³⁵⁷⁷
- Plane : TheZ³⁵⁷⁸

Total supported: 22

Total unknown or missing: 454

18.2.99 NativeND2Reader

This page lists supported metadata fields for the Bio-Formats Nikon ND2 format reader.

These fields are from the OME data model³⁵⁷⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : AcquisitionMode³⁵⁸⁰

³⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁵⁷⁹<http://www.openmicroscopy.org/site/support/ome-model/>

³⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_AcquisitionMode

- Channel : Color³⁵⁸¹
- Channel : EmissionWavelength³⁵⁸²
- Channel : ExcitationWavelength³⁵⁸³
- Channel : ID³⁵⁸⁴
- Channel : Name³⁵⁸⁵
- Channel : PinholeSize³⁵⁸⁶
- Channel : SamplesPerPixel³⁵⁸⁷
- Detector : ID³⁵⁸⁸
- Detector : Model³⁵⁸⁹
- Detector : Type³⁵⁹⁰
- DetectorSettings : Binning³⁵⁹¹
- DetectorSettings : Gain³⁵⁹²
- DetectorSettings : ID³⁵⁹³
- DetectorSettings : ReadOutRate³⁵⁹⁴
- DetectorSettings : Voltage³⁵⁹⁵
- Image : AcquisitionDate³⁵⁹⁶
- Image : ID³⁵⁹⁷
- Image : InstrumentRef³⁵⁹⁸
- Image : Name³⁵⁹⁹
- ImagingEnvironment : Temperature³⁶⁰⁰
- Instrument : ID³⁶⁰¹
- Objective : CalibratedMagnification³⁶⁰²
- Objective : Correction³⁶⁰³
- Objective : ID³⁶⁰⁴
- Objective : Immersion³⁶⁰⁵
- Objective : LensNA³⁶⁰⁶

³⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

³⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

³⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

³⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

³⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

³⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

³⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate

³⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

³⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

³⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

³⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

³⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

- Objective : Model³⁶⁰⁷
- ObjectiveSettings : ID³⁶⁰⁸
- ObjectiveSettings : RefractiveIndex³⁶⁰⁹
- Pixels : BigEndian³⁶¹⁰
- Pixels : DimensionOrder³⁶¹¹
- Pixels : ID³⁶¹²
- Pixels : Interleaved³⁶¹³
- Pixels : PhysicalSizeX³⁶¹⁴
- Pixels : PhysicalSizeY³⁶¹⁵
- Pixels : PhysicalSizeZ³⁶¹⁶
- Pixels : SignificantBits³⁶¹⁷
- Pixels : SizeC³⁶¹⁸
- Pixels : SizeT³⁶¹⁹
- Pixels : SizeX³⁶²⁰
- Pixels : SizeY³⁶²¹
- Pixels : SizeZ³⁶²²
- Pixels : Type³⁶²³
- Plane : DeltaT³⁶²⁴
- Plane : ExposureTime³⁶²⁵
- Plane : PositionX³⁶²⁶
- Plane : PositionY³⁶²⁷
- Plane : PositionZ³⁶²⁸
- Plane : TheC³⁶²⁹
- Plane : TheT³⁶³⁰
- Plane : TheZ³⁶³¹

Total supported: 52

Total unknown or missing: 424

³⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

³⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³⁶²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

³⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.100 NativeQTReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the [OME data model](#)³⁶³². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁶³³
- Channel : SamplesPerPixel³⁶³⁴
- Image : AcquisitionDate³⁶³⁵
- Image : ID³⁶³⁶
- Image : Name³⁶³⁷
- Pixels : BigEndian³⁶³⁸
- Pixels : DimensionOrder³⁶³⁹
- Pixels : ID³⁶⁴⁰
- Pixels : Interleaved³⁶⁴¹
- Pixels : SignificantBits³⁶⁴²
- Pixels : SizeC³⁶⁴³
- Pixels : SizeT³⁶⁴⁴
- Pixels : SizeX³⁶⁴⁵
- Pixels : SizeY³⁶⁴⁶
- Pixels : SizeZ³⁶⁴⁷
- Pixels : Type³⁶⁴⁸
- Plane : TheC³⁶⁴⁹
- Plane : TheT³⁶⁵⁰

³⁶³²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁶⁵¹

Total supported: 19

Total unknown or missing: 457

18.2.101 NiftiReader

This page lists supported metadata fields for the Bio-Formats NIFTI format reader.

These fields are from the [OME data model](#)³⁶⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁶⁵³
- Channel : SamplesPerPixel³⁶⁵⁴
- Image : AcquisitionDate³⁶⁵⁵
- Image : Description³⁶⁵⁶
- Image : ID³⁶⁵⁷
- Image : Name³⁶⁵⁸
- Pixels : BigEndian³⁶⁵⁹
- Pixels : DimensionOrder³⁶⁶⁰
- Pixels : ID³⁶⁶¹
- Pixels : Interleaved³⁶⁶²
- Pixels : PhysicalSizeX³⁶⁶³
- Pixels : PhysicalSizeY³⁶⁶⁴
- Pixels : PhysicalSizeZ³⁶⁶⁵
- Pixels : SignificantBits³⁶⁶⁶
- Pixels : SizeC³⁶⁶⁷
- Pixels : SizeT³⁶⁶⁸

³⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁶⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁶⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁶⁶⁹
- Pixels : SizeY³⁶⁷⁰
- Pixels : SizeZ³⁶⁷¹
- Pixels : TimeIncrement³⁶⁷²
- Pixels : Type³⁶⁷³
- Plane : TheC³⁶⁷⁴
- Plane : TheT³⁶⁷⁵
- Plane : TheZ³⁶⁷⁶

Total supported: 24

Total unknown or missing: 452

18.2.102 NikonElementsTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon Elements TIFF format reader.

These fields are from the OME data model³⁶⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : AcquisitionMode³⁶⁷⁸
- Channel : EmissionWavelength³⁶⁷⁹
- Channel : ExcitationWavelength³⁶⁸⁰
- Channel : ID³⁶⁸¹
- Channel : Name³⁶⁸²
- Channel : PinholeSize³⁶⁸³
- Channel : SamplesPerPixel³⁶⁸⁴
- Detector : ID³⁶⁸⁵
- Detector : Model³⁶⁸⁶

³⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

³⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁶⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

³⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_AcquisitionMode

³⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

³⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

³⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

³⁶⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

- Detector : Type³⁶⁸⁷
- DetectorSettings : Binning³⁶⁸⁸
- DetectorSettings : Gain³⁶⁸⁹
- DetectorSettings : ID³⁶⁹⁰
- DetectorSettings : ReadOutRate³⁶⁹¹
- DetectorSettings : Voltage³⁶⁹²
- Image : AcquisitionDate³⁶⁹³
- Image : ID³⁶⁹⁴
- Image : InstrumentRef³⁶⁹⁵
- Image : Name³⁶⁹⁶
- ImagingEnvironment : Temperature³⁶⁹⁷
- Instrument : ID³⁶⁹⁸
- Objective : CalibratedMagnification³⁶⁹⁹
- Objective : Correction³⁷⁰⁰
- Objective : ID³⁷⁰¹
- Objective : Immersion³⁷⁰²
- Objective : LensNA³⁷⁰³
- Objective : Model³⁷⁰⁴
- ObjectiveSettings : ID³⁷⁰⁵
- ObjectiveSettings : RefractiveIndex³⁷⁰⁶
- Pixels : BigEndian³⁷⁰⁷
- Pixels : DimensionOrder³⁷⁰⁸
- Pixels : ID³⁷⁰⁹
- Pixels : Interleaved³⁷¹⁰
- Pixels : PhysicalSizeX³⁷¹¹
- Pixels : PhysicalSizeY³⁷¹²

³⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

³⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

³⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ReadOutRate

³⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Voltage

³⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

³⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

³⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

³⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

³⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

³⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

³⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

³⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

³⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : PhysicalSizeZ³⁷¹³
- Pixels : SignificantBits³⁷¹⁴
- Pixels : SizeC³⁷¹⁵
- Pixels : SizeT³⁷¹⁶
- Pixels : SizeX³⁷¹⁷
- Pixels : SizeY³⁷¹⁸
- Pixels : SizeZ³⁷¹⁹
- Pixels : Type³⁷²⁰
- Plane : ExposureTime³⁷²¹
- Plane : PositionX³⁷²²
- Plane : PositionY³⁷²³
- Plane : PositionZ³⁷²⁴
- Plane : TheC³⁷²⁵
- Plane : TheT³⁷²⁶
- Plane : TheZ³⁷²⁷

Total supported: 50

Total unknown or missing: 426

18.2.103 NikonReader

This page lists supported metadata fields for the Bio-Formats Nikon NEF format reader.

These fields are from the [OME data model](#)³⁷²⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁷²⁹
- Channel : SamplesPerPixel³⁷³⁰

³⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

³⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁷¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

³⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

³⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁷²⁸<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate³⁷³¹
- Image : ID³⁷³²
- Image : Name³⁷³³
- Pixels : BigEndian³⁷³⁴
- Pixels : DimensionOrder³⁷³⁵
- Pixels : ID³⁷³⁶
- Pixels : Interleaved³⁷³⁷
- Pixels : SignificantBits³⁷³⁸
- Pixels : SizeC³⁷³⁹
- Pixels : SizeT³⁷⁴⁰
- Pixels : SizeX³⁷⁴¹
- Pixels : SizeY³⁷⁴²
- Pixels : SizeZ³⁷⁴³
- Pixels : Type³⁷⁴⁴
- Plane : TheC³⁷⁴⁵
- Plane : TheT³⁷⁴⁶
- Plane : TheZ³⁷⁴⁷

Total supported: 19

Total unknown or missing: 457

18.2.104 NikonTiffReader

This page lists supported metadata fields for the Bio-Formats Nikon TIFF format reader.

These fields are from the [OME data model](#)³⁷⁴⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

³⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁷⁴⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Nikon TIFF format reader:

- Channel : EmissionWavelength³⁷⁴⁹
- Channel : ExcitationWavelength³⁷⁵⁰
- Channel : ID³⁷⁵¹
- Channel : PinholeSize³⁷⁵²
- Channel : SamplesPerPixel³⁷⁵³
- Detector : Gain³⁷⁵⁴
- Detector : ID³⁷⁵⁵
- Detector : Type³⁷⁵⁶
- Dichroic : ID³⁷⁵⁷
- Dichroic : Model³⁷⁵⁸
- Filter : ID³⁷⁵⁹
- Filter : Model³⁷⁶⁰
- Image : AcquisitionDate³⁷⁶¹
- Image : Description³⁷⁶²
- Image : ID³⁷⁶³
- Image : InstrumentRef³⁷⁶⁴
- Image : Name³⁷⁶⁵
- Instrument : ID³⁷⁶⁶
- Laser : ID³⁷⁶⁷
- Laser : LaserMedium³⁷⁶⁸
- Laser : Model³⁷⁶⁹
- Laser : Type³⁷⁷⁰
- Laser : Wavelength³⁷⁷¹
- Objective : Correction³⁷⁷²

³⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

³⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

³⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

³⁷⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

³⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

³⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

³⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

³⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

³⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

³⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

³⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

³⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

- Objective : ID³⁷⁷³
- Objective : Immersion³⁷⁷⁴
- Objective : LensNA³⁷⁷⁵
- Objective : NominalMagnification³⁷⁷⁶
- Objective : WorkingDistance³⁷⁷⁷
- ObjectiveSettings : ID³⁷⁷⁸
- Pixels : BigEndian³⁷⁷⁹
- Pixels : DimensionOrder³⁷⁸⁰
- Pixels : ID³⁷⁸¹
- Pixels : Interleaved³⁷⁸²
- Pixels : PhysicalSizeX³⁷⁸³
- Pixels : PhysicalSizeY³⁷⁸⁴
- Pixels : PhysicalSizeZ³⁷⁸⁵
- Pixels : SignificantBits³⁷⁸⁶
- Pixels : SizeC³⁷⁸⁷
- Pixels : SizeT³⁷⁸⁸
- Pixels : SizeX³⁷⁸⁹
- Pixels : SizeY³⁷⁹⁰
- Pixels : SizeZ³⁷⁹¹
- Pixels : Type³⁷⁹²
- Plane : TheC³⁷⁹³
- Plane : TheT³⁷⁹⁴
- Plane : TheZ³⁷⁹⁵

Total supported: 47

Total unknown or missing: 429

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- ³⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID
 - ³⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion
 - ³⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA
 - ³⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification
 - ³⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance
 - ³⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID
 - ³⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
 - ³⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
 - ³⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
 - ³⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
 - ³⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX
 - ³⁷⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY
 - ³⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ
 - ³⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
 - ³⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
 - ³⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
 - ³⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
 - ³⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
 - ³⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
 - ³⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
 - ³⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
 - ³⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
 - ³⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.105 OBFReader

This page lists supported metadata fields for the Bio-Formats OBF format reader.

These fields are from the [OME data model](#)³⁷⁹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁷⁹⁷
- Channel : SamplesPerPixel³⁷⁹⁸
- Image : AcquisitionDate³⁷⁹⁹
- Image : ID³⁸⁰⁰
- Image : Name³⁸⁰¹
- Pixels : BigEndian³⁸⁰²
- Pixels : DimensionOrder³⁸⁰³
- Pixels : ID³⁸⁰⁴
- Pixels : Interleaved³⁸⁰⁵
- Pixels : SignificantBits³⁸⁰⁶
- Pixels : SizeC³⁸⁰⁷
- Pixels : SizeT³⁸⁰⁸
- Pixels : SizeX³⁸⁰⁹
- Pixels : SizeY³⁸¹⁰
- Pixels : SizeZ³⁸¹¹
- Pixels : Type³⁸¹²
- Plane : TheC³⁸¹³
- Plane : TheT³⁸¹⁴

³⁷⁹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁸⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁸¹⁵

Total supported: 19

Total unknown or missing: 457

18.2.106 OMETiffReader

This page lists supported metadata fields for the Bio-Formats OME-TIFF format reader.

These fields are from the [OME data model](#)³⁸¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁸¹⁷
- Channel : SamplesPerPixel³⁸¹⁸
- Image : AcquisitionDate³⁸¹⁹
- Image : ID³⁸²⁰
- Image : Name³⁸²¹
- Pixels : BigEndian³⁸²²
- Pixels : DimensionOrder³⁸²³
- Pixels : ID³⁸²⁴
- Pixels : Interleaved³⁸²⁵
- Pixels : SignificantBits³⁸²⁶
- Pixels : SizeC³⁸²⁷
- Pixels : SizeT³⁸²⁸
- Pixels : SizeX³⁸²⁹
- Pixels : SizeY³⁸³⁰
- Pixels : SizeZ³⁸³¹
- Pixels : Type³⁸³²

³⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁸¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁸²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC³⁸³³
- Plane : TheT³⁸³⁴
- Plane : TheZ³⁸³⁵

Total supported: 19

Total unknown or missing: 457

18.2.107 OMEXMLReader

This page lists supported metadata fields for the Bio-Formats OME-XML format reader.

These fields are from the [OME data model](#)³⁸³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁸³⁷
- Channel : SamplesPerPixel³⁸³⁸
- Image : AcquisitionDate³⁸³⁹
- Image : ID³⁸⁴⁰
- Image : Name³⁸⁴¹
- Pixels : BigEndian³⁸⁴²
- Pixels : DimensionOrder³⁸⁴³
- Pixels : ID³⁸⁴⁴
- Pixels : Interleaved³⁸⁴⁵
- Pixels : SignificantBits³⁸⁴⁶
- Pixels : SizeC³⁸⁴⁷
- Pixels : SizeT³⁸⁴⁸
- Pixels : SizeX³⁸⁴⁹
- Pixels : SizeY³⁸⁵⁰

³⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁸³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁸⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ³⁸⁵¹
- Pixels : Type³⁸⁵²
- Plane : TheC³⁸⁵³
- Plane : TheT³⁸⁵⁴
- Plane : TheZ³⁸⁵⁵

Total supported: 19

Total unknown or missing: 457

18.2.108 OpenlabRawReader

This page lists supported metadata fields for the Bio-Formats Openlab RAW format reader.

These fields are from the [OME data model](#)³⁸⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID³⁸⁵⁷
- Channel : SamplesPerPixel³⁸⁵⁸
- Image : AcquisitionDate³⁸⁵⁹
- Image : ID³⁸⁶⁰
- Image : Name³⁸⁶¹
- Pixels : BigEndian³⁸⁶²
- Pixels : DimensionOrder³⁸⁶³
- Pixels : ID³⁸⁶⁴
- Pixels : Interleaved³⁸⁶⁵
- Pixels : SignificantBits³⁸⁶⁶
- Pixels : SizeC³⁸⁶⁷
- Pixels : SizeT³⁸⁶⁸

³⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁸⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX³⁸⁶⁹
- Pixels : SizeY³⁸⁷⁰
- Pixels : SizeZ³⁸⁷¹
- Pixels : Type³⁸⁷²
- Plane : TheC³⁸⁷³
- Plane : TheT³⁸⁷⁴
- Plane : TheZ³⁸⁷⁵

Total supported: 19

Total unknown or missing: 457

18.2.109 OpenlabReader

This page lists supported metadata fields for the Bio-Formats Openlab LIFF format reader.

