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# How to convert Image to String and String to Image in Java?

By Jeevanandam Madanagopal On July 1, 2012 · In Java & J2EE · 5 Comments

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# Summary

The goal here is to convert/transform Image into Base64 String and convert/transform Base64 String back to Image without compromising a Image data. I will be using [Apache Commons Codec](#) library to achieve the same. (This article was triggered by [Linkedin Discussion](#))



**Class:** [org.apache.commons.codec.binary.Base64](#)

**Methods:** Base64 class has overloaded methods

- `Base64.encodeBase64URLSafeString` – accepts input as byte array and converts into Base64 String
- `Base64.decodeBase64` – accepts input as Base64 String and converts into byte array

## How to do: step by step?

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## Step 1:

Preparing a byte array from image. Typically achieved in following ways:

- During File upload – at server side application will be receiving a file data as byte stream
- Reading a image file from File System as byte stream

## Step 2:

Once we have byte array of Image file, apply below method to convert byte array into Base64 string. Here even though string is not used in URL param, consider using URL safe Base 64 string. The url-safe variation emits – and \_ instead of + and / characters.

Method signature:

```
public static String encodeBase64URLSafeString(byte[] binaryData)
```

Usage:

```
String imageDataString = Base64.encodeBase64URLSafeString(imageByteArray)
```

Now, we have image file as string data type, it can be easily transmitted as need

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(*through XML, JSON, etc*).

### Step 3:

At receiving end, we will be receiving a Base64 String of Image data, apply below method to covert Base64 String into byte array

Method signature:

```
public static byte[] decodeBase64(String base64String)
```

Usage:

```
byte[] imageDataBytes = Base64.decodeBase64(imageDataString)
```

### Step 4:

We have ***imageDataBytes*** byte array, write this stream as file in the File system

---

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```
public class ImageManipulation {
```

```
/**
```

```
 * @param args
```

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```

*/
public static void main(String[] args) {
    File file = new File("/Users/jeeva/Pictures/wallpapers/water-drop.");

    try {
        // Reading a Image file from file system
        FileInputStream imageInFile = new FileInputStream(file);
        byte imageData[] = new byte[(int) file.length()];
        imageInFile.read(imageData);

        // Converting Image byte array into Base64 String
        String imageDataString = encodeImage(imageData);

        // Converting a Base64 String into Image byte array
        byte[] imageByteArray = decodeImage(imageDataString);

        // Write a image byte array into file system
        FileOutputStream imageOutFile = new FileOutputStream(
            "/Users/jeeva/Pictures/wallpapers/water-drop-after-conv");
        imageOutFile.write(imageByteArray);

        imageInFile.close();
        imageOutFile.close();

        System.out.println("Image Successfully Manipulated!");
    } catch (FileNotFoundException e) {
        System.out.println("Image not found" + e);
    } catch (IOException ioe) {
        System.out.println("Exception while reading the Image " + ioe);
    }

}

/**
 * Encodes the byte array into base64 string
 *
 * @param imageByteArray - byte array
 * @return String a {@link java.lang.String}
 */
public static String encodeImage(byte[] imageByteArray) {
    return Base64.encodeBase64URLSafeString(imageByteArray);
}

```

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```

/**
 * Decodes the base64 string into byte array
 *
 * @param imageDataString - a {@link java.lang.String}
 * @return byte array
 */
public static byte[] decodeImage(String imageDataString) {
    return Base64.decodeBase64(imageDataString);
}
}

```

## Result

Successfully, we are able to manipulate the Image as String data and vice versa (convert image to string and string to image in java).

 water-drop-after-convert.jpg	Today 5:25 PM	695 KB	JPEG image
 water-drop.jpg	Jun 27, 2011 4:35 PM	695 KB	JPEG image

Screenshot: Java Image Manipulation Result

## Downloadable

This article sample code available at GitHub repo “[ImageManipulation.java](#)”.

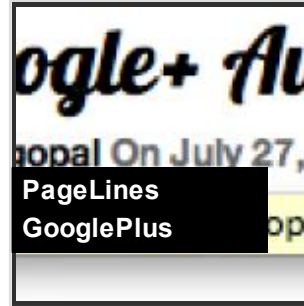
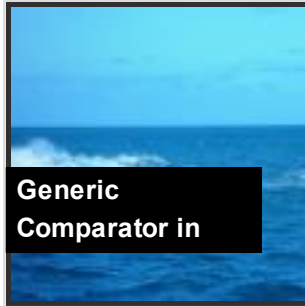
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**WilliamsRivas** says:





November 2, 2012 at 4:32 pm

Thanks, it is I need

Reply



**jeevatkm** says:

November 3, 2012 at 2:37 pm

@WilliamsRivas I'm glad, Thanks!

Reply



**nagarjuna renintech** says:

November 22, 2012 at 5:12 am

@jeevatkm

i have tried your program and am unable to  
import the header file

import

org.apache.commons.codec.binary.Base64;

and it is very important to me please suggest  
me(converting image to string program)

@WilliamsRivas

Reply





**jeevatkm** says:

November 22, 2012 at 5:52 am

@nagarjuna renintech @WilliamsRivas

If your project is mavenized then add  
this into your pom.xml

```
<dependency>  
<groupId>commons-codec</groupId>  
<artifactId>commons-codec</artifactId>  
<version>1.7</version>  
</dependency>
```

Else download the jar from

[http://commons.apache.org/codecs/download\\_codec.cgi](http://commons.apache.org/codecs/download_codec.cgi)  
and add it your project build path.

Reply



**nagarjuna renintech** says:

November 22, 2012 at 5:12 am

i have tried your program and am unable to import the header  
file

```
import org.apache.commons.codec.binary.Base64;  
and it is very important to me
```

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