

Article

Java Advanced Imaging API Sample Source Readme

Advanced Imaging API Sample Image File Readers and Writers Source Code Readme

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Introduction

The `com.sun.media.jai.codec` package is not a committed part of the Java Advanced Imaging (JAI) API. These classes continue to be considered provisional and exist only as helper classes for the JAI implementation. These classes will be superseded in a future Java Advanced Imaging release by the new Java Image I/O API which will be part of the 1.4 version of the Java 2 platform.

To help developers in making the transition from these helper classes to the upcoming Image I/O package, Sun has decided to release the source code to the helper classes in the `com.sun.media.jai.codec` package. This package contains the classes that are necessary for the API definition. A concomitant package that contains the implementation for individual file formats is the `com.sun.media.jai.codecimpl` package. The source code to this package will also be released.

You, as a developer, may feel free to download this source code, compile and use it in your products free of charge. You may also extend it with your own code and use it in any way you wish, which does not violate the license that you are asked to accept. The license is a very open one, designed to allow as much freedom and flexibility as typical "open source" type products allow.

This source code is provided "as is" and is not supported.

Some known bugs exist - see the [BUGS](#) file for details.

System Requirements:

- For Solaris operating environment:
 - Solaris operating environment 2.5.1 or subsequent compatible version
 - Java 2 platform, Standard Edition
 - Java 2 SDK Reference Implementation, v. 1.2 or later
 - Java 2 SDK Solaris Production Release, v. 1.2.1_04 or later
 - At least 1 MB of free disk space.
- For Microsoft Windows:
 - Windows NT 4.0 or Windows 95 or later
 - Java 2 platform, FCS version (Java 2 SDK, Standard Edition (J2SE SDK) 1.2 FCS) or later
 - At least 1 MB of free disk space.
- For Linux:
 - Linux RedHat 6.1 or later or equivalent.

- Java 2 platform, FCS version (J2SE SDK 1.2 FCS) or later
- At least 1 MB of free disk space.

Differences from JAI 1.1.1 source code:

Source code from the following four packages from JAI 1.1.1 is being released:

- `com.sun.media.jai.codec`
- `com.sun.media.jai.codecimpl`
- `com.sun.media.jai.codecimpl.fpx`
- `com.sun.media.jai.codecimpl.util`

In order to facilitate ease of use of this source code, the following changes from the original source code have been made:

- The classes from these four packages have been moved into a single directory and package names removed, so as to facilitate ease of use and compilation.
- The error message resource files from these packages have been coalesced into a single file called `properties`
- Some code not relating to readers and writers has been removed from the `PropertyUtil.java` class.

Image File Formats:

The following formats are supported: BMP, FlashPIX, GIF, JPEG, PNG, and TIFF images as defined in the TIFF 6.0 baseline specification. TIFF G3, G4, PackBits, LZW, JPEG-in-TIFF, and DEFLATE compression types are understood by the TIFF decoder; the TIFF encoder can generate images compressed using the TIFF G3, G4, PackBits, JPEG-in-TIFF, and DEFLATE compression types.

- **BMP File Handling:**

The BMP reader can read Version 2.x, 3.x and some 4.x BMP images. BMP images with 1, 4, 8, 24 bits can be read with this reader. Support for 16 and 32 bit images has also been implemented, although such images are not very common.

Reading of compressed BMPs is supported. BI_RGB, BI_RLE8, BI_RLE4 and BI_BITFIELDS compressions are handled.

The BMP reader emits properties such as type of compression, bits per pixel etc. Use the `getPropertyNames()` method to get the names of all the properties emitted.

BMP Limitations:

- Only the default RGB color space is supported.
- Alpha channels are not supported.

BMP Writer:

- The BMP writer is capable of writing images *only* in the Version 3 format despite the presence of `BMPEncodeParam.setVersion()`.
- Images which make use of a `IndexColorModel` with 2, 16, or 256 palette entries will be written in palette form.
- Compression is supported for 4- and 8-bit images.

- **FlashPIX file handling:**

A limited FlashPIX reader is provided that is capable of extracting a single resolution from a FlashPIX image file. Only simple FlashPix files are decoded properly.

The image view object is ignored, and image property information is not exported.

There is no FlashPIX writer.

- GIF file handling:

GIF decoding supports transparency and multiple pages. There is no GIF encoder.

- JPEG file handling:

JPEG files are read and written using the classes found in the `com.sun.image.codec.jpeg` package of the Java 2 SDK. A set of simple JAI wrapper classes around these classes is provided.

- PNG file handling:

All files in the PNGSuite test suite have been read and written successfully. See the documentation in `PNGDecodeParam` and `PNCEncodeParam` for more information.

- TIFF File Handling:

The TIFF decoder and encoder support all of the baseline TIFF 6.0 specification. The encoder additionally supports modified Huffman compression. The TIFF decoder and encoder also support several extensions including CCITT bilevel encodings, Tiled Images, Sample Format (integral and floating point), JPEG-in-TIFF (per TIFF Technical Note #2), and the DEFLATE lossless compression algorithm.

TIFF support has the following limitations:

- The TIFF encoder does not support LZW compression for the usual reason of the patent on the algorithm.
- TIFF decoder cannot read images stored in Planar format (`PlanarConfiguration` tag has value 2).

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