These fields are from the [OME data model](#)³⁸⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁸⁷⁷
- Channel : Name³⁸⁷⁸
- Channel : SamplesPerPixel³⁸⁷⁹
- Detector : ID³⁸⁸⁰
- Detector : Type³⁸⁸¹
- DetectorSettings : Gain³⁸⁸²
- DetectorSettings : ID³⁸⁸³
- DetectorSettings : Offset³⁸⁸⁴
- Image : AcquisitionDate³⁸⁸⁵
- Image : ID³⁸⁸⁶

³⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁸⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁸⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

³⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

³⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : InstrumentRef³⁸⁸⁷
- Image : Name³⁸⁸⁸
- Instrument : ID³⁸⁸⁹
- Pixels : BigEndian³⁸⁹⁰
- Pixels : DimensionOrder³⁸⁹¹
- Pixels : ID³⁸⁹²
- Pixels : Interleaved³⁸⁹³
- Pixels : PhysicalSizeX³⁸⁹⁴
- Pixels : PhysicalSizeY³⁸⁹⁵
- Pixels : SignificantBits³⁸⁹⁶
- Pixels : SizeC³⁸⁹⁷
- Pixels : SizeT³⁸⁹⁸
- Pixels : SizeX³⁸⁹⁹
- Pixels : SizeY³⁹⁰⁰
- Pixels : SizeZ³⁹⁰¹
- Pixels : Type³⁹⁰²
- Plane : PositionX³⁹⁰³
- Plane : PositionY³⁹⁰⁴
- Plane : PositionZ³⁹⁰⁵
- Plane : TheC³⁹⁰⁶
- Plane : TheT³⁹⁰⁷
- Plane : TheZ³⁹⁰⁸

Total supported: 32

Total unknown or missing: 444

18.2.110 OperettaReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer Operetta format reader.

These fields are from the [OME data model](#)³⁹⁰⁹. Bio-Formats standardizes each format's original metadata to and from the OME

³⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁸⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

³⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

³⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

³⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

³⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁹⁰⁹<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 476 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 : ID³⁹¹⁰
- Channel : Name³⁹¹¹
- Channel : SamplesPerPixel³⁹¹²
- Experimenter : ID³⁹¹³
- Experimenter : LastName³⁹¹⁴
- Image : AcquisitionDate³⁹¹⁵
- Image : ExperimenterRef³⁹¹⁶
- Image : ID³⁹¹⁷
- Image : Name³⁹¹⁸
- Pixels : BigEndian³⁹¹⁹
- Pixels : DimensionOrder³⁹²⁰
- Pixels : ID³⁹²¹
- Pixels : Interleaved³⁹²²
- Pixels : PhysicalSizeX³⁹²³
- Pixels : PhysicalSizeY³⁹²⁴
- Pixels : SignificantBits³⁹²⁵
- Pixels : SizeC³⁹²⁶
- Pixels : SizeT³⁹²⁷
- Pixels : SizeX³⁹²⁸
- Pixels : SizeY³⁹²⁹
- Pixels : SizeZ³⁹³⁰

³⁹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

³⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

³⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

³⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

³⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type³⁹³¹
- Plane : PositionX³⁹³²
- Plane : PositionY³⁹³³
- Plane : PositionZ³⁹³⁴
- Plane : TheC³⁹³⁵
- Plane : TheT³⁹³⁶
- Plane : TheZ³⁹³⁷
- Plate : Columns³⁹³⁸
- Plate : Description³⁹³⁹
- Plate : ExternalIdentifier³⁹⁴⁰
- Plate : ID³⁹⁴¹
- Plate : Name³⁹⁴²
- Plate : Rows³⁹⁴³
- PlateAcquisition : ID³⁹⁴⁴
- PlateAcquisition : MaximumFieldCount³⁹⁴⁵
- PlateAcquisition : WellSampleRef³⁹⁴⁶
- Well : Column³⁹⁴⁷
- Well : ID³⁹⁴⁸
- Well : Row³⁹⁴⁹
- WellSample : ID³⁹⁵⁰
- WellSample : ImageRef³⁹⁵¹
- WellSample : Index³⁹⁵²

Total supported: 43

Total unknown or missing: 433

18.2.111 OxfordInstrumentsReader

This page lists supported metadata fields for the Bio-Formats Oxford Instruments format reader.

These fields are from the [OME data model](http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type)³⁹⁵³. Bio-Formats standardizes each format's original metadata to and from the OME

- ³⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ³⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX
- ³⁹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY
- ³⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ
- ³⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ³⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ³⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
- ³⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Columns
- ³⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Description
- ³⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ExternalIdentifier
- ³⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID
- ³⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name
- ³⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Rows
- ³⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID
- ³⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount
- ³⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID
- ³⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column
- ³⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID
- ³⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row
- ³⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID
- ³⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID
- ³⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index
- ³⁹⁵³<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 476 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 : ID³⁹⁵⁴
- Channel : SamplesPerPixel³⁹⁵⁵
- Image : AcquisitionDate³⁹⁵⁶
- Image : Description³⁹⁵⁷
- Image : ID³⁹⁵⁸
- Image : Name³⁹⁵⁹
- Pixels : BigEndian³⁹⁶⁰
- Pixels : DimensionOrder³⁹⁶¹
- Pixels : ID³⁹⁶²
- Pixels : Interleaved³⁹⁶³
- Pixels : PhysicalSizeX³⁹⁶⁴
- Pixels : PhysicalSizeY³⁹⁶⁵
- Pixels : SignificantBits³⁹⁶⁶
- Pixels : SizeC³⁹⁶⁷
- Pixels : SizeT³⁹⁶⁸
- Pixels : SizeX³⁹⁶⁹
- Pixels : SizeY³⁹⁷⁰
- Pixels : SizeZ³⁹⁷¹
- Pixels : Type³⁹⁷²
- Plane : TheC³⁹⁷³
- Plane : TheT³⁹⁷⁴

³⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

³⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

³⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

³⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

³⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

³⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ³⁹⁷⁵

Total supported: 22

Total unknown or missing: 454

18.2.112 PCIReader

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

These fields are from the [OME data model](#)³⁹⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID³⁹⁷⁷
- Channel : SamplesPerPixel³⁹⁷⁸
- Detector : ID³⁹⁷⁹
- Detector : Type³⁹⁸⁰
- DetectorSettings : Binning³⁹⁸¹
- DetectorSettings : ID³⁹⁸²
- Image : AcquisitionDate³⁹⁸³
- Image : ID³⁹⁸⁴
- Image : InstrumentRef³⁹⁸⁵
- Image : Name³⁹⁸⁶
- Instrument : ID³⁹⁸⁷
- Pixels : BigEndian³⁹⁸⁸
- Pixels : DimensionOrder³⁹⁸⁹
- Pixels : ID³⁹⁹⁰
- Pixels : Interleaved³⁹⁹¹
- Pixels : PhysicalSizeX³⁹⁹²

³⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

³⁹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

³⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

³⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

³⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

³⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

³⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

³⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

³⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

³⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

³⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

³⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

³⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

³⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

³⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

³⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

³⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

³⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY³⁹⁹³
- Pixels : SignificantBits³⁹⁹⁴
- Pixels : SizeC³⁹⁹⁵
- Pixels : SizeT³⁹⁹⁶
- Pixels : SizeX³⁹⁹⁷
- Pixels : SizeY³⁹⁹⁸
- Pixels : SizeZ³⁹⁹⁹
- Pixels : TimeIncrement⁴⁰⁰⁰
- Pixels : Type⁴⁰⁰¹
- Plane : DeltaT⁴⁰⁰²
- Plane : TheC⁴⁰⁰³
- Plane : TheT⁴⁰⁰⁴
- Plane : TheZ⁴⁰⁰⁵

Total supported: 29

Total unknown or missing: 447

18.2.113 PCORAWReader

This page lists supported metadata fields for the Bio-Formats PCO-RAW format reader.

These fields are from the [OME data model](#)⁴⁰⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁰⁰⁷
- Channel : SamplesPerPixel⁴⁰⁰⁸
- Detector : ID⁴⁰⁰⁹
- Detector : SerialNumber⁴⁰¹⁰

³⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

³⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

³⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

³⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

³⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

³⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

³⁹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

⁴⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁴⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁰⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁴⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

- DetectorSettings : Binning⁴⁰¹¹
- DetectorSettings : ID⁴⁰¹²
- Image : AcquisitionDate⁴⁰¹³
- Image : Description⁴⁰¹⁴
- Image : ID⁴⁰¹⁵
- Image : Name⁴⁰¹⁶
- Instrument : ID⁴⁰¹⁷
- Pixels : BigEndian⁴⁰¹⁸
- Pixels : DimensionOrder⁴⁰¹⁹
- Pixels : ID⁴⁰²⁰
- Pixels : Interleaved⁴⁰²¹
- Pixels : SignificantBits⁴⁰²²
- Pixels : SizeC⁴⁰²³
- Pixels : SizeT⁴⁰²⁴
- Pixels : SizeX⁴⁰²⁵
- Pixels : SizeY⁴⁰²⁶
- Pixels : SizeZ⁴⁰²⁷
- Pixels : Type⁴⁰²⁸
- Plane : ExposureTime⁴⁰²⁹
- Plane : TheC⁴⁰³⁰
- Plane : TheT⁴⁰³¹
- Plane : TheZ⁴⁰³²

Total supported: 26

Total unknown or missing: 450

18.2.114 PCXReader

This page lists supported metadata fields for the Bio-Formats PCX format reader.

These fields are from the [OME data model](#)⁴⁰³³. Bio-Formats standardizes each format's original metadata to and from the OME

⁴⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁴⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁴⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁰²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁰³³<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 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁴⁰³⁴
- Channel : SamplesPerPixel⁴⁰³⁵
- Image : AcquisitionDate⁴⁰³⁶
- Image : ID⁴⁰³⁷
- Image : Name⁴⁰³⁸
- Pixels : BigEndian⁴⁰³⁹
- Pixels : DimensionOrder⁴⁰⁴⁰
- Pixels : ID⁴⁰⁴¹
- Pixels : Interleaved⁴⁰⁴²
- Pixels : SignificantBits⁴⁰⁴³
- Pixels : SizeC⁴⁰⁴⁴
- Pixels : SizeT⁴⁰⁴⁵
- Pixels : SizeX⁴⁰⁴⁶
- Pixels : SizeY⁴⁰⁴⁷
- Pixels : SizeZ⁴⁰⁴⁸
- Pixels : Type⁴⁰⁴⁹
- Plane : TheC⁴⁰⁵⁰
- Plane : TheT⁴⁰⁵¹
- Plane : TheZ⁴⁰⁵²

Total supported: 19

Total unknown or missing: 457

⁴⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.115 PDSReader

This page lists supported metadata fields for the Bio-Formats Perkin Elmer Densitometer format reader.

These fields are from the [OME data model](#)⁴⁰⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁰⁵⁴
- Channel : SamplesPerPixel⁴⁰⁵⁵
- Image : AcquisitionDate⁴⁰⁵⁶
- Image : ID⁴⁰⁵⁷
- Image : Name⁴⁰⁵⁸
- Pixels : BigEndian⁴⁰⁵⁹
- Pixels : DimensionOrder⁴⁰⁶⁰
- Pixels : ID⁴⁰⁶¹
- Pixels : Interleaved⁴⁰⁶²
- Pixels : PhysicalSizeX⁴⁰⁶³
- Pixels : PhysicalSizeY⁴⁰⁶⁴
- Pixels : SignificantBits⁴⁰⁶⁵
- Pixels : SizeC⁴⁰⁶⁶
- Pixels : SizeT⁴⁰⁶⁷
- Pixels : SizeX⁴⁰⁶⁸
- Pixels : SizeY⁴⁰⁶⁹
- Pixels : SizeZ⁴⁰⁷⁰
- Pixels : Type⁴⁰⁷¹

⁴⁰⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : PositionX⁴⁰⁷²
- Plane : PositionY⁴⁰⁷³
- Plane : TheC⁴⁰⁷⁴
- Plane : TheT⁴⁰⁷⁵
- Plane : TheZ⁴⁰⁷⁶

Total supported: 23

Total unknown or missing: 453

18.2.116 PGMReader

This page lists supported metadata fields for the Bio-Formats Portable Any Map format reader.

These fields are from the [OME data model](#)⁴⁰⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Portable Any Map format reader:

- Channel : ID⁴⁰⁷⁸
- Channel : SamplesPerPixel⁴⁰⁷⁹
- Image : AcquisitionDate⁴⁰⁸⁰
- Image : ID⁴⁰⁸¹
- Image : Name⁴⁰⁸²
- Pixels : BigEndian⁴⁰⁸³
- Pixels : DimensionOrder⁴⁰⁸⁴
- Pixels : ID⁴⁰⁸⁵
- Pixels : Interleaved⁴⁰⁸⁶
- Pixels : SignificantBits⁴⁰⁸⁷
- Pixels : SizeC⁴⁰⁸⁸
- Pixels : SizeT⁴⁰⁸⁹

⁴⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁴⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁴⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁰⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁴⁰⁹⁰
- Pixels : SizeY⁴⁰⁹¹
- Pixels : SizeZ⁴⁰⁹²
- Pixels : Type⁴⁰⁹³
- Plane : TheC⁴⁰⁹⁴
- Plane : TheT⁴⁰⁹⁵
- Plane : TheZ⁴⁰⁹⁶

Total supported: 19

Total unknown or missing: 457

18.2.117 PQBinReader

This page lists supported metadata fields for the Bio-Formats PicoQuant Bin format reader.

These fields are from the [OME data model](#)⁴⁰⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 21 of them (4%).
- Of those, Bio-Formats fully or partially converts 21 (100%).

Supported fields

These fields are fully supported by the Bio-Formats PicoQuant Bin format reader:

- Channel : ID⁴⁰⁹⁸
- Channel : SamplesPerPixel⁴⁰⁹⁹
- Image : AcquisitionDate⁴¹⁰⁰
- Image : ID⁴¹⁰¹
- Image : Name⁴¹⁰²
- Pixels : BigEndian⁴¹⁰³
- Pixels : DimensionOrder⁴¹⁰⁴
- Pixels : ID⁴¹⁰⁵
- Pixels : Interleaved⁴¹⁰⁶
- Pixels : PhysicalSizeX⁴¹⁰⁷

⁴⁰⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁰⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁴¹⁰⁸
- Pixels : SignificantBits⁴¹⁰⁹
- Pixels : SizeC⁴¹¹⁰
- Pixels : SizeT⁴¹¹¹
- Pixels : SizeX⁴¹¹²
- Pixels : SizeY⁴¹¹³
- Pixels : SizeZ⁴¹¹⁴
- Pixels : Type⁴¹¹⁵
- Plane : TheC⁴¹¹⁶
- Plane : TheT⁴¹¹⁷
- Plane : TheZ⁴¹¹⁸

Total supported: 21

Total unknown or missing: 455

18.2.118 PSDReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop format reader.

These fields are from the [OME data model](#)⁴¹¹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁴¹²⁰
- Channel : SamplesPerPixel⁴¹²¹
- Image : AcquisitionDate⁴¹²²
- Image : ID⁴¹²³
- Image : Name⁴¹²⁴
- Pixels : BigEndian⁴¹²⁵

⁴¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴¹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴¹¹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁴¹²⁶
- Pixels : ID⁴¹²⁷
- Pixels : Interleaved⁴¹²⁸
- Pixels : SignificantBits⁴¹²⁹
- Pixels : SizeC⁴¹³⁰
- Pixels : SizeT⁴¹³¹
- Pixels : SizeX⁴¹³²
- Pixels : SizeY⁴¹³³
- Pixels : SizeZ⁴¹³⁴
- Pixels : Type⁴¹³⁵
- Plane : TheC⁴¹³⁶
- Plane : TheT⁴¹³⁷
- Plane : TheZ⁴¹³⁸

Total supported: 19

Total unknown or missing: 457

18.2.119 PerkinElmerReader

This page lists supported metadata fields for the Bio-Formats PerkinElmer format reader.

These fields are from the [OME data model](#)⁴¹³⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : EmissionWavelength⁴¹⁴⁰
- Channel : ExcitationWavelength⁴¹⁴¹
- Channel : ID⁴¹⁴²
- Channel : SamplesPerPixel⁴¹⁴³

⁴¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴¹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴¹³⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁴¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

⁴¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁴¹⁴⁴
- Image : ID⁴¹⁴⁵
- Image : InstrumentRef⁴¹⁴⁶
- Image : Name⁴¹⁴⁷
- Instrument : ID⁴¹⁴⁸
- Pixels : BigEndian⁴¹⁴⁹
- Pixels : DimensionOrder⁴¹⁵⁰
- Pixels : ID⁴¹⁵¹
- Pixels : Interleaved⁴¹⁵²
- Pixels : PhysicalSizeX⁴¹⁵³
- Pixels : PhysicalSizeY⁴¹⁵⁴
- Pixels : SignificantBits⁴¹⁵⁵
- Pixels : SizeC⁴¹⁵⁶
- Pixels : SizeT⁴¹⁵⁷
- Pixels : SizeX⁴¹⁵⁸
- Pixels : SizeY⁴¹⁵⁹
- Pixels : SizeZ⁴¹⁶⁰
- Pixels : Type⁴¹⁶¹
- Plane : DeltaT⁴¹⁶²
- Plane : ExposureTime⁴¹⁶³
- Plane : PositionX⁴¹⁶⁴
- Plane : PositionY⁴¹⁶⁵
- Plane : PositionZ⁴¹⁶⁶
- Plane : TheC⁴¹⁶⁷
- Plane : TheT⁴¹⁶⁸
- Plane : TheZ⁴¹⁶⁹

⁴¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁴¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁴¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁴¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁴¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

Total supported: 30

Total unknown or missing: 446

18.2.120 PhotoshopTiffReader

This page lists supported metadata fields for the Bio-Formats Adobe Photoshop TIFF format reader.

