

# C++ Open Source Dicom Library (Imebra)

Last Updated Thursday, 10 September 2009

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Visit the Imebra's website

Imebra is a multiplatform open source C++ Dicom library from Puntoexe.

The full source code, examples and documentation are freely available under the Affero GPL 3 license. A commercial license that allows to include IMEBRA and the examples in commercial application is available.

Note: Both the AGPL3 license and the Commercial license are available in the documentation distributed with the library. The AGPL3 and the commercial source files are identical.

The library can handle Dicom3, NEMA and Jpeg files and supplies both high-level and raw access to the loaded data.

The embedded images can be easily decompressed or converted to other color formats or bit depth; writing Dicom Viewers or other applications is a quick and easy task.

Imebra can parse and build DICOMDIR files.

Imebra also supports the Unicode standard (on the fly conversion to/from Dicom charsets), the caching of large tags, and the transactions (never leave a dataset in an inconsistent state), features that can be found only in high end and expensive libraries.

All the library's source code is available.

A sample application (dicom2jpeg) supplied with the library allows to convert dicom files to jpeg or movies.

Imebra and the sample applications is released under a dual-licensing scheme:

- the Affero GPL license (version 3)
- a commercial license

Main featuresMulti platform.

The source code can be compiled on Windows, Linux, Max OS X and Pocket PCFull source codeThe full source code and the documentation are available under the GPL license or a commercial license.

The source code is well commented and can be easily extended. Self contained

The library needs only the STL and ICONV libraries. On Windows ICONV is not requiredDicom3 file parser and builder

The library can parse Dicom3 and old NEMA streams and can build Dicom3 streams.Jpeg file parser and builder

Imebra can parse and build Jpeg streams. When a Jpeg stream is loaded it is automatically converted into an in-memory Dicom stream. The opposite operation is performed when a stream needs to be savedImage compression and decompression in the following formats:

- jpeg baseline (8 bits per color channel lossy)
- jpeg baseline extended (12 bits per color channel lossy)
- jpeg lossless (up to 16 bits per color channel lossless)
- raw dicom (up to 16 bits per color channel lossless)
- rle dicom (up to 16 bits per color channel lossless)

All the formats are supported both in compression and decompression modeColor space conversion

The library supplies the transform classes that perform the color conversion, VOI/LUT calculation and high bit shiftSupport for nested datasets (sequences)

Nested datasets are used to contain several frames, color palettes or DICOMDIR data. Imebra fully supports nested datasets.Support for Unicode and different Dicom charsets

Imebra fully supports Unicode and the multiple charsets supported by the Dicom3 standard. The application doesn't need to know about the Dicom charsets: Imebra transforms the Unicode strings to the Dicom charsets and viceversa.Support for transactions

When your application fails while it is modifying a collection of tags then it can leave the dataset in an inconsistent state. Imebra prevents this by introducing the transaction: if one of the modifications fails inside the transaction, then all the modifications performed in the same transaction are rolled back. Imebra supports nested transactions. Load on demand

Larger tags can be loaded from the original stream only when they are needed. This process is transparent to the application, which can decide the minimum size of the tags that will be loaded on demand. Imebra automatically decides if a tag has to stay in memory (for instance because the application wants to change its content).

This feature improves significantly the performances when a dataset with several images is loaded. Planned features

Other features have been planned but have not been included in this release. The missed features are the following:

- support for dicom objects (like patient, procedure, image, and so on)
- network support for communication between Dicom devices

The library can be downloaded from the Downloads section [Mercurial \(Hg\) access](#)

All the source code is available and released under the Affero GPL license version 3.

You can clone the public HG repository from <http://bitbucket.org/puntoexe/imebra/>  
The HG repository may contain newer code than the release, but may be broken.

{mospagebreak heading=Introduction& title=Commercial License}

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The Imebra Commercial License costs 499USD.

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The Imebra Library will be referred to as "Imebra".

The software based on Imebra and developed by the license holder will be referred to as "The product". Version

This license covers all versions 0.xx.xx and 1.xx.xx of Imebra.

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