These fields are from the [OME data model](#)⁴¹⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- 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 : ID⁴¹⁷¹
- Channel : SamplesPerPixel⁴¹⁷²
- Image : AcquisitionDate⁴¹⁷³
- Image : ID⁴¹⁷⁴
- Image : Name⁴¹⁷⁵
- Pixels : BigEndian⁴¹⁷⁶
- Pixels : DimensionOrder⁴¹⁷⁷
- Pixels : ID⁴¹⁷⁸
- Pixels : Interleaved⁴¹⁷⁹
- Pixels : SignificantBits⁴¹⁸⁰
- Pixels : SizeC⁴¹⁸¹
- Pixels : SizeT⁴¹⁸²
- Pixels : SizeX⁴¹⁸³
- Pixels : SizeY⁴¹⁸⁴
- Pixels : SizeZ⁴¹⁸⁵
- Pixels : Type⁴¹⁸⁶
- Plane : TheC⁴¹⁸⁷

⁴¹⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴¹⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁴¹⁸⁸
- Plane : TheZ⁴¹⁸⁹

Total supported: 19

Total unknown or missing: 457

18.2.121 PictReader

This page lists supported metadata fields for the Bio-Formats PICT format reader.

These fields are from the [OME data model](#)⁴¹⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- 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 : ID⁴¹⁹¹
- Channel : SamplesPerPixel⁴¹⁹²
- Image : AcquisitionDate⁴¹⁹³
- Image : ID⁴¹⁹⁴
- Image : Name⁴¹⁹⁵
- Pixels : BigEndian⁴¹⁹⁶
- Pixels : DimensionOrder⁴¹⁹⁷
- Pixels : ID⁴¹⁹⁸
- Pixels : Interleaved⁴¹⁹⁹
- Pixels : SignificantBits⁴²⁰⁰
- Pixels : SizeC⁴²⁰¹
- Pixels : SizeT⁴²⁰²
- Pixels : SizeX⁴²⁰³
- Pixels : SizeY⁴²⁰⁴
- Pixels : SizeZ⁴²⁰⁵

⁴¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴¹⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type⁴²⁰⁶
- Plane : TheC⁴²⁰⁷
- Plane : TheT⁴²⁰⁸
- Plane : TheZ⁴²⁰⁹

Total supported: 19

Total unknown or missing: 457

18.2.122 PovrayReader

This page lists supported metadata fields for the Bio-Formats POV-Ray format reader.

These fields are from the [OME data model](#)⁴²¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats POV-Ray format reader:

- Channel : ID⁴²¹¹
- Channel : SamplesPerPixel⁴²¹²
- Image : AcquisitionDate⁴²¹³
- Image : ID⁴²¹⁴
- Image : Name⁴²¹⁵
- Pixels : BigEndian⁴²¹⁶
- Pixels : DimensionOrder⁴²¹⁷
- Pixels : ID⁴²¹⁸
- Pixels : Interleaved⁴²¹⁹
- Pixels : SignificantBits⁴²²⁰
- Pixels : SizeC⁴²²¹
- Pixels : SizeT⁴²²²
- Pixels : SizeX⁴²²³

⁴²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴²¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴²¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

- Pixels : SizeY⁴²²⁴
- Pixels : SizeZ⁴²²⁵
- Pixels : Type⁴²²⁶
- Plane : TheC⁴²²⁷
- Plane : TheT⁴²²⁸
- Plane : TheZ⁴²²⁹

Total supported: 19

Total unknown or missing: 457

18.2.123 PrairieReader

This page lists supported metadata fields for the Bio-Formats Prairie TIFF format reader.

These fields are from the [OME data model](#)⁴²³⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 46 of them (9%).
- Of those, Bio-Formats fully or partially converts 46 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Prairie TIFF format reader:

- Channel : EmissionWavelength⁴²³¹
- Channel : ID⁴²³²
- Channel : Name⁴²³³
- Channel : SamplesPerPixel⁴²³⁴
- Detector : ID⁴²³⁵
- Detector : Type⁴²³⁶
- Detector : Zoom⁴²³⁷
- DetectorSettings : Gain⁴²³⁸
- DetectorSettings : ID⁴²³⁹
- DetectorSettings : Offset⁴²⁴⁰
- Image : AcquisitionDate⁴²⁴¹

⁴²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴²³⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁴²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁴²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁴²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Zoom

⁴²³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁴²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁴²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Offset

⁴²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

- Image : ID⁴²⁴²
- Image : InstrumentRef⁴²⁴³
- Image : Name⁴²⁴⁴
- Instrument : ID⁴²⁴⁵
- Laser : ID⁴²⁴⁶
- Laser : Power⁴²⁴⁷
- Microscope : Model⁴²⁴⁸
- Objective : Correction⁴²⁴⁹
- Objective : ID⁴²⁵⁰
- Objective : Immersion⁴²⁵¹
- Objective : LensNA⁴²⁵²
- Objective : Manufacturer⁴²⁵³
- Objective : NominalMagnification⁴²⁵⁴
- ObjectiveSettings : ID⁴²⁵⁵
- Pixels : BigEndian⁴²⁵⁶
- Pixels : DimensionOrder⁴²⁵⁷
- Pixels : ID⁴²⁵⁸
- Pixels : Interleaved⁴²⁵⁹
- Pixels : PhysicalSizeX⁴²⁶⁰
- Pixels : PhysicalSizeY⁴²⁶¹
- Pixels : SignificantBits⁴²⁶²
- Pixels : SizeC⁴²⁶³
- Pixels : SizeT⁴²⁶⁴
- Pixels : SizeX⁴²⁶⁵
- Pixels : SizeY⁴²⁶⁶
- Pixels : SizeZ⁴²⁶⁷

⁴²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

⁴²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁴²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁴²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁴²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁴²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁴²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁴²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁴²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴²⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : TimeIncrement⁴²⁶⁸
- Pixels : Type⁴²⁶⁹
- Plane : DeltaT⁴²⁷⁰
- Plane : PositionX⁴²⁷¹
- Plane : PositionY⁴²⁷²
- Plane : PositionZ⁴²⁷³
- Plane : TheC⁴²⁷⁴
- Plane : TheT⁴²⁷⁵
- Plane : TheZ⁴²⁷⁶

Total supported: 46

Total unknown or missing: 430

18.2.124 PyramidTiffReader

This page lists supported metadata fields for the Bio-Formats Pyramid TIFF format reader.

These fields are from the [OME data model](#)⁴²⁷⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Pyramid TIFF format reader:

- Channel : ID⁴²⁷⁸
- Channel : SamplesPerPixel⁴²⁷⁹
- Image : AcquisitionDate⁴²⁸⁰
- Image : ID⁴²⁸¹
- Image : Name⁴²⁸²
- Pixels : BigEndian⁴²⁸³
- Pixels : DimensionOrder⁴²⁸⁴
- Pixels : ID⁴²⁸⁵

⁴²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

⁴²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁴²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁴²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁴²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁴²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴²⁷⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁴²⁸⁶
- Pixels : SignificantBits⁴²⁸⁷
- Pixels : SizeC⁴²⁸⁸
- Pixels : SizeT⁴²⁸⁹
- Pixels : SizeX⁴²⁹⁰
- Pixels : SizeY⁴²⁹¹
- Pixels : SizeZ⁴²⁹²
- Pixels : Type⁴²⁹³
- Plane : TheC⁴²⁹⁴
- Plane : TheT⁴²⁹⁵
- Plane : TheZ⁴²⁹⁶

Total supported: 19

Total unknown or missing: 457

18.2.125 QTReader

This page lists supported metadata fields for the Bio-Formats QuickTime format reader.

These fields are from the [OME data model](#)⁴²⁹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁴²⁹⁸
- Channel : SamplesPerPixel⁴²⁹⁹
- Image : AcquisitionDate⁴³⁰⁰
- Image : ID⁴³⁰¹
- Image : Name⁴³⁰²
- Pixels : BigEndian⁴³⁰³

⁴²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴²⁹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁴³⁰⁴
- Pixels : ID⁴³⁰⁵
- Pixels : Interleaved⁴³⁰⁶
- Pixels : SignificantBits⁴³⁰⁷
- Pixels : SizeC⁴³⁰⁸
- Pixels : SizeT⁴³⁰⁹
- Pixels : SizeX⁴³¹⁰
- Pixels : SizeY⁴³¹¹
- Pixels : SizeZ⁴³¹²
- Pixels : Type⁴³¹³
- Plane : TheC⁴³¹⁴
- Plane : TheT⁴³¹⁵
- Plane : TheZ⁴³¹⁶

Total supported: 19

Total unknown or missing: 457

18.2.126 QuesantReader

This page lists supported metadata fields for the Bio-Formats Quesant AFM format reader.

These fields are from the [OME data model](#)⁴³¹⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴³¹⁸
- Channel : SamplesPerPixel⁴³¹⁹
- Image : AcquisitionDate⁴³²⁰
- Image : Description⁴³²¹

⁴³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴³¹⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

- Image : ID⁴³²²
- Image : Name⁴³²³
- Pixels : BigEndian⁴³²⁴
- Pixels : DimensionOrder⁴³²⁵
- Pixels : ID⁴³²⁶
- Pixels : Interleaved⁴³²⁷
- Pixels : PhysicalSizeX⁴³²⁸
- Pixels : PhysicalSizeY⁴³²⁹
- Pixels : SignificantBits⁴³³⁰
- Pixels : SizeC⁴³³¹
- Pixels : SizeT⁴³³²
- Pixels : SizeX⁴³³³
- Pixels : SizeY⁴³³⁴
- Pixels : SizeZ⁴³³⁵
- Pixels : Type⁴³³⁶
- Plane : TheC⁴³³⁷
- Plane : TheT⁴³³⁸
- Plane : TheZ⁴³³⁹

Total supported: 22

Total unknown or missing: 454

18.2.127 RHKReader

This page lists supported metadata fields for the Bio-Formats RHK Technologies format reader.

These fields are from the [OME data model](#)⁴³⁴⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

⁴³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴³⁴⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats RHK Technologies format reader:

- Channel : ID⁴³⁴¹
- Channel : SamplesPerPixel⁴³⁴²
- Image : AcquisitionDate⁴³⁴³
- Image : Description⁴³⁴⁴
- Image : ID⁴³⁴⁵
- Image : Name⁴³⁴⁶
- Pixels : BigEndian⁴³⁴⁷
- Pixels : DimensionOrder⁴³⁴⁸
- Pixels : ID⁴³⁴⁹
- Pixels : Interleaved⁴³⁵⁰
- Pixels : PhysicalSizeX⁴³⁵¹
- Pixels : PhysicalSizeY⁴³⁵²
- Pixels : SignificantBits⁴³⁵³
- Pixels : SizeC⁴³⁵⁴
- Pixels : SizeT⁴³⁵⁵
- Pixels : SizeX⁴³⁵⁶
- Pixels : SizeY⁴³⁵⁷
- Pixels : SizeZ⁴³⁵⁸
- Pixels : Type⁴³⁵⁹
- Plane : TheC⁴³⁶⁰
- Plane : TheT⁴³⁶¹
- Plane : TheZ⁴³⁶²

Total supported: 22

Total unknown or missing: 454

- ⁴³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID
- ⁴³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel
- ⁴³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate
- ⁴³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description
- ⁴³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID
- ⁴³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name
- ⁴³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
- ⁴³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
- ⁴³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
- ⁴³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
- ⁴³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX
- ⁴³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY
- ⁴³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
- ⁴³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
- ⁴³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
- ⁴³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
- ⁴³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
- ⁴³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
- ⁴³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ⁴³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ⁴³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ⁴³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.128 SBIGReader

This page lists supported metadata fields for the Bio-Formats SBIG format reader.

These fields are from the [OME data model](#)⁴³⁶³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 22 of them (4%).
- Of those, Bio-Formats fully or partially converts 22 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SBIG format reader:

- Channel : ID⁴³⁶⁴
- Channel : SamplesPerPixel⁴³⁶⁵
- Image : AcquisitionDate⁴³⁶⁶
- Image : Description⁴³⁶⁷
- Image : ID⁴³⁶⁸
- Image : Name⁴³⁶⁹
- Pixels : BigEndian⁴³⁷⁰
- Pixels : DimensionOrder⁴³⁷¹
- Pixels : ID⁴³⁷²
- Pixels : Interleaved⁴³⁷³
- Pixels : PhysicalSizeX⁴³⁷⁴
- Pixels : PhysicalSizeY⁴³⁷⁵
- Pixels : SignificantBits⁴³⁷⁶
- Pixels : SizeC⁴³⁷⁷
- Pixels : SizeT⁴³⁷⁸
- Pixels : SizeX⁴³⁷⁹
- Pixels : SizeY⁴³⁸⁰
- Pixels : SizeZ⁴³⁸¹
- Pixels : Type⁴³⁸²

⁴³⁶³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁴³⁸³
- Plane : TheT⁴³⁸⁴
- Plane : TheZ⁴³⁸⁵

Total supported: 22

Total unknown or missing: 454

18.2.129 SDTReader

This page lists supported metadata fields for the Bio-Formats SPCImage Data format reader.

These fields are from the [OME data model](#)⁴³⁸⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SPCImage Data format reader:

- Channel : ID⁴³⁸⁷
- Channel : SamplesPerPixel⁴³⁸⁸
- Image : AcquisitionDate⁴³⁸⁹
- Image : ID⁴³⁹⁰
- Image : Name⁴³⁹¹
- Pixels : BigEndian⁴³⁹²
- Pixels : DimensionOrder⁴³⁹³
- Pixels : ID⁴³⁹⁴
- Pixels : Interleaved⁴³⁹⁵
- Pixels : SignificantBits⁴³⁹⁶
- Pixels : SizeC⁴³⁹⁷
- Pixels : SizeT⁴³⁹⁸
- Pixels : SizeX⁴³⁹⁹
- Pixels : SizeY⁴⁴⁰⁰

⁴³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴³⁸⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁴⁴⁰¹
- Pixels : Type⁴⁴⁰²
- Plane : TheC⁴⁴⁰³
- Plane : TheT⁴⁴⁰⁴
- Plane : TheZ⁴⁴⁰⁵

Total supported: 19

Total unknown or missing: 457

18.2.130 SEQReader

This page lists supported metadata fields for the Bio-Formats Image-Pro Sequence format reader.

These fields are from the [OME data model](#)⁴⁴⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁴⁴⁰⁷
- Channel : SamplesPerPixel⁴⁴⁰⁸
- Image : AcquisitionDate⁴⁴⁰⁹
- Image : ID⁴⁴¹⁰
- Image : Name⁴⁴¹¹
- Pixels : BigEndian⁴⁴¹²
- Pixels : DimensionOrder⁴⁴¹³
- Pixels : ID⁴⁴¹⁴
- Pixels : Interleaved⁴⁴¹⁵
- Pixels : SignificantBits⁴⁴¹⁶
- Pixels : SizeC⁴⁴¹⁷
- Pixels : SizeT⁴⁴¹⁸

⁴⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁴⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁴⁴¹⁹
- Pixels : SizeY⁴⁴²⁰
- Pixels : SizeZ⁴⁴²¹
- Pixels : Type⁴⁴²²
- Plane : TheC⁴⁴²³
- Plane : TheT⁴⁴²⁴
- Plane : TheZ⁴⁴²⁵

Total supported: 19

Total unknown or missing: 457

18.2.131 SIFReader

This page lists supported metadata fields for the Bio-Formats Andor SIF format reader.

These fields are from the [OME data model](#)⁴⁴²⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Andor SIF format reader:

- Channel : ID⁴⁴²⁷
- Channel : SamplesPerPixel⁴⁴²⁸
- Image : AcquisitionDate⁴⁴²⁹
- Image : ID⁴⁴³⁰
- Image : Name⁴⁴³¹
- Pixels : BigEndian⁴⁴³²
- Pixels : DimensionOrder⁴⁴³³
- Pixels : ID⁴⁴³⁴
- Pixels : Interleaved⁴⁴³⁵
- Pixels : SignificantBits⁴⁴³⁶

⁴⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁴²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁴²⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁴⁴³⁷
- Pixels : SizeT⁴⁴³⁸
- Pixels : SizeX⁴⁴³⁹
- Pixels : SizeY⁴⁴⁴⁰
- Pixels : SizeZ⁴⁴⁴¹
- Pixels : Type⁴⁴⁴²
- Plane : DeltaT⁴⁴⁴³
- Plane : TheC⁴⁴⁴⁴
- Plane : TheT⁴⁴⁴⁵
- Plane : TheZ⁴⁴⁴⁶

Total supported: 20

Total unknown or missing: 456

18.2.132 SISReader

This page lists supported metadata fields for the Bio-Formats Olympus SIS TIFF format reader.

These fields are from the [OME data model](#)⁴⁴⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁴⁴⁸
- Channel : Name⁴⁴⁴⁹
- Channel : SamplesPerPixel⁴⁴⁵⁰
- Detector : ID⁴⁴⁵¹
- Detector : Model⁴⁴⁵²
- Detector : Type⁴⁴⁵³
- DetectorSettings : ID⁴⁴⁵⁴

⁴⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁴⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁴⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁴⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁴⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁴⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

- Image : AcquisitionDate⁴⁴⁵⁵
- Image : ID⁴⁴⁵⁶
- Image : InstrumentRef⁴⁴⁵⁷
- Image : Name⁴⁴⁵⁸
- Instrument : ID⁴⁴⁵⁹
- Objective : Correction⁴⁴⁶⁰
- Objective : ID⁴⁴⁶¹
- Objective : Immersion⁴⁴⁶²
- Objective : NominalMagnification⁴⁴⁶³
- ObjectiveSettings : ID⁴⁴⁶⁴
- Pixels : BigEndian⁴⁴⁶⁵
- Pixels : DimensionOrder⁴⁴⁶⁶
- Pixels : ID⁴⁴⁶⁷
- Pixels : Interleaved⁴⁴⁶⁸
- Pixels : PhysicalSizeX⁴⁴⁶⁹
- Pixels : PhysicalSizeY⁴⁴⁷⁰
- Pixels : SignificantBits⁴⁴⁷¹
- Pixels : SizeC⁴⁴⁷²
- Pixels : SizeT⁴⁴⁷³
- Pixels : SizeX⁴⁴⁷⁴
- Pixels : SizeY⁴⁴⁷⁵
- Pixels : SizeZ⁴⁴⁷⁶
- Pixels : Type⁴⁴⁷⁷
- Plane : TheC⁴⁴⁷⁸
- Plane : TheT⁴⁴⁷⁹
- Plane : TheZ⁴⁴⁸⁰

⁴⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁴⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁴⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

Total supported: 33

Total unknown or missing: 443

18.2.133 SMCameraReader

This page lists supported metadata fields for the Bio-Formats SM Camera format reader.

These fields are from the [OME data model](#)⁴⁴⁸¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- 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 : ID⁴⁴⁸²
- Channel : SamplesPerPixel⁴⁴⁸³
- Image : AcquisitionDate⁴⁴⁸⁴
- Image : ID⁴⁴⁸⁵
- Image : Name⁴⁴⁸⁶
- Pixels : BigEndian⁴⁴⁸⁷
- Pixels : DimensionOrder⁴⁴⁸⁸
- Pixels : ID⁴⁴⁸⁹
- Pixels : Interleaved⁴⁴⁹⁰
- Pixels : SignificantBits⁴⁴⁹¹
- Pixels : SizeC⁴⁴⁹²
- Pixels : SizeT⁴⁴⁹³
- Pixels : SizeX⁴⁴⁹⁴
- Pixels : SizeY⁴⁴⁹⁵
- Pixels : SizeZ⁴⁴⁹⁶
- Pixels : Type⁴⁴⁹⁷
- Plane : TheC⁴⁴⁹⁸

⁴⁴⁸¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁴⁴⁹⁹
- Plane : TheZ⁴⁵⁰⁰

Total supported: 19

Total unknown or missing: 457

18.2.134 SPCReader

This page lists supported metadata fields for the Bio-Formats SPC FIFO Data format reader.

These fields are from the [OME data model](#)⁴⁵⁰¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the [metadata summary table](#):

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats SPC FIFO Data format reader:

- Channel : ID⁴⁵⁰²
- Channel : SamplesPerPixel⁴⁵⁰³
- Image : AcquisitionDate⁴⁵⁰⁴
- Image : ID⁴⁵⁰⁵
- Image : Name⁴⁵⁰⁶
- Pixels : BigEndian⁴⁵⁰⁷
- Pixels : DimensionOrder⁴⁵⁰⁸
- Pixels : ID⁴⁵⁰⁹
- Pixels : Interleaved⁴⁵¹⁰
- Pixels : SignificantBits⁴⁵¹¹
- Pixels : SizeC⁴⁵¹²
- Pixels : SizeT⁴⁵¹³
- Pixels : SizeX⁴⁵¹⁴
- Pixels : SizeY⁴⁵¹⁵
- Pixels : SizeZ⁴⁵¹⁶

⁴⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁵⁰¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : Type⁴⁵¹⁷
- Plane : TheC⁴⁵¹⁸
- Plane : TheT⁴⁵¹⁹
- Plane : TheZ⁴⁵²⁰

Total supported: 19

Total unknown or missing: 457

18.2.135 SPEReader

This page lists supported metadata fields for the Bio-Formats Princeton Instruments SPE format reader.

These fields are from the [OME data model](#)⁴⁵²¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Princeton Instruments SPE format reader:

- Channel : ID⁴⁵²²
- Channel : SamplesPerPixel⁴⁵²³
- Image : AcquisitionDate⁴⁵²⁴
- Image : ID⁴⁵²⁵
- Image : Name⁴⁵²⁶
- Image : ROIRef⁴⁵²⁷
- Label : ID⁴⁵²⁸
- Label : Text⁴⁵²⁹
- Label : X⁴⁵³⁰
- Label : Y⁴⁵³¹
- Pixels : BigEndian⁴⁵³²
- Pixels : DimensionOrder⁴⁵³³
- Pixels : ID⁴⁵³⁴

⁴⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁵²¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

⁴⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁴⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁴⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X

⁴⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y

⁴⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁴⁵³⁵
- Pixels : SignificantBits⁴⁵³⁶
- Pixels : SizeC⁴⁵³⁷
- Pixels : SizeT⁴⁵³⁸
- Pixels : SizeX⁴⁵³⁹
- Pixels : SizeY⁴⁵⁴⁰
- Pixels : SizeZ⁴⁵⁴¹
- Pixels : Type⁴⁵⁴²
- Plane : TheC⁴⁵⁴³
- Plane : TheT⁴⁵⁴⁴
- Plane : TheZ⁴⁵⁴⁵
- ROI : ID⁴⁵⁴⁶
- Rectangle : Height⁴⁵⁴⁷
- Rectangle : ID⁴⁵⁴⁸
- Rectangle : Width⁴⁵⁴⁹
- Rectangle : X⁴⁵⁵⁰
- Rectangle : Y⁴⁵⁵¹

Total supported: 30

Total unknown or missing: 446

18.2.136 SVSReader

This page lists supported metadata fields for the Bio-Formats Aperio SVS format reader.

These fields are from the [OME data model](#)⁴⁵⁵². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

⁴⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

⁴⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

⁴⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁴⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

⁴⁵⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

⁴⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

⁴⁵⁵²<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Aperio SVS format reader:

- Channel : EmissionWavelength⁴⁵⁵³
- Channel : ExcitationWavelength⁴⁵⁵⁴
- Channel : ID⁴⁵⁵⁵
- Channel : SamplesPerPixel⁴⁵⁵⁶
- Image : AcquisitionDate⁴⁵⁵⁷
- Image : Description⁴⁵⁵⁸
- Image : ID⁴⁵⁵⁹
- Image : InstrumentRef⁴⁵⁶⁰
- Image : Name⁴⁵⁶¹
- Instrument : ID⁴⁵⁶²
- Objective : ID⁴⁵⁶³
- Objective : NominalMagnification⁴⁵⁶⁴
- ObjectiveSettings : ID⁴⁵⁶⁵
- Pixels : BigEndian⁴⁵⁶⁶
- Pixels : DimensionOrder⁴⁵⁶⁷
- Pixels : ID⁴⁵⁶⁸
- Pixels : Interleaved⁴⁵⁶⁹
- Pixels : PhysicalSizeX⁴⁵⁷⁰
- Pixels : PhysicalSizeY⁴⁵⁷¹
- Pixels : SignificantBits⁴⁵⁷²
- Pixels : SizeC⁴⁵⁷³
- Pixels : SizeT⁴⁵⁷⁴
- Pixels : SizeX⁴⁵⁷⁵
- Pixels : SizeY⁴⁵⁷⁶

⁴⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁴⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

⁴⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁵⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁴⁵⁷⁷
- Pixels : Type⁴⁵⁷⁸
- Plane : TheC⁴⁵⁷⁹
- Plane : TheT⁴⁵⁸⁰
- Plane : TheZ⁴⁵⁸¹

Total supported: 29

Total unknown or missing: 447

18.2.137 ScanReader

This page lists supported metadata fields for the Bio-Formats Olympus ScanR format reader.

These fields are from the [OME data model](#)⁴⁵⁸². Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁵⁸³
- Channel : Name⁴⁵⁸⁴
- Channel : SamplesPerPixel⁴⁵⁸⁵
- Image : AcquisitionDate⁴⁵⁸⁶
- Image : ID⁴⁵⁸⁷
- Image : Name⁴⁵⁸⁸
- Pixels : BigEndian⁴⁵⁸⁹
- Pixels : DimensionOrder⁴⁵⁹⁰
- Pixels : ID⁴⁵⁹¹
- Pixels : Interleaved⁴⁵⁹²
- Pixels : PhysicalSizeX⁴⁵⁹³
- Pixels : PhysicalSizeY⁴⁵⁹⁴

⁴⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁵⁸²<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁵⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

- Pixels : SignificantBits⁴⁵⁹⁵
- Pixels : SizeC⁴⁵⁹⁶
- Pixels : SizeT⁴⁵⁹⁷
- Pixels : SizeX⁴⁵⁹⁸
- Pixels : SizeY⁴⁵⁹⁹
- Pixels : SizeZ⁴⁶⁰⁰
- Pixels : Type⁴⁶⁰¹
- Plane : DeltaT⁴⁶⁰²
- Plane : ExposureTime⁴⁶⁰³
- Plane : PositionX⁴⁶⁰⁴
- Plane : PositionY⁴⁶⁰⁵
- Plane : TheC⁴⁶⁰⁶
- Plane : TheT⁴⁶⁰⁷
- Plane : TheZ⁴⁶⁰⁸
- Plate : ColumnNamingConvention⁴⁶⁰⁹
- Plate : Columns⁴⁶¹⁰
- Plate : ID⁴⁶¹¹
- Plate : Name⁴⁶¹²
- Plate : RowNamingConvention⁴⁶¹³
- Plate : Rows⁴⁶¹⁴
- PlateAcquisition : ID⁴⁶¹⁵
- PlateAcquisition : MaximumFieldCount⁴⁶¹⁶
- PlateAcquisition : WellSampleRef⁴⁶¹⁷
- Well : Column⁴⁶¹⁸
- Well : ID⁴⁶¹⁹
- Well : Row⁴⁶²⁰

⁴⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁴⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁴⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁴⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention

⁴⁶¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Columns

⁴⁶¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID

⁴⁶¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name

⁴⁶¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention

⁴⁶¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Rows

⁴⁶¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_ID

⁴⁶¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#PlateAcquisition_MaximumFieldCount

⁴⁶¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSampleRef_ID

⁴⁶¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column

⁴⁶¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID

⁴⁶²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row

- WellSample : ID⁴⁶²¹
- WellSample : ImageRef⁴⁶²²
- WellSample : Index⁴⁶²³
- WellSample : PositionX⁴⁶²⁴
- WellSample : PositionY⁴⁶²⁵

Total supported: 43

Total unknown or missing: 433

18.2.138 ScreenReader

This page lists supported metadata fields for the Bio-Formats Screen format reader.

These fields are from the [OME data model](#)⁴⁶²⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Screen format reader:

- Channel : ID⁴⁶²⁷
- Channel : SamplesPerPixel⁴⁶²⁸
- Image : AcquisitionDate⁴⁶²⁹
- Image : ID⁴⁶³⁰
- Image : Name⁴⁶³¹
- Pixels : BigEndian⁴⁶³²
- Pixels : DimensionOrder⁴⁶³³
- Pixels : ID⁴⁶³⁴
- Pixels : Interleaved⁴⁶³⁵
- Pixels : SignificantBits⁴⁶³⁶
- Pixels : SizeC⁴⁶³⁷
- Pixels : SizeT⁴⁶³⁸

⁴⁶²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID

⁴⁶²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID

⁴⁶²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

⁴⁶²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionX

⁴⁶²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_PositionY

⁴⁶²⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁶²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁶²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁶²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁶³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁶³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁶³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁶³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁶³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁶³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁶³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁶³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁶³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁴⁶³⁹
- Pixels : SizeY⁴⁶⁴⁰
- Pixels : SizeZ⁴⁶⁴¹
- Pixels : Type⁴⁶⁴²
- Plane : TheC⁴⁶⁴³
- Plane : TheT⁴⁶⁴⁴
- Plane : TheZ⁴⁶⁴⁵
- Plate : ColumnNamingConvention⁴⁶⁴⁶
- Plate : Columns⁴⁶⁴⁷
- Plate : ID⁴⁶⁴⁸
- Plate : Name⁴⁶⁴⁹
- Plate : RowNamingConvention⁴⁶⁵⁰
- Plate : Rows⁴⁶⁵¹
- Screen : ID⁴⁶⁵²
- Screen : Name⁴⁶⁵³
- Screen : PlateRef⁴⁶⁵⁴
- Well : Column⁴⁶⁵⁵
- Well : ID⁴⁶⁵⁶
- Well : Row⁴⁶⁵⁷
- WellSample : ID⁴⁶⁵⁸
- WellSample : ImageRef⁴⁶⁵⁹
- WellSample : Index⁴⁶⁶⁰

Total supported: 34

Total unknown or missing: 442

18.2.139 SeikoReader

This page lists supported metadata fields for the Bio-Formats Seiko format reader.

- ⁴⁶³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
- ⁴⁶⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
- ⁴⁶⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
- ⁴⁶⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
- ⁴⁶⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
- ⁴⁶⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
- ⁴⁶⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
- ⁴⁶⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ColumnNamingConvention
- ⁴⁶⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Columns
- ⁴⁶⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_ID
- ⁴⁶⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Name
- ⁴⁶⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_RowNamingConvention
- ⁴⁶⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plate_Rows
- ⁴⁶⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_ID
- ⁴⁶⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Name
- ⁴⁶⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Screen_Screen_PlateRef_ID
- ⁴⁶⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Column
- ⁴⁶⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_ID
- ⁴⁶⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Well_Row
- ⁴⁶⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_ID
- ⁴⁶⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImageRef_ID
- ⁴⁶⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#WellSample_Index

These fields are from the [OME data model](#)⁴⁶⁶¹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁶⁶²
- Channel : SamplesPerPixel⁴⁶⁶³
- Image : AcquisitionDate⁴⁶⁶⁴
- Image : Description⁴⁶⁶⁵
- Image : ID⁴⁶⁶⁶
- Image : Name⁴⁶⁶⁷
- Pixels : BigEndian⁴⁶⁶⁸
- Pixels : DimensionOrder⁴⁶⁶⁹
- Pixels : ID⁴⁶⁷⁰
- Pixels : Interleaved⁴⁶⁷¹
- Pixels : PhysicalSizeX⁴⁶⁷²
- Pixels : PhysicalSizeY⁴⁶⁷³
- Pixels : SignificantBits⁴⁶⁷⁴
- Pixels : SizeC⁴⁶⁷⁵
- Pixels : SizeT⁴⁶⁷⁶
- Pixels : SizeX⁴⁶⁷⁷
- Pixels : SizeY⁴⁶⁷⁸
- Pixels : SizeZ⁴⁶⁷⁹
- Pixels : Type⁴⁶⁸⁰
- Plane : TheC⁴⁶⁸¹

⁴⁶⁶¹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁶⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁶⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁶⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁶⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁶⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁶⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁶⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁶⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁶⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁶⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁶⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁶⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁶⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁶⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁶⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁶⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁶⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁶⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁶⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁶⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

- Plane : TheT⁴⁶⁸²
- Plane : TheZ⁴⁶⁸³

Total supported: 22

Total unknown or missing: 454

18.2.140 SimplePCITiffReader

This page lists supported metadata fields for the Bio-Formats SimplePCI TIFF format reader.

These fields are from the [OME data model](#)⁴⁶⁸⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁶⁸⁵
- Channel : SamplesPerPixel⁴⁶⁸⁶
- Detector : ID⁴⁶⁸⁷
- Detector : Model⁴⁶⁸⁸
- Detector : Type⁴⁶⁸⁹
- DetectorSettings : Binning⁴⁶⁹⁰
- DetectorSettings : ID⁴⁶⁹¹
- Image : AcquisitionDate⁴⁶⁹²
- Image : Description⁴⁶⁹³
- Image : ID⁴⁶⁹⁴
- Image : InstrumentRef⁴⁶⁹⁵
- Image : Name⁴⁶⁹⁶
- Instrument : ID⁴⁶⁹⁷
- Objective : ID⁴⁶⁹⁸
- Objective : Immersion⁴⁶⁹⁹

⁴⁶⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁶⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁶⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁶⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁶⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁶⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁴⁶⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁶⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁴⁶⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁴⁶⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁴⁶⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁶⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁶⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁶⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴⁶⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁶⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁶⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁶⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

- Objective : NominalMagnification⁴⁷⁰⁰
- Pixels : BigEndian⁴⁷⁰¹
- Pixels : DimensionOrder⁴⁷⁰²
- Pixels : ID⁴⁷⁰³
- Pixels : Interleaved⁴⁷⁰⁴
- Pixels : PhysicalSizeX⁴⁷⁰⁵
- Pixels : PhysicalSizeY⁴⁷⁰⁶
- Pixels : SignificantBits⁴⁷⁰⁷
- Pixels : SizeC⁴⁷⁰⁸
- Pixels : SizeT⁴⁷⁰⁹
- Pixels : SizeX⁴⁷¹⁰
- Pixels : SizeY⁴⁷¹¹
- Pixels : SizeZ⁴⁷¹²
- Pixels : Type⁴⁷¹³
- Plane : ExposureTime⁴⁷¹⁴
- Plane : TheC⁴⁷¹⁵
- Plane : TheT⁴⁷¹⁶
- Plane : TheZ⁴⁷¹⁷

Total supported: 33

Total unknown or missing: 443

18.2.141 SlidebookReader

This page lists supported metadata fields for the Bio-Formats Olympus Slidebook format reader.

These fields are from the [OME data model](#)⁴⁷¹⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

⁴⁷⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁷⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁷⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁷⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁷⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁷⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁷⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁷⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁷⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁷⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁷¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁷¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁷¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁷¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁷¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴⁷¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁷¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁷¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁷¹⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Olympus Slidebook format reader:

- Channel : ID⁴⁷¹⁹
- Channel : NDFilter⁴⁷²⁰
- Channel : Name⁴⁷²¹
- Channel : SamplesPerPixel⁴⁷²²
- Image : AcquisitionDate⁴⁷²³
- Image : Description⁴⁷²⁴
- Image : ID⁴⁷²⁵
- Image : InstrumentRef⁴⁷²⁶
- Image : Name⁴⁷²⁷
- Instrument : ID⁴⁷²⁸
- Objective : Correction⁴⁷²⁹
- Objective : ID⁴⁷³⁰
- Objective : Immersion⁴⁷³¹
- Objective : Model⁴⁷³²
- Objective : NominalMagnification⁴⁷³³
- ObjectiveSettings : ID⁴⁷³⁴
- Pixels : BigEndian⁴⁷³⁵
- Pixels : DimensionOrder⁴⁷³⁶
- Pixels : ID⁴⁷³⁷
- Pixels : Interleaved⁴⁷³⁸
- Pixels : PhysicalSizeX⁴⁷³⁹
- Pixels : PhysicalSizeY⁴⁷⁴⁰
- Pixels : PhysicalSizeZ⁴⁷⁴¹
- Pixels : SignificantBits⁴⁷⁴²

⁴⁷¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁷²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_NDFilter

⁴⁷²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴⁷²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁷²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁷²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁷²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁷²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁴⁷²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁷²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁴⁷²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁴⁷³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁷³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁴⁷³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁴⁷³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁷³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁴⁷³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁷³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁷³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁷³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁷³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁷⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁷⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁷⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

- Pixels : SizeC⁴⁷⁴³
- Pixels : SizeT⁴⁷⁴⁴
- Pixels : SizeX⁴⁷⁴⁵
- Pixels : SizeY⁴⁷⁴⁶
- Pixels : SizeZ⁴⁷⁴⁷
- Pixels : Type⁴⁷⁴⁸
- Plane : ExposureTime⁴⁷⁴⁹
- Plane : TheC⁴⁷⁵⁰
- Plane : TheT⁴⁷⁵¹
- Plane : TheZ⁴⁷⁵²

Total supported: 34

Total unknown or missing: 442

18.2.142 SlidebookTiffReader

This page lists supported metadata fields for the Bio-Formats Slidebook TIFF format reader.

These fields are from the [OME data model](#)⁴⁷⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Slidebook TIFF format reader:

- Channel : ID⁴⁷⁵⁴
- Channel : Name⁴⁷⁵⁵
- Channel : SamplesPerPixel⁴⁷⁵⁶
- Image : AcquisitionDate⁴⁷⁵⁷
- Image : ID⁴⁷⁵⁸
- Image : Name⁴⁷⁵⁹
- Instrument : ID⁴⁷⁶⁰

⁴⁷⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁷⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁷⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁷⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁷⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁷⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁷⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴⁷⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁷⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁷⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁷⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁷⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁷⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁴⁷⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁷⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁷⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁷⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁷⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

- Objective : Correction⁴⁷⁶¹
- Objective : ID⁴⁷⁶²
- Objective : Immersion⁴⁷⁶³
- Objective : NominalMagnification⁴⁷⁶⁴
- Pixels : BigEndian⁴⁷⁶⁵
- Pixels : DimensionOrder⁴⁷⁶⁶
- Pixels : ID⁴⁷⁶⁷
- Pixels : Interleaved⁴⁷⁶⁸
- Pixels : PhysicalSizeX⁴⁷⁶⁹
- Pixels : PhysicalSizeY⁴⁷⁷⁰
- Pixels : SignificantBits⁴⁷⁷¹
- Pixels : SizeC⁴⁷⁷²
- Pixels : SizeT⁴⁷⁷³
- Pixels : SizeX⁴⁷⁷⁴
- Pixels : SizeY⁴⁷⁷⁵
- Pixels : SizeZ⁴⁷⁷⁶
- Pixels : Type⁴⁷⁷⁷
- Plane : PositionX⁴⁷⁷⁸
- Plane : PositionY⁴⁷⁷⁹
- Plane : PositionZ⁴⁷⁸⁰
- Plane : TheC⁴⁷⁸¹
- Plane : TheT⁴⁷⁸²
- Plane : TheZ⁴⁷⁸³

Total supported: 30

Total unknown or missing: 446

⁴⁷⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁴⁷⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁴⁷⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁴⁷⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁴⁷⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁷⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁷⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁷⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁷⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁷⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁷⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁷⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁷⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁷⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁷⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁷⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁷⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁷⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁴⁷⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁴⁷⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁴⁷⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁷⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁷⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.143 SpiderReader

This page lists supported metadata fields for the Bio-Formats SPIDER format reader.

These fields are from the [OME data model](#)⁴⁷⁸⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁷⁸⁵
- Channel : SamplesPerPixel⁴⁷⁸⁶
- Image : AcquisitionDate⁴⁷⁸⁷
- Image : ID⁴⁷⁸⁸
- Image : Name⁴⁷⁸⁹
- Pixels : BigEndian⁴⁷⁹⁰
- Pixels : DimensionOrder⁴⁷⁹¹
- Pixels : ID⁴⁷⁹²
- Pixels : Interleaved⁴⁷⁹³
- Pixels : PhysicalSizeX⁴⁷⁹⁴
- Pixels : PhysicalSizeY⁴⁷⁹⁵
- Pixels : SignificantBits⁴⁷⁹⁶
- Pixels : SizeC⁴⁷⁹⁷
- Pixels : SizeT⁴⁷⁹⁸
- Pixels : SizeX⁴⁷⁹⁹
- Pixels : SizeY⁴⁸⁰⁰
- Pixels : SizeZ⁴⁸⁰¹
- Pixels : Type⁴⁸⁰²

⁴⁷⁸⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁷⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁷⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁷⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁷⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁷⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁷⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁷⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁷⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁷⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁷⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁷⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁷⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁷⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁷⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁷⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁸⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁸⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁸⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁴⁸⁰³
- Plane : TheT⁴⁸⁰⁴
- Plane : TheZ⁴⁸⁰⁵

Total supported: 21

Total unknown or missing: 455

18.2.144 TCSReader

This page lists supported metadata fields for the Bio-Formats Leica TCS TIFF format reader.

These fields are from the [OME data model](#)⁴⁸⁰⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Leica TCS TIFF format reader:

- Channel : ID⁴⁸⁰⁷
- Channel : SamplesPerPixel⁴⁸⁰⁸
- Image : AcquisitionDate⁴⁸⁰⁹
- Image : ID⁴⁸¹⁰
- Image : Name⁴⁸¹¹
- Pixels : BigEndian⁴⁸¹²
- Pixels : DimensionOrder⁴⁸¹³
- Pixels : ID⁴⁸¹⁴
- Pixels : Interleaved⁴⁸¹⁵
- Pixels : PhysicalSizeX⁴⁸¹⁶
- Pixels : PhysicalSizeY⁴⁸¹⁷
- Pixels : PhysicalSizeZ⁴⁸¹⁸
- Pixels : SignificantBits⁴⁸¹⁹
- Pixels : SizeC⁴⁸²⁰

⁴⁸⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁸⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁸⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁸⁰⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁸⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁸⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁸¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁸¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁸¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁸¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁸¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁴⁸¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁸¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁴⁸¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁸²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

- Pixels : SizeT⁴⁸²¹
- Pixels : SizeX⁴⁸²²
- Pixels : SizeY⁴⁸²³
- Pixels : SizeZ⁴⁸²⁴
- Pixels : Type⁴⁸²⁵
- Plane : TheC⁴⁸²⁶
- Plane : TheT⁴⁸²⁷
- Plane : TheZ⁴⁸²⁸

Total supported: 22

Total unknown or missing: 454

18.2.145 TargaReader

This page lists supported metadata fields for the Bio-Formats Truevision Targa format reader.

These fields are from the [OME data model](#)⁴⁸²⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁸³⁰
- Channel : SamplesPerPixel⁴⁸³¹
- Image : AcquisitionDate⁴⁸³²
- Image : Description⁴⁸³³
- Image : ID⁴⁸³⁴
- Image : Name⁴⁸³⁵
- Pixels : BigEndian⁴⁸³⁶
- Pixels : DimensionOrder⁴⁸³⁷
- Pixels : ID⁴⁸³⁸

⁴⁸²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁸²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁸²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁸²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁸²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁸²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁸²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁸²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁸²⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁸³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁸³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁸³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁸³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁸³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁸³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

- Pixels : Interleaved⁴⁸³⁹
- Pixels : SignificantBits⁴⁸⁴⁰
- Pixels : SizeC⁴⁸⁴¹
- Pixels : SizeT⁴⁸⁴²
- Pixels : SizeX⁴⁸⁴³
- Pixels : SizeY⁴⁸⁴⁴
- Pixels : SizeZ⁴⁸⁴⁵
- Pixels : Type⁴⁸⁴⁶
- Plane : TheC⁴⁸⁴⁷
- Plane : TheT⁴⁸⁴⁸
- Plane : TheZ⁴⁸⁴⁹

Total supported: 20

Total unknown or missing: 456

18.2.146 TextReader

This page lists supported metadata fields for the Bio-Formats Text format reader.

These fields are from the [OME data model](#)⁴⁸⁵⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁴⁸⁵¹
- Channel : SamplesPerPixel⁴⁸⁵²
- Image : AcquisitionDate⁴⁸⁵³
- Image : ID⁴⁸⁵⁴
- Image : Name⁴⁸⁵⁵
- Pixels : BigEndian⁴⁸⁵⁶

⁴⁸³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁸⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁸⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁸⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁸⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁸⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁸⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁸⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁸⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁸⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁸⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁸⁵⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁸⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁸⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁸⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁴⁸⁵⁷
- Pixels : ID⁴⁸⁵⁸
- Pixels : Interleaved⁴⁸⁵⁹
- Pixels : SignificantBits⁴⁸⁶⁰
- Pixels : SizeC⁴⁸⁶¹
- Pixels : SizeT⁴⁸⁶²
- Pixels : SizeX⁴⁸⁶³
- Pixels : SizeY⁴⁸⁶⁴
- Pixels : SizeZ⁴⁸⁶⁵
- Pixels : Type⁴⁸⁶⁶
- Plane : TheC⁴⁸⁶⁷
- Plane : TheT⁴⁸⁶⁸
- Plane : TheZ⁴⁸⁶⁹

Total supported: 19

Total unknown or missing: 457

18.2.147 TiffDelegateReader

This page lists supported metadata fields for the Bio-Formats Tagged Image File Format format reader.

These fields are from the [OME data model](#)⁴⁸⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Tagged Image File Format format reader:

- Channel : ID⁴⁸⁷¹
- Channel : SamplesPerPixel⁴⁸⁷²
- Image : AcquisitionDate⁴⁸⁷³
- Image : ID⁴⁸⁷⁴

⁴⁸⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁸⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁸⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁸⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁸⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁸⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁸⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁸⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁸⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁸⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁸⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁸⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁸⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁸⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁸⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁸⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name⁴⁸⁷⁵
- Pixels : BigEndian⁴⁸⁷⁶
- Pixels : DimensionOrder⁴⁸⁷⁷
- Pixels : ID⁴⁸⁷⁸
- Pixels : Interleaved⁴⁸⁷⁹
- Pixels : SignificantBits⁴⁸⁸⁰
- Pixels : SizeC⁴⁸⁸¹
- Pixels : SizeT⁴⁸⁸²
- Pixels : SizeX⁴⁸⁸³
- Pixels : SizeY⁴⁸⁸⁴
- Pixels : SizeZ⁴⁸⁸⁵
- Pixels : Type⁴⁸⁸⁶
- Plane : TheC⁴⁸⁸⁷
- Plane : TheT⁴⁸⁸⁸
- Plane : TheZ⁴⁸⁸⁹

Total supported: 19

Total unknown or missing: 457

18.2.148 TiffJAIReader

This page lists supported metadata fields for the Bio-Formats Tagged Image File Format format reader.

These fields are from the [OME data model](#)⁴⁸⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Tagged Image File Format format reader:

- Channel : ID⁴⁸⁹¹
- Channel : SamplesPerPixel⁴⁸⁹²

⁴⁸⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁸⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁸⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁸⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁸⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁸⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁸⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁸⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁸⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁸⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁸⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁸⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁸⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁸⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁸⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁸⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁸⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁴⁸⁹³
- Image : ID⁴⁸⁹⁴
- Image : Name⁴⁸⁹⁵
- Pixels : BigEndian⁴⁸⁹⁶
- Pixels : DimensionOrder⁴⁸⁹⁷
- Pixels : ID⁴⁸⁹⁸
- Pixels : Interleaved⁴⁸⁹⁹
- Pixels : SignificantBits⁴⁹⁰⁰
- Pixels : SizeC⁴⁹⁰¹
- Pixels : SizeT⁴⁹⁰²
- Pixels : SizeX⁴⁹⁰³
- Pixels : SizeY⁴⁹⁰⁴
- Pixels : SizeZ⁴⁹⁰⁵
- Pixels : Type⁴⁹⁰⁶
- Plane : TheC⁴⁹⁰⁷
- Plane : TheT⁴⁹⁰⁸
- Plane : TheZ⁴⁹⁰⁹

Total supported: 19

Total unknown or missing: 457

18.2.149 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](#)⁴⁹¹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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%).

⁴⁸⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁸⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁸⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁸⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁸⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁸⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁸⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁹¹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Tagged Image File Format format reader:

- Channel : ID⁴⁹¹¹
- Channel : SamplesPerPixel⁴⁹¹²
- Image : AcquisitionDate⁴⁹¹³
- Image : Description⁴⁹¹⁴
- Image : ID⁴⁹¹⁵
- Image : Name⁴⁹¹⁶
- Pixels : BigEndian⁴⁹¹⁷
- Pixels : DimensionOrder⁴⁹¹⁸
- Pixels : ID⁴⁹¹⁹
- Pixels : Interleaved⁴⁹²⁰
- Pixels : PhysicalSizeZ⁴⁹²¹
- Pixels : SignificantBits⁴⁹²²
- Pixels : SizeC⁴⁹²³
- Pixels : SizeT⁴⁹²⁴
- Pixels : SizeX⁴⁹²⁵
- Pixels : SizeY⁴⁹²⁶
- Pixels : SizeZ⁴⁹²⁷
- Pixels : TimeIncrement⁴⁹²⁸
- Pixels : Type⁴⁹²⁹
- Plane : TheC⁴⁹³⁰
- Plane : TheT⁴⁹³¹
- Plane : TheZ⁴⁹³²

Total supported: 22

Total unknown or missing: 454

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- ⁴⁹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID
 - ⁴⁹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel
 - ⁴⁹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate
 - ⁴⁹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description
 - ⁴⁹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID
 - ⁴⁹¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name
 - ⁴⁹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
 - ⁴⁹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
 - ⁴⁹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
 - ⁴⁹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
 - ⁴⁹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ
 - ⁴⁹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
 - ⁴⁹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
 - ⁴⁹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
 - ⁴⁹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
 - ⁴⁹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
 - ⁴⁹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
 - ⁴⁹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement
 - ⁴⁹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
 - ⁴⁹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
 - ⁴⁹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
 - ⁴⁹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.150 TileJPEGReader

This page lists supported metadata fields for the Bio-Formats Tile JPEG format reader.

These fields are from the [OME data model](#)⁴⁹³³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Tile JPEG format reader:

- Channel : ID⁴⁹³⁴
- Channel : SamplesPerPixel⁴⁹³⁵
- Image : AcquisitionDate⁴⁹³⁶
- Image : ID⁴⁹³⁷
- Image : Name⁴⁹³⁸
- Pixels : BigEndian⁴⁹³⁹
- Pixels : DimensionOrder⁴⁹⁴⁰
- Pixels : ID⁴⁹⁴¹
- Pixels : Interleaved⁴⁹⁴²
- Pixels : SignificantBits⁴⁹⁴³
- Pixels : SizeC⁴⁹⁴⁴
- Pixels : SizeT⁴⁹⁴⁵
- Pixels : SizeX⁴⁹⁴⁶
- Pixels : SizeY⁴⁹⁴⁷
- Pixels : SizeZ⁴⁹⁴⁸
- Pixels : Type⁴⁹⁴⁹
- Plane : TheC⁴⁹⁵⁰
- Plane : TheT⁴⁹⁵¹

⁴⁹³³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁹³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

- Plane : TheZ⁴⁹⁵²

Total supported: 19

Total unknown or missing: 457

18.2.151 TillVisionReader

This page lists supported metadata fields for the Bio-Formats TillVision format reader.

These fields are from the [OME data model](#)⁴⁹⁵³. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁹⁵⁴
- Channel : SamplesPerPixel⁴⁹⁵⁵
- Experiment : ID⁴⁹⁵⁶
- Experiment : Type⁴⁹⁵⁷
- Image : AcquisitionDate⁴⁹⁵⁸
- Image : ID⁴⁹⁵⁹
- Image : Name⁴⁹⁶⁰
- Pixels : BigEndian⁴⁹⁶¹
- Pixels : DimensionOrder⁴⁹⁶²
- Pixels : ID⁴⁹⁶³
- Pixels : Interleaved⁴⁹⁶⁴
- Pixels : SignificantBits⁴⁹⁶⁵
- Pixels : SizeC⁴⁹⁶⁶
- Pixels : SizeT⁴⁹⁶⁷
- Pixels : SizeX⁴⁹⁶⁸
- Pixels : SizeY⁴⁹⁶⁹

⁴⁹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁹⁵³<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁹⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_ID

⁴⁹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experiment_Type

⁴⁹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁴⁹⁷⁰
- Pixels : Type⁴⁹⁷¹
- Plane : ExposureTime⁴⁹⁷²
- Plane : TheC⁴⁹⁷³
- Plane : TheT⁴⁹⁷⁴
- Plane : TheZ⁴⁹⁷⁵

Total supported: 22

Total unknown or missing: 454

18.2.152 TopometrixReader

This page lists supported metadata fields for the Bio-Formats TopoMetrix format reader.

These fields are from the [OME data model](#)⁴⁹⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁴⁹⁷⁷
- Channel : SamplesPerPixel⁴⁹⁷⁸
- Image : AcquisitionDate⁴⁹⁷⁹
- Image : Description⁴⁹⁸⁰
- Image : ID⁴⁹⁸¹
- Image : Name⁴⁹⁸²
- Pixels : BigEndian⁴⁹⁸³
- Pixels : DimensionOrder⁴⁹⁸⁴
- Pixels : ID⁴⁹⁸⁵
- Pixels : Interleaved⁴⁹⁸⁶
- Pixels : PhysicalSizeX⁴⁹⁸⁷

⁴⁹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁴⁹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁴⁹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁴⁹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁴⁹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁴⁹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁴⁹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁴⁹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁴⁹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁴⁹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁴⁹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁴⁹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁴⁹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁴⁹⁸⁸
- Pixels : SignificantBits⁴⁹⁸⁹
- Pixels : SizeC⁴⁹⁹⁰
- Pixels : SizeT⁴⁹⁹¹
- Pixels : SizeX⁴⁹⁹²
- Pixels : SizeY⁴⁹⁹³
- Pixels : SizeZ⁴⁹⁹⁴
- Pixels : Type⁴⁹⁹⁵
- Plane : TheC⁴⁹⁹⁶
- Plane : TheT⁴⁹⁹⁷
- Plane : TheZ⁴⁹⁹⁸

Total supported: 22

Total unknown or missing: 454

18.2.153 TrestleReader

This page lists supported metadata fields for the Bio-Formats Trestle format reader.

These fields are from the [OME data model](#)⁴⁹⁹⁹. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Trestle format reader:

- Channel : ID⁵⁰⁰⁰
- Channel : SamplesPerPixel⁵⁰⁰¹
- Image : AcquisitionDate⁵⁰⁰²
- Image : ID⁵⁰⁰³
- Image : Name⁵⁰⁰⁴
- Image : ROIRef⁵⁰⁰⁵

⁴⁹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁴⁹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁴⁹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁴⁹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁴⁹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁴⁹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁴⁹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁴⁹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁴⁹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁴⁹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁴⁹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁴⁹⁹⁹<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁰⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁰⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁰⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁰⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁰⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

- Mask : BinData⁵⁰⁰⁶
- Mask : Height⁵⁰⁰⁷
- Mask : ID⁵⁰⁰⁸
- Mask : Width⁵⁰⁰⁹
- Mask : X⁵⁰¹⁰
- Mask : Y⁵⁰¹¹
- Pixels : BigEndian⁵⁰¹²
- Pixels : DimensionOrder⁵⁰¹³
- Pixels : ID⁵⁰¹⁴
- Pixels : Interleaved⁵⁰¹⁵
- Pixels : SignificantBits⁵⁰¹⁶
- Pixels : SizeC⁵⁰¹⁷
- Pixels : SizeT⁵⁰¹⁸
- Pixels : SizeX⁵⁰¹⁹
- Pixels : SizeY⁵⁰²⁰
- Pixels : SizeZ⁵⁰²¹
- Pixels : Type⁵⁰²²
- Plane : TheC⁵⁰²³
- Plane : TheT⁵⁰²⁴
- Plane : TheZ⁵⁰²⁵
- ROI : ID⁵⁰²⁶

Total supported: 27

Total unknown or missing: 449

18.2.154 UBMReader

This page lists supported metadata fields for the Bio-Formats UBM format reader.

These fields are from the [OME data model](#)⁵⁰²⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁵⁰⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#BinData
⁵⁰⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Height
⁵⁰⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID
⁵⁰⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Width
⁵⁰¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_X
⁵⁰¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Mask_Y
⁵⁰¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
⁵⁰¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
⁵⁰¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
⁵⁰¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
⁵⁰¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
⁵⁰¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
⁵⁰¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
⁵⁰¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
⁵⁰²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
⁵⁰²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
⁵⁰²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
⁵⁰²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
⁵⁰²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
⁵⁰²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
⁵⁰²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID
⁵⁰²⁷<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁰²⁸
- Channel : SamplesPerPixel⁵⁰²⁹
- Image : AcquisitionDate⁵⁰³⁰
- Image : ID⁵⁰³¹
- Image : Name⁵⁰³²
- Pixels : BigEndian⁵⁰³³
- Pixels : DimensionOrder⁵⁰³⁴
- Pixels : ID⁵⁰³⁵
- Pixels : Interleaved⁵⁰³⁶
- Pixels : SignificantBits⁵⁰³⁷
- Pixels : SizeC⁵⁰³⁸
- Pixels : SizeT⁵⁰³⁹
- Pixels : SizeX⁵⁰⁴⁰
- Pixels : SizeY⁵⁰⁴¹
- Pixels : SizeZ⁵⁰⁴²
- Pixels : Type⁵⁰⁴³
- Plane : TheC⁵⁰⁴⁴
- Plane : TheT⁵⁰⁴⁵
- Plane : TheZ⁵⁰⁴⁶

Total supported: 19

Total unknown or missing: 457

⁵⁰²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁰²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁰³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁰³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁰³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁰³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁰³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁰³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁰³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁰³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁰³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁰³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁰⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁰⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁰⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁰⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁰⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁰⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁰⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

18.2.155 UnisokuReader

This page lists supported metadata fields for the Bio-Formats Unisoku STM format reader.

These fields are from the [OME data model](#)⁵⁰⁴⁷. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁵⁰⁴⁸
- Channel : SamplesPerPixel⁵⁰⁴⁹
- Image : AcquisitionDate⁵⁰⁵⁰
- Image : Description⁵⁰⁵¹
- Image : ID⁵⁰⁵²
- Image : Name⁵⁰⁵³
- Pixels : BigEndian⁵⁰⁵⁴
- Pixels : DimensionOrder⁵⁰⁵⁵
- Pixels : ID⁵⁰⁵⁶
- Pixels : Interleaved⁵⁰⁵⁷
- Pixels : PhysicalSizeX⁵⁰⁵⁸
- Pixels : PhysicalSizeY⁵⁰⁵⁹
- Pixels : SignificantBits⁵⁰⁶⁰
- Pixels : SizeC⁵⁰⁶¹
- Pixels : SizeT⁵⁰⁶²
- Pixels : SizeX⁵⁰⁶³
- Pixels : SizeY⁵⁰⁶⁴
- Pixels : SizeZ⁵⁰⁶⁵
- Pixels : Type⁵⁰⁶⁶

⁵⁰⁴⁷<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁰⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁰⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁰⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁵⁰⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁰⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁰⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁰⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁰⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁰⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁰⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁰⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁰⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁰⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁰⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁰⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁰⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁰⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁰⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁵⁰⁶⁷
- Plane : TheT⁵⁰⁶⁸
- Plane : TheZ⁵⁰⁶⁹

Total supported: 22

Total unknown or missing: 454

18.2.156 VGSAMReader

This page lists supported metadata fields for the Bio-Formats VG SAM format reader.

These fields are from the [OME data model](#)⁵⁰⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁰⁷¹
- Channel : SamplesPerPixel⁵⁰⁷²
- Image : AcquisitionDate⁵⁰⁷³
- Image : ID⁵⁰⁷⁴
- Image : Name⁵⁰⁷⁵
- Pixels : BigEndian⁵⁰⁷⁶
- Pixels : DimensionOrder⁵⁰⁷⁷
- Pixels : ID⁵⁰⁷⁸
- Pixels : Interleaved⁵⁰⁷⁹
- Pixels : SignificantBits⁵⁰⁸⁰
- Pixels : SizeC⁵⁰⁸¹
- Pixels : SizeT⁵⁰⁸²
- Pixels : SizeX⁵⁰⁸³
- Pixels : SizeY⁵⁰⁸⁴

⁵⁰⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁰⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁰⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁰⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁰⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁰⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁰⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁰⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁰⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁰⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁰⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁰⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁰⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁰⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁰⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁰⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁰⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁵⁰⁸⁵
- Pixels : Type⁵⁰⁸⁶
- Plane : TheC⁵⁰⁸⁷
- Plane : TheT⁵⁰⁸⁸
- Plane : TheZ⁵⁰⁸⁹

Total supported: 19

Total unknown or missing: 457

18.2.157 VarianFDFReader

This page lists supported metadata fields for the Bio-Formats Varian FDF format reader.

These fields are from the [OME data model](#)⁵⁰⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁵⁰⁹¹
- Channel : SamplesPerPixel⁵⁰⁹²
- Image : AcquisitionDate⁵⁰⁹³
- Image : ID⁵⁰⁹⁴
- Image : Name⁵⁰⁹⁵
- Pixels : BigEndian⁵⁰⁹⁶
- Pixels : DimensionOrder⁵⁰⁹⁷
- Pixels : ID⁵⁰⁹⁸
- Pixels : Interleaved⁵⁰⁹⁹
- Pixels : PhysicalSizeX⁵¹⁰⁰
- Pixels : PhysicalSizeY⁵¹⁰¹
- Pixels : PhysicalSizeZ⁵¹⁰²

⁵⁰⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁰⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁰⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁰⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁰⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁰⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁰⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁰⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁰⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁰⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁰⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁰⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁰⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁰⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁰⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵¹⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵¹⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵¹⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

- Pixels : SignificantBits⁵¹⁰³
- Pixels : SizeC⁵¹⁰⁴
- Pixels : SizeT⁵¹⁰⁵
- Pixels : SizeX⁵¹⁰⁶
- Pixels : SizeY⁵¹⁰⁷
- Pixels : SizeZ⁵¹⁰⁸
- Pixels : Type⁵¹⁰⁹
- Plane : PositionX⁵¹¹⁰
- Plane : PositionY⁵¹¹¹
- Plane : PositionZ⁵¹¹²
- Plane : TheC⁵¹¹³
- Plane : TheT⁵¹¹⁴
- Plane : TheZ⁵¹¹⁵

Total supported: 25

Total unknown or missing: 451

18.2.158 VeecoReader

This page lists supported metadata fields for the Bio-Formats Veeco format reader.

These fields are from the OME data model⁵¹¹⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Veeco format reader:

- Channel : ID⁵¹¹⁷
- Channel : SamplesPerPixel⁵¹¹⁸
- Image : AcquisitionDate⁵¹¹⁹
- Image : ID⁵¹²⁰

⁵¹⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵¹⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵¹⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵¹⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵¹⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵¹⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵¹⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵¹¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁵¹¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁵¹¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁵¹¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵¹¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵¹¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵¹¹⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁵¹¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵¹¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵¹¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵¹²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

- Image : Name⁵¹²¹
- Pixels : BigEndian⁵¹²²
- Pixels : DimensionOrder⁵¹²³
- Pixels : ID⁵¹²⁴
- Pixels : Interleaved⁵¹²⁵
- Pixels : SignificantBits⁵¹²⁶
- Pixels : SizeC⁵¹²⁷
- Pixels : SizeT⁵¹²⁸
- Pixels : SizeX⁵¹²⁹
- Pixels : SizeY⁵¹³⁰
- Pixels : SizeZ⁵¹³¹
- Pixels : Type⁵¹³²
- Plane : TheC⁵¹³³
- Plane : TheT⁵¹³⁴
- Plane : TheZ⁵¹³⁵

Total supported: 19

Total unknown or missing: 457

18.2.159 VisitechReader

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

These fields are from the OME data model⁵¹³⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵¹³⁷
- Channel : SamplesPerPixel⁵¹³⁸

⁵¹²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵¹²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵¹²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵¹²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵¹²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵¹²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵¹²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵¹²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵¹²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵¹³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵¹³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵¹³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵¹³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵¹³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵¹³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵¹³⁶<http://www.openmicroscopy.org/site/support/ome-model/>

⁵¹³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵¹³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁵¹³⁹
- Image : ID⁵¹⁴⁰
- Image : Name⁵¹⁴¹
- Pixels : BigEndian⁵¹⁴²
- Pixels : DimensionOrder⁵¹⁴³
- Pixels : ID⁵¹⁴⁴
- Pixels : Interleaved⁵¹⁴⁵
- Pixels : SignificantBits⁵¹⁴⁶
- Pixels : SizeC⁵¹⁴⁷
- Pixels : SizeT⁵¹⁴⁸
- Pixels : SizeX⁵¹⁴⁹
- Pixels : SizeY⁵¹⁵⁰
- Pixels : SizeZ⁵¹⁵¹
- Pixels : Type⁵¹⁵²
- Plane : TheC⁵¹⁵³
- Plane : TheT⁵¹⁵⁴
- Plane : TheZ⁵¹⁵⁵

Total supported: 19

Total unknown or missing: 457

18.2.160 VolocityClippingReader

This page lists supported metadata fields for the Bio-Formats Volocity Library Clipping format reader.

These fields are from the [OME data model](#)⁵¹⁵⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

⁵¹³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵¹⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵¹⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵¹⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵¹⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵¹⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵¹⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵¹⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵¹⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵¹⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵¹⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵¹⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵¹⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵¹⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵¹⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵¹⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵¹⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵¹⁵⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Supported fields

These fields are fully supported by the Bio-Formats Velocity Library Clipping format reader:

- Channel : ID⁵¹⁵⁷
- Channel : SamplesPerPixel⁵¹⁵⁸
- Image : AcquisitionDate⁵¹⁵⁹
- Image : ID⁵¹⁶⁰
- Image : Name⁵¹⁶¹
- Pixels : BigEndian⁵¹⁶²
- Pixels : DimensionOrder⁵¹⁶³
- Pixels : ID⁵¹⁶⁴
- Pixels : Interleaved⁵¹⁶⁵
- Pixels : SignificantBits⁵¹⁶⁶
- Pixels : SizeC⁵¹⁶⁷
- Pixels : SizeT⁵¹⁶⁸
- Pixels : SizeX⁵¹⁶⁹
- Pixels : SizeY⁵¹⁷⁰
- Pixels : SizeZ⁵¹⁷¹
- Pixels : Type⁵¹⁷²
- Plane : TheC⁵¹⁷³
- Plane : TheT⁵¹⁷⁴
- Plane : TheZ⁵¹⁷⁵

Total supported: 19

Total unknown or missing: 457

18.2.161 VelocityReader

This page lists supported metadata fields for the Bio-Formats Velocity Library format reader.

These fields are from the OME data model⁵¹⁷⁶. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁵¹⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID
⁵¹⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel
⁵¹⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate
⁵¹⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID
⁵¹⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name
⁵¹⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian
⁵¹⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder
⁵¹⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID
⁵¹⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved
⁵¹⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits
⁵¹⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC
⁵¹⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT
⁵¹⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX
⁵¹⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY
⁵¹⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ
⁵¹⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type
⁵¹⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC
⁵¹⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT
⁵¹⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ
⁵¹⁷⁶<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 38 of them (7%).
- 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 : ID⁵¹⁷⁷
- Channel : Name⁵¹⁷⁸
- Channel : SamplesPerPixel⁵¹⁷⁹
- Detector : ID⁵¹⁸⁰
- Detector : Model⁵¹⁸¹
- DetectorSettings : ID⁵¹⁸²
- Image : AcquisitionDate⁵¹⁸³
- Image : Description⁵¹⁸⁴
- Image : ID⁵¹⁸⁵
- Image : InstrumentRef⁵¹⁸⁶
- Image : Name⁵¹⁸⁷
- Instrument : ID⁵¹⁸⁸
- Objective : Correction⁵¹⁸⁹
- Objective : ID⁵¹⁹⁰
- Objective : Immersion⁵¹⁹¹
- Objective : NominalMagnification⁵¹⁹²
- ObjectiveSettings : ID⁵¹⁹³
- Pixels : BigEndian⁵¹⁹⁴
- Pixels : DimensionOrder⁵¹⁹⁵
- Pixels : ID⁵¹⁹⁶
- Pixels : Interleaved⁵¹⁹⁷
- Pixels : PhysicalSizeX⁵¹⁹⁸

⁵¹⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵¹⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁵¹⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵¹⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁵¹⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵¹⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁵¹⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵¹⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁵¹⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵¹⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁵¹⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵¹⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁵¹⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁵¹⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁵¹⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁵¹⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁵¹⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁵¹⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵¹⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵¹⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵¹⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵¹⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

- Pixels : PhysicalSizeY⁵¹⁹⁹
- Pixels : PhysicalSizeZ⁵²⁰⁰
- Pixels : SignificantBits⁵²⁰¹
- Pixels : SizeC⁵²⁰²
- Pixels : SizeT⁵²⁰³
- Pixels : SizeX⁵²⁰⁴
- Pixels : SizeY⁵²⁰⁵
- Pixels : SizeZ⁵²⁰⁶
- Pixels : Type⁵²⁰⁷
- Plane : DeltaT⁵²⁰⁸
- Plane : PositionX⁵²⁰⁹
- Plane : PositionY⁵²¹⁰
- Plane : PositionZ⁵²¹¹
- Plane : TheC⁵²¹²
- Plane : TheT⁵²¹³
- Plane : TheZ⁵²¹⁴

Total supported: 38

Total unknown or missing: 438

18.2.162 WATOPReader

This page lists supported metadata fields for the Bio-Formats WA Technology TOP format reader.

These fields are from the [OME data model](#)⁵²¹⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : ID⁵²¹⁶

⁵¹⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵²⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵²⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵²⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵²⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵²⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵²⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵²⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵²⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵²⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁵²⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁵²¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁵²¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁵²¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵²¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵²¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵²¹⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁵²¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

- Channel : SamplesPerPixel⁵²¹⁷
- Image : AcquisitionDate⁵²¹⁸
- Image : Description⁵²¹⁹
- Image : ID⁵²²⁰
- Image : Name⁵²²¹
- Pixels : BigEndian⁵²²²
- Pixels : DimensionOrder⁵²²³
- Pixels : ID⁵²²⁴
- Pixels : Interleaved⁵²²⁵
- Pixels : PhysicalSizeX⁵²²⁶
- Pixels : PhysicalSizeY⁵²²⁷
- Pixels : SignificantBits⁵²²⁸
- Pixels : SizeC⁵²²⁹
- Pixels : SizeT⁵²³⁰
- Pixels : SizeX⁵²³¹
- Pixels : SizeY⁵²³²
- Pixels : SizeZ⁵²³³
- Pixels : Type⁵²³⁴
- Plane : TheC⁵²³⁵
- Plane : TheT⁵²³⁶
- Plane : TheZ⁵²³⁷

Total supported: 22

Total unknown or missing: 454

18.2.163 WlzReader

This page lists supported metadata fields for the Bio-Formats Woolz format reader.

These fields are from the [OME data model](#)⁵²³⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁵²¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵²¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵²¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁵²²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵²²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵²²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵²²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵²²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵²²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵²²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵²²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵²²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵²²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵²³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵²³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵²³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵²³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵²³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵²³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵²³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵²³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵²³⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 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 : ID⁵²³⁹
- Channel : SamplesPerPixel⁵²⁴⁰
- Image : AcquisitionDate⁵²⁴¹
- Image : ID⁵²⁴²
- Image : Name⁵²⁴³
- Pixels : BigEndian⁵²⁴⁴
- Pixels : DimensionOrder⁵²⁴⁵
- Pixels : ID⁵²⁴⁶
- Pixels : Interleaved⁵²⁴⁷
- Pixels : PhysicalSizeX⁵²⁴⁸
- Pixels : PhysicalSizeY⁵²⁴⁹
- Pixels : PhysicalSizeZ⁵²⁵⁰
- Pixels : SignificantBits⁵²⁵¹
- Pixels : SizeC⁵²⁵²
- Pixels : SizeT⁵²⁵³
- Pixels : SizeX⁵²⁵⁴
- Pixels : SizeY⁵²⁵⁵
- Pixels : SizeZ⁵²⁵⁶
- Pixels : Type⁵²⁵⁷
- Plane : TheC⁵²⁵⁸
- Plane : TheT⁵²⁵⁹
- Plane : TheZ⁵²⁶⁰

⁵²³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵²⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵²⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵²⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵²⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵²⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵²⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵²⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵²⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵²⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵²⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵²⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵²⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵²⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵²⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵²⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵²⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵²⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵²⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵²⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵²⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵²⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

- StageLabel : Name⁵²⁶¹
- StageLabel : X⁵²⁶²
- StageLabel : Y⁵²⁶³
- StageLabel : Z⁵²⁶⁴

Total supported: 26

Total unknown or missing: 450

18.2.164 ZeissCZIReader

This page lists supported metadata fields for the Bio-Formats Zeiss CZI format reader.

These fields are from the [OME data model](#)⁵²⁶⁵. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 : LotNumber⁵²⁶⁶
- Arc : Manufacturer⁵²⁶⁷
- Arc : Model⁵²⁶⁸
- Arc : Power⁵²⁶⁹
- Arc : SerialNumber⁵²⁷⁰
- Channel : AcquisitionMode⁵²⁷¹
- Channel : Color⁵²⁷²
- Channel : EmissionWavelength⁵²⁷³
- Channel : ExcitationWavelength⁵²⁷⁴
- Channel : FilterSetRef⁵²⁷⁵
- Channel : Fluor⁵²⁷⁶
- Channel : ID⁵²⁷⁷
- Channel : IlluminationType⁵²⁷⁸

⁵²⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Name

⁵²⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_X

⁵²⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Y

⁵²⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#StageLabel_Z

⁵²⁶⁵<http://www.openmicroscopy.org/site/support/ome-model/>

⁵²⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵²⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵²⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵²⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁵²⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵²⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_AcquisitionMode

⁵²⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

⁵²⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_EmissionWavelength

⁵²⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ExcitationWavelength

⁵²⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterSetRef_ID

⁵²⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Fluor

⁵²⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵²⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_IlluminationType

- Channel : Name⁵²⁷⁹
- Channel : PinholeSize⁵²⁸⁰
- Channel : SamplesPerPixel⁵²⁸¹
- Detector : AmplificationGain⁵²⁸²
- Detector : Gain⁵²⁸³
- Detector : ID⁵²⁸⁴
- Detector : LotNumber⁵²⁸⁵
- Detector : Manufacturer⁵²⁸⁶
- Detector : Model⁵²⁸⁷
- Detector : Offset⁵²⁸⁸
- Detector : SerialNumber⁵²⁸⁹
- Detector : Type⁵²⁹⁰
- Detector : Zoom⁵²⁹¹
- DetectorSettings : Binning⁵²⁹²
- DetectorSettings : Gain⁵²⁹³
- DetectorSettings : ID⁵²⁹⁴
- Dichroic : ID⁵²⁹⁵
- Dichroic : LotNumber⁵²⁹⁶
- Dichroic : Manufacturer⁵²⁹⁷
- Dichroic : Model⁵²⁹⁸
- Dichroic : SerialNumber⁵²⁹⁹
- Ellipse : ID⁵³⁰⁰
- Ellipse : RadiusX⁵³⁰¹
- Ellipse : RadiusY⁵³⁰²
- Ellipse : Text⁵³⁰³
- Ellipse : X⁵³⁰⁴

⁵²⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁵²⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

⁵²⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵²⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_AmplificationGain

⁵²⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

⁵²⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁵²⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵²⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵²⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵²⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Offset

⁵²⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵²⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁵²⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Zoom

⁵²⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁵²⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Gain

⁵²⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁵²⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

⁵²⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵²⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵²⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵²⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵³⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

⁵³⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

⁵³⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁵³⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

- Ellipse : Y⁵³⁰⁵
- Experimenter : Email⁵³⁰⁶
- Experimenter : FirstName⁵³⁰⁷
- Experimenter : ID⁵³⁰⁸
- Experimenter : Institution⁵³⁰⁹
- Experimenter : LastName⁵³¹⁰
- Experimenter : MiddleName⁵³¹¹
- Experimenter : UserName⁵³¹²
- Filament : LotNumber⁵³¹³
- Filament : Manufacturer⁵³¹⁴
- Filament : Model⁵³¹⁵
- Filament : Power⁵³¹⁶
- Filament : SerialNumber⁵³¹⁷
- Filter : FilterWheel⁵³¹⁸
- Filter : ID⁵³¹⁹
- Filter : LotNumber⁵³²⁰
- Filter : Manufacturer⁵³²¹
- Filter : Model⁵³²²
- Filter : SerialNumber⁵³²³
- Filter : Type⁵³²⁴
- FilterSet : DichroicRef⁵³²⁵
- FilterSet : EmissionFilterRef⁵³²⁶
- FilterSet : ExcitationFilterRef⁵³²⁷
- FilterSet : ID⁵³²⁸
- FilterSet : LotNumber⁵³²⁹
- FilterSet : Manufacturer⁵³³⁰

⁵³⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

⁵³⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Email

⁵³⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_FirstName

⁵³⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

⁵³⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_Institution

⁵³¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_LastName

⁵³¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_MiddleName

⁵³¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_UserName

⁵³¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁵³¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_FilterWheel

⁵³¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

⁵³²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_Type

⁵³²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID

⁵³²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

⁵³²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

⁵³²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterSet_ID

⁵³²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

- FilterSet : Model⁵³³¹
- FilterSet : SerialNumber⁵³³²
- Image : AcquisitionDate⁵³³³
- Image : Description⁵³³⁴
- Image : ExperimenterRef⁵³³⁵
- Image : ID⁵³³⁶
- Image : InstrumentRef⁵³³⁷
- Image : Name⁵³³⁸
- Image : ROIRef⁵³³⁹
- ImagingEnvironment : AirPressure⁵³⁴⁰
- ImagingEnvironment : CO2Percent⁵³⁴¹
- ImagingEnvironment : Humidity⁵³⁴²
- ImagingEnvironment : Temperature⁵³⁴³
- Instrument : ID⁵³⁴⁴
- Laser : LotNumber⁵³⁴⁵
- Laser : Manufacturer⁵³⁴⁶
- Laser : Model⁵³⁴⁷
- Laser : Power⁵³⁴⁸
- Laser : SerialNumber⁵³⁴⁹
- LightEmittingDiode : LotNumber⁵³⁵⁰
- LightEmittingDiode : Manufacturer⁵³⁵¹
- LightEmittingDiode : Model⁵³⁵²
- LightEmittingDiode : Power⁵³⁵³
- LightEmittingDiode : SerialNumber⁵³⁵⁴
- Line : ID⁵³⁵⁵
- Line : Text⁵³⁵⁶

⁵³³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵³³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁵³³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ExperimenterRef_ID

⁵³³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵³³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁵³³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵³³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

⁵³⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_AirPressure

⁵³⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_CO2Percent

⁵³⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Humidity

⁵³⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ImagingEnvironment_Temperature

⁵³⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁵³⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁵³⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_Power

⁵³⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵³⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

- Line : X1⁵³⁵⁷
- Line : X2⁵³⁵⁸
- Line : Y1⁵³⁵⁹
- Line : Y2⁵³⁶⁰
- Microscope : LotNumber⁵³⁶¹
- Microscope : Manufacturer⁵³⁶²
- Microscope : Model⁵³⁶³
- Microscope : SerialNumber⁵³⁶⁴
- Microscope : Type⁵³⁶⁵
- Objective : CalibratedMagnification⁵³⁶⁶
- Objective : Correction⁵³⁶⁷
- Objective : ID⁵³⁶⁸
- Objective : Immersion⁵³⁶⁹
- Objective : Iris⁵³⁷⁰
- Objective : LensNA⁵³⁷¹
- Objective : LotNumber⁵³⁷²
- Objective : Manufacturer⁵³⁷³
- Objective : Model⁵³⁷⁴
- Objective : NominalMagnification⁵³⁷⁵
- Objective : SerialNumber⁵³⁷⁶
- Objective : WorkingDistance⁵³⁷⁷
- ObjectiveSettings : CorrectionCollar⁵³⁷⁸
- ObjectiveSettings : ID⁵³⁷⁹
- ObjectiveSettings : Medium⁵³⁸⁰
- ObjectiveSettings : RefractiveIndex⁵³⁸¹
- Pixels : BigEndian⁵³⁸²

⁵³⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

⁵³⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

⁵³⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

⁵³⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

⁵³⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Microscope_Type

⁵³⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_CalibratedMagnification

⁵³⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁵³⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁵³⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁵³⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Iris

⁵³⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁵³⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_LotNumber

⁵³⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Manufacturer

⁵³⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵³⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁵³⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_SerialNumber

⁵³⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_WorkingDistance

⁵³⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_CorrectionCollar

⁵³⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁵³⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_Medium

⁵³⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_RefractiveIndex

⁵³⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

- Pixels : DimensionOrder⁵³⁸³
- Pixels : ID⁵³⁸⁴
- Pixels : Interleaved⁵³⁸⁵
- Pixels : PhysicalSizeX⁵³⁸⁶
- Pixels : PhysicalSizeY⁵³⁸⁷
- Pixels : PhysicalSizeZ⁵³⁸⁸
- Pixels : SignificantBits⁵³⁸⁹
- Pixels : SizeC⁵³⁹⁰
- Pixels : SizeT⁵³⁹¹
- Pixels : SizeX⁵³⁹²
- Pixels : SizeY⁵³⁹³
- Pixels : SizeZ⁵³⁹⁴
- Pixels : Type⁵³⁹⁵
- Plane : DeltaT⁵³⁹⁶
- Plane : ExposureTime⁵³⁹⁷
- Plane : PositionX⁵³⁹⁸
- Plane : PositionY⁵³⁹⁹
- Plane : PositionZ⁵⁴⁰⁰
- Plane : TheC⁵⁴⁰¹
- Plane : TheT⁵⁴⁰²
- Plane : TheZ⁵⁴⁰³
- Polygon : ID⁵⁴⁰⁴
- Polygon : Points⁵⁴⁰⁵
- Polygon : Text⁵⁴⁰⁶
- Polyline : ID⁵⁴⁰⁷
- Polyline : Points⁵⁴⁰⁸

⁵³⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵³⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵³⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵³⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵³⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵³⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵³⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵³⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵³⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵³⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵³⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵³⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵³⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵³⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁵³⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_ExposureTime

⁵³⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁵³⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁵⁴⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁵⁴⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁴⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁴⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁴⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

⁵⁴⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁵⁴⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

- Polyline : Text⁵⁴⁰⁹
- ROI : Description⁵⁴¹⁰
- ROI : ID⁵⁴¹¹
- ROI : Name⁵⁴¹²
- Rectangle : Height⁵⁴¹³
- Rectangle : ID⁵⁴¹⁴
- Rectangle : Text⁵⁴¹⁵
- Rectangle : Width⁵⁴¹⁶
- Rectangle : X⁵⁴¹⁷
- Rectangle : Y⁵⁴¹⁸
- TransmittanceRange : CutIn⁵⁴¹⁹
- TransmittanceRange : CutInTolerance⁵⁴²⁰
- TransmittanceRange : CutOut⁵⁴²¹
- TransmittanceRange : CutOutTolerance⁵⁴²²
- TransmittanceRange : Transmittance⁵⁴²³

Total supported: 158

Total unknown or missing: 318

18.2.165 ZeissLMSReader

This page lists supported metadata fields for the Bio-Formats Zeiss LMS format reader.

These fields are from the [OME data model](#)⁵⁴²⁴. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 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 Zeiss LMS format reader:

- Channel : ID⁵⁴²⁵
- Channel : SamplesPerPixel⁵⁴²⁶

⁵⁴⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁵⁴¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Description

⁵⁴¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

⁵⁴¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_Name

⁵⁴¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

⁵⁴¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁵⁴¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

⁵⁴¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

⁵⁴¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

⁵⁴¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn

⁵⁴²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutInTolerance

⁵⁴²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut

⁵⁴²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOutTolerance

⁵⁴²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_Transmittance

⁵⁴²⁴<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁴²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁴²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

- Image : AcquisitionDate⁵⁴²⁷
- Image : ID⁵⁴²⁸
- Image : Name⁵⁴²⁹
- Instrument : ID⁵⁴³⁰
- Objective : ID⁵⁴³¹
- Objective : NominalMagnification⁵⁴³²
- ObjectiveSettings : ID⁵⁴³³
- Pixels : BigEndian⁵⁴³⁴
- Pixels : DimensionOrder⁵⁴³⁵
- Pixels : ID⁵⁴³⁶
- Pixels : Interleaved⁵⁴³⁷
- Pixels : SignificantBits⁵⁴³⁸
- Pixels : SizeC⁵⁴³⁹
- Pixels : SizeT⁵⁴⁴⁰
- Pixels : SizeX⁵⁴⁴¹
- Pixels : SizeY⁵⁴⁴²
- Pixels : SizeZ⁵⁴⁴³
- Pixels : Type⁵⁴⁴⁴
- Plane : TheC⁵⁴⁴⁵
- Plane : TheT⁵⁴⁴⁶
- Plane : TheZ⁵⁴⁴⁷

Total supported: 23

Total unknown or missing: 453

18.2.166 ZeissLSMReader

This page lists supported metadata fields for the Bio-Formats Zeiss Laser-Scanning Microscopy format reader.

These fields are from the [OME data model](#)⁵⁴⁴⁸. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

⁵⁴²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁴²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁴²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁴³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁵⁴³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁵⁴³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁵⁴³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁵⁴³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁴³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁴³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁴³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁴³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁴³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁴⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁴⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁴⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁴⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁴⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁴⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁴⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁴⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁴⁴⁸<http://www.openmicroscopy.org/site/support/ome-model/>

Of the 476 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 : Color⁵⁴⁴⁹
- Channel : ID⁵⁴⁵⁰
- Channel : Name⁵⁴⁵¹
- Channel : PinholeSize⁵⁴⁵²
- Channel : SamplesPerPixel⁵⁴⁵³
- Detector : AmplificationGain⁵⁴⁵⁴
- Detector : Gain⁵⁴⁵⁵
- Detector : ID⁵⁴⁵⁶
- Detector : Type⁵⁴⁵⁷
- Detector : Zoom⁵⁴⁵⁸
- DetectorSettings : Binning⁵⁴⁵⁹
- DetectorSettings : ID⁵⁴⁶⁰
- Dichroic : ID⁵⁴⁶¹
- Dichroic : Model⁵⁴⁶²
- Ellipse : FontSize⁵⁴⁶³
- Ellipse : ID⁵⁴⁶⁴
- Ellipse : RadiusX⁵⁴⁶⁵
- Ellipse : RadiusY⁵⁴⁶⁶
- Ellipse : StrokeWidth⁵⁴⁶⁷
- Ellipse : Transform⁵⁴⁶⁸
- Ellipse : X⁵⁴⁶⁹
- Ellipse : Y⁵⁴⁷⁰

⁵⁴⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Color

⁵⁴⁵⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁴⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_Name

⁵⁴⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_PinholeSize

⁵⁴⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁴⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_AmplificationGain

⁵⁴⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Gain

⁵⁴⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_ID

⁵⁴⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Type

⁵⁴⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Detector_Zoom

⁵⁴⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_Binning

⁵⁴⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DetectorSettings_ID

⁵⁴⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Dichroic_ID

⁵⁴⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵⁴⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁵⁴⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusX

⁵⁴⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_RadiusY

⁵⁴⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁴⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Transform

⁵⁴⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_X

⁵⁴⁷⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Ellipse_Y

- Experimenter : ID⁵⁴⁷¹
- Experimenter : UserName⁵⁴⁷²
- Filter : ID⁵⁴⁷³
- Filter : Model⁵⁴⁷⁴
- Filter : Type⁵⁴⁷⁵
- Image : AcquisitionDate⁵⁴⁷⁶
- Image : Description⁵⁴⁷⁷
- Image : ID⁵⁴⁷⁸
- Image : InstrumentRef⁵⁴⁷⁹
- Image : Name⁵⁴⁸⁰
- Image : ROIRef⁵⁴⁸¹
- Instrument : ID⁵⁴⁸²
- Label : FontSize⁵⁴⁸³
- Label : ID⁵⁴⁸⁴
- Label : StrokeWidth⁵⁴⁸⁵
- Label : Text⁵⁴⁸⁶
- Label : X⁵⁴⁸⁷
- Label : Y⁵⁴⁸⁸
- Laser : ID⁵⁴⁸⁹
- Laser : LaserMedium⁵⁴⁹⁰
- Laser : Model⁵⁴⁹¹
- Laser : Type⁵⁴⁹²
- Laser : Wavelength⁵⁴⁹³
- LightPath : DichroicRef⁵⁴⁹⁴
- LightPath : EmissionFilterRef⁵⁴⁹⁵
- Line : FontSize⁵⁴⁹⁶

⁵⁴⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_ID

⁵⁴⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Experimenter_UserName

⁵⁴⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_ID

⁵⁴⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵⁴⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Filter_Type

⁵⁴⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁴⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Description

⁵⁴⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁴⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#InstrumentRef_ID

⁵⁴⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁴⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROIRef_ID

⁵⁴⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Instrument_ID

⁵⁴⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁵⁴⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁴⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_Text

⁵⁴⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_X

⁵⁴⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Label_Y

⁵⁴⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#LightSource_ID

⁵⁴⁹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_LaserMedium

⁵⁴⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ManufacturerSpec_Model

⁵⁴⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Type

⁵⁴⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Laser_Wavelength

⁵⁴⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#DichroicRef_ID

⁵⁴⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#FilterRef_ID

⁵⁴⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

- Line : ID⁵⁴⁹⁷
- Line : StrokeWidth⁵⁴⁹⁸
- Line : X1⁵⁴⁹⁹
- Line : X2⁵⁵⁰⁰
- Line : Y1⁵⁵⁰¹
- Line : Y2⁵⁵⁰²
- Objective : Correction⁵⁵⁰³
- Objective : ID⁵⁵⁰⁴
- Objective : Immersion⁵⁵⁰⁵
- Objective : Iris⁵⁵⁰⁶
- Objective : LensNA⁵⁵⁰⁷
- Objective : NominalMagnification⁵⁵⁰⁸
- ObjectiveSettings : ID⁵⁵⁰⁹
- Pixels : BigEndian⁵⁵¹⁰
- Pixels : DimensionOrder⁵⁵¹¹
- Pixels : ID⁵⁵¹²
- Pixels : Interleaved⁵⁵¹³
- Pixels : PhysicalSizeX⁵⁵¹⁴
- Pixels : PhysicalSizeY⁵⁵¹⁵
- Pixels : PhysicalSizeZ⁵⁵¹⁶
- Pixels : SignificantBits⁵⁵¹⁷
- Pixels : SizeC⁵⁵¹⁸
- Pixels : SizeT⁵⁵¹⁹
- Pixels : SizeX⁵⁵²⁰
- Pixels : SizeY⁵⁵²¹
- Pixels : SizeZ⁵⁵²²

⁵⁴⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁴⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁴⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X1

⁵⁵⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_X2

⁵⁵⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y1

⁵⁵⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Line_Y2

⁵⁵⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Correction

⁵⁵⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_ID

⁵⁵⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Immersion

⁵⁵⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_Iris

⁵⁵⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_LensNA

⁵⁵⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Objective_NominalMagnification

⁵⁵⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ObjectiveSettings_ID

⁵⁵¹⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁵¹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁵¹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁵¹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁵¹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeX

⁵⁵¹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeY

⁵⁵¹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_PhysicalSizeZ

⁵⁵¹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁵¹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁵¹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁵²⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁵²¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁵²²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

- Pixels : TimeIncrement⁵⁵²³
- Pixels : Type⁵⁵²⁴
- Plane : DeltaT⁵⁵²⁵
- Plane : PositionX⁵⁵²⁶
- Plane : PositionY⁵⁵²⁷
- Plane : PositionZ⁵⁵²⁸
- Plane : TheC⁵⁵²⁹
- Plane : TheT⁵⁵³⁰
- Plane : TheZ⁵⁵³¹
- Polygon : FontSize⁵⁵³²
- Polygon : ID⁵⁵³³
- Polygon : Points⁵⁵³⁴
- Polygon : StrokeWidth⁵⁵³⁵
- Polyline : FontSize⁵⁵³⁶
- Polyline : ID⁵⁵³⁷
- Polyline : Points⁵⁵³⁸
- Polyline : StrokeWidth⁵⁵³⁹
- ROI : ID⁵⁵⁴⁰
- Rectangle : FontSize⁵⁵⁴¹
- Rectangle : Height⁵⁵⁴²
- Rectangle : ID⁵⁵⁴³
- Rectangle : StrokeWidth⁵⁵⁴⁴
- Rectangle : Width⁵⁵⁴⁵
- Rectangle : X⁵⁵⁴⁶
- Rectangle : Y⁵⁵⁴⁷
- TransmittanceRange : CutIn⁵⁵⁴⁸

⁵⁵²³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_TimeIncrement

⁵⁵²⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁵²⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_DeltaT

⁵⁵²⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionX

⁵⁵²⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionY

⁵⁵²⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_PositionZ

⁵⁵²⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁵³⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁵³¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁵³²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁵⁵³³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁵³⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polygon_Points

⁵⁵³⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁵³⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁵⁵³⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁵³⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Polyline_Points

⁵⁵³⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁵⁴⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#ROI_ID

⁵⁵⁴¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_FontSize

⁵⁵⁴²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Height

⁵⁵⁴³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_ID

⁵⁵⁴⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Shape_StrokeWidth

⁵⁵⁴⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Width

⁵⁵⁴⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_X

⁵⁵⁴⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Rectangle_Y

⁵⁵⁴⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutIn

- TransmittanceRange : CutOut⁵⁵⁴⁹

Total supported: 101

Total unknown or missing: 375

18.2.167 ZeissTIFFReader

This page lists supported metadata fields for the Bio-Formats Zeiss AxioVision TIFF format reader.

These fields are from the [OME data model](#)⁵⁵⁵⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁵⁵¹
- Channel : SamplesPerPixel⁵⁵⁵²
- Image : AcquisitionDate⁵⁵⁵³
- Image : ID⁵⁵⁵⁴
- Image : Name⁵⁵⁵⁵
- Pixels : BigEndian⁵⁵⁵⁶
- Pixels : DimensionOrder⁵⁵⁵⁷
- Pixels : ID⁵⁵⁵⁸
- Pixels : Interleaved⁵⁵⁵⁹
- Pixels : SignificantBits⁵⁵⁶⁰
- Pixels : SizeC⁵⁵⁶¹
- Pixels : SizeT⁵⁵⁶²
- Pixels : SizeX⁵⁵⁶³
- Pixels : SizeY⁵⁵⁶⁴
- Pixels : SizeZ⁵⁵⁶⁵
- Pixels : Type⁵⁵⁶⁶

⁵⁵⁴⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#TransmittanceRange_CutOut

⁵⁵⁵⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁵⁵¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁵⁵²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁵⁵³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁵⁵⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁵⁵⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁵⁵⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁵⁵⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁵⁵⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁵⁵⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁵⁶⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁵⁶¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁵⁶²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁵⁶³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁵⁶⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁵⁶⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁵⁶⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

- Plane : TheC⁵⁵⁶⁷
- Plane : TheT⁵⁵⁶⁸
- Plane : TheZ⁵⁵⁶⁹

Total supported: 19

Total unknown or missing: 457

18.2.168 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](#)⁵⁵⁷⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- 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 : ID⁵⁵⁷¹
- Channel : SamplesPerPixel⁵⁵⁷²
- Image : AcquisitionDate⁵⁵⁷³
- Image : ID⁵⁵⁷⁴
- Image : Name⁵⁵⁷⁵
- Pixels : BigEndian⁵⁵⁷⁶
- Pixels : DimensionOrder⁵⁵⁷⁷
- Pixels : ID⁵⁵⁷⁸
- Pixels : Interleaved⁵⁵⁷⁹
- Pixels : SignificantBits⁵⁵⁸⁰
- Pixels : SizeC⁵⁵⁸¹
- Pixels : SizeT⁵⁵⁸²
- Pixels : SizeX⁵⁵⁸³
- Pixels : SizeY⁵⁵⁸⁴

⁵⁵⁶⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁵⁶⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁵⁶⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁵⁷⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁵⁷¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁵⁷²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁵⁷³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁵⁷⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁵⁷⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁵⁷⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁵⁷⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁵⁷⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁵⁷⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁵⁸⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁵⁸¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁵⁸²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

⁵⁵⁸³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁵⁸⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

- Pixels : SizeZ⁵⁵⁸⁵
- Pixels : Type⁵⁵⁸⁶
- Plane : TheC⁵⁵⁸⁷
- Plane : TheT⁵⁵⁸⁸
- Plane : TheZ⁵⁵⁸⁹

Total supported: 19

Total unknown or missing: 457

18.2.169 ZipReader

This page lists supported metadata fields for the Bio-Formats Zip format reader.

These fields are from the [OME data model](#)⁵⁵⁹⁰. Bio-Formats standardizes each format's original metadata to and from the OME data model so that you can work with a particular piece of metadata (e.g. physical width of the image in microns) in a format-independent way.

Of the 476 fields documented in the *metadata summary table*:

- The file format itself supports 19 of them (3%).
- Of those, Bio-Formats fully or partially converts 19 (100%).

Supported fields

These fields are fully supported by the Bio-Formats Zip format reader:

- Channel : ID⁵⁵⁹¹
- Channel : SamplesPerPixel⁵⁵⁹²
- Image : AcquisitionDate⁵⁵⁹³
- Image : ID⁵⁵⁹⁴
- Image : Name⁵⁵⁹⁵
- Pixels : BigEndian⁵⁵⁹⁶
- Pixels : DimensionOrder⁵⁵⁹⁷
- Pixels : ID⁵⁵⁹⁸
- Pixels : Interleaved⁵⁵⁹⁹
- Pixels : SignificantBits⁵⁶⁰⁰
- Pixels : SizeC⁵⁶⁰¹
- Pixels : SizeT⁵⁶⁰²

⁵⁵⁸⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁵⁸⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁵⁸⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁵⁸⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁵⁸⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

⁵⁵⁹⁰<http://www.openmicroscopy.org/site/support/ome-model/>

⁵⁵⁹¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_ID

⁵⁵⁹²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Channel_SamplesPerPixel

⁵⁵⁹³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_AcquisitionDate

⁵⁵⁹⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_ID

⁵⁵⁹⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Image_Name

⁵⁵⁹⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_BigEndian

⁵⁵⁹⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_DimensionOrder

⁵⁵⁹⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_ID

⁵⁵⁹⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Interleaved

⁵⁶⁰⁰http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SignificantBits

⁵⁶⁰¹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeC

⁵⁶⁰²http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeT

- Pixels : SizeX⁵⁶⁰³
- Pixels : SizeY⁵⁶⁰⁴
- Pixels : SizeZ⁵⁶⁰⁵
- Pixels : Type⁵⁶⁰⁶
- Plane : TheC⁵⁶⁰⁷
- Plane : TheT⁵⁶⁰⁸
- Plane : TheZ⁵⁶⁰⁹

Total supported: 19

Total unknown or missing: 457

⁵⁶⁰³http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeX

⁵⁶⁰⁴http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeY

⁵⁶⁰⁵http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_SizeZ

⁵⁶⁰⁶http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Pixels_Type

⁵⁶⁰⁷http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheC

⁵⁶⁰⁸http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheT

⁵⁶⁰⁹http://www.openmicroscopy.org/Schemas/Documentation/Generated/OME-2016-06/ome_xsd.html#Plane_TheZ

GROUPING FILES USING A PATTERN FILE

Individual files can be grouped together into a single fileset using a pattern file. This works for any single-file format that Bio-Formats supports, as long as all files are in the same format. It is most useful for sets of TIFF, JPEG, PNG, etc. files that do not have any associated metadata.

All files to be grouped together should be in the same folder. The pattern file should be in the same folder as the other files; it can have any name, but must have the `.pattern` extension. The pattern file is what must be opened or imported, so it may be helpful to give it a descriptive or easily-recognizable name.

The pattern file contains a single line of text that is specially formatted to describe how the files should be grouped. The file can be created in any text editor.

The text in the pattern file can take one of several forms. To illustrate, consider a folder with the following file names:

```
red.tiff
green.tiff
blue.tiff
test_Z0_C0.png
test_Z1_C0.png
test_Z0_C1.png
test_Z1_C1.png
test_Z0_C2.png
test_Z1_C2.png
test_Z00.tiff
test_Z01.tiff
```

A pattern file that groups `red.tiff`, `green.tiff`, and `blue.tiff` in that order would look like:

```
<red,green,blue>.tiff
```

A pattern that groups `test_Z0_C0.png`, `test_Z1_C0.png`, `test_Z0_C2.png`, and `test_Z1_C2.png`:

```
test_Z<0-1>_C<0-2:2>.png
```

The `<>` notation in general can accept a single literal value, a comma-separated list of literal values, a range of integer values, or a range of integer values with a step value greater than 1 (the range and step are separated by `:`). Note that inverting the values in a range (e.g. `<2-0>`) is not supported and will cause an exception to be thrown.

The characters immediately preceding the `<` can affect which dimension is assigned to the specified values. The values will be interpreted as:

- channels, if `c`, `ch`, `w`, or `wavelength` precede `<`
- timepoints, if `t`, `tl`, `tp`, or `timepoint` precede `<`
- Z sections, if `z`, `zs`, `sec`, `fp`, `focal`, or `focalplane` precede `<`
- series, if `s`, `sp`, or `series` precede `<`

Note that the listed dimension specifier characters are case insensitive. A separator character (underscore or space) must precede the dimension specifier if it is not at the beginning of the filename. In the above example, 2 Z sections and 2 out of 3 channels would be detected according to the dimension specifiers.

Leading zeros in the integer values must be specified. To group `test_Z00.tif` and `test_Z01.tif`:

```
test_Z<00-01>.tif
```

or:

```
test_Z0<0-1>.tif
```

Note that this pattern would not group the files correctly:

```
test_Z<0-1>.tif
```

A pattern file that groups all PNG files beginning with `test_` would look like:

```
test_.*.png
```

This and most other Java-style regular expressions can be used in place of the `<>` notation above. See [the `java.util.regex.Pattern` Javadoc](#)¹ for more information on constructing regular expressions.

¹<http://docs.oracle.com/javase/7/docs/api/java/util/regex/Pattern.html>

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