

# Image manipulation in ColdFusion


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## Objectives

- Introduction
- Creating a CFImage
- Converting images
- Basic image manipulation fns.
- Thumbnails or Image resizing
- Adding Text
- Watermarking images
- Watermarking images
- Base64 support
- Captchas
- Blobs and Images
- Exif and IPTC
- Basic graphic functions
- Magic of drawing strokes

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## Introduction

- <cfimage> tag is here! (in Coldfusion Scorpio)
- More than 45 new functions for image processing
- Why we did it – customers, customers, customers!

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## Creating a CFImage

- <cfimage>
  - e.g. `<cfimage source="abc.jpg" name="myImage" action="read">`
- ImageNew()
  - e.g. `<cfset myImage = ImageNew("abc.jpg")>`
- Inputs: URLs, File Paths, Base64 Strings, Byte Arrays, Image Objects.

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## Reading and writing images

- Using tags:
 


```
<cfimage action="read"
  source="http://www.google.com/images/logo.gif"
  name="myImage" >
<cfimage action="write"
  source="#myImage#"
  destination="google-logo.gif" >
```
- Using functions:
 

```
<cfscript>
  ImageRead("myImage","http://www.google.com/images/logo.gif");
  ImageWrite(myImage,"google-logo.gif");
</cfscript>
```

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## Converting images

- Converting between image formats, e.g.
  - `<!-- converts abc.jpg to abc.png -->`
  - `<cfimage source="abc.jpg" action="write" destination="abc.png">`
  - `<cfimage source="abc.jpg" action="convert" destination="abc.png">`
- Image formats that are supported (both read/write) :
  - JPEG, GIF, PNG, BMP, TIFF**
- Other formats that can be read/written but not tested:
  - FlashPix, etc.


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**JPEG Compression** MAX

- Controlling JPEG compression  
 e.g. `<cfimage action="write" source="abc.jpg" quality="0.25" destination="abc-low-quality.jpg">`
- Demo

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**JPEG Compression** MAX




Original Image

Quality = 0.1



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**JPEG Compression** MAX




Original Image

Quality = 0.4




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**JPEG Compression** MAX




Original Image

Quality = 0.75 (default)




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**JPEG Compression** MAX



Original Image


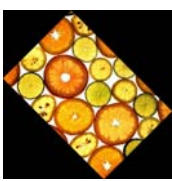
Quality = 1.0



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**Basic image manipulation functions** MAX

- Rotate  
 <!-- Rotate the image by 45 degrees. -->  
`<cfimage source="1.jpg" destination="rotated.jpg" action="rotate" angle="45">`  
  
`<cfset ImageRotate(myImage, 45)>`

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### Basic image manipulation functions

- Resize
  - <!-- Resize the image to 50% of original dimensions -->
  - <cfimage source="1.jpg" destination="resized.jpg" action="resize" width="50%" height="">
  - <cfset ImageResize(myImage,"50%","")>

### Basic image manipulation functions

- Border
  - <!-- add a 5-px wide red color border -->
  - <cfimage source="xyz.jpg" action="border" thickness="5" color="red">
  - <cfset ImageAddBorder(myImage,5,"red","constant")>
- Many more:
  - ImageShear, ImageNegative, ImageBrighten, ImageBlur, etc



### Thumbnails or Image resizing

- Fixed width and heights
  - <cfimage action="resize" source="a.jpg" width="100" height="200" destination="z.jpg">
  - <cfimage action="resize" source="a.jpg" width="100%" height="200%" destination="z.jpg">
- Proportional resizing
  - <cfimage action="resize" source="a.jpg" width="" height="200" destination="z.jpg">
  - <cfimage action="resize" source="a.jpg" width="100%" height="" destination="z.jpg">

### Thumbnails or Image resizing

- Scale to fit
  - <cfscript>
  - ImageRead("myImage","http://www.google.com/images/logo.gif");
  - ImageScaleToFit(myImage,100)
  - ImageWrite(myImage,"google-logo.gif");
  - </cfscript>
- Demo

### Adding Text

- Concept of attribute collections
  - <!-- sample code -->
  - <cfset attr = StructNew()>
  - <cfset attr.underline = "true">
  - <cfset attr.size = 48>
  - <cfset attr.style = "BOLD">
  - <cfset ImageSetDrawingColor(myImage,"yellow")>
  - <cfset ImageDrawText(myImage,"This image is modified by CF",200,200,attr)>

### Watermarking images

- ImageSetDrawingTransparency
- Nifty effects with ImageCopy and ImagePaste
- Demo

**Example:**

```

<cfimage source="abc.jpg" name="myImage" action="read">
<cfimage source="xyz.jpg" name="myImage2" action="read">
<!-- draw the second image on first image with 50% transparency -->
<cfset ImageSetDrawingTransparency(myImage,"50")>
<cfset ImageDrawText(myImage,"CF TEAM 2006",100,100)>
<cfset ImagePaste(myImage2,myImage,300,200)>

<cfimage source="#myImage#" destination="result.jpeg" action="write">
  
```

### Watermarking images

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### Base64 support

#### Why Base64 support?

- Embedding images inside the HTML page.
- Embedding images in emails.
- Anything creative you might think of.

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### Reading Base64 Images

#### ImageReadBase64

```
<cfset myImage = ImageNew()>
<cfset ImageReadBase64(myImage,"data:image/jpg;base64,...")>
<cfimage source="myImage"
  destination="test-myImage-frombase64.jpeg"
  action="write">

<cfimage source="data:image/jpg;base64,/9j/4AAQSkZJRgABAQA....."
  destination="myImage.jpg"
  isBase64="true">
```

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### Writing Base64 Images

#### ImageWriteBase64

```
<cfimage source='test-thumb.jpg' name='myImage' action='read' >
<cfset ImageWriteBase64(myImage,"test-thumb-base64.jpg")>
```

- Demo

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### Captchas

- What is Captcha?
- It is really simple to create captchas with CF! (png captchas)

```
<cfimage action="captcha"
  width="600"
  height="150"
  text="SAMPLE"
  difficulty = "low" <!-- low or medium or high -->
  destination = "captcha.png">
```

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### Captchas

- Difficulty of captcha

Low	
Medium	
High	

- Demo
- Problems of base64 captchas with IE.

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## Blobs and CFImage

- Read Image Blobs from Databases
- Convert Images to Blobs for easy insert.
- Usecase:** Making an employee directory.

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## Blobs and Images

- Creating images from BLOBs**

```
<cfquery name="GetBLOBs" datasource="myblobdata" >
  SELECT LastName,Photo FROM Employees
</cfquery>
<cfset arr = ArrayNew(1)>
<cfset i = 1> <table border=1> <cfoutput query="GetBLOBs">
  <tr> <td> #LastName# </td>
  <td> <cfset i = i + 1>
  <cfimage source="#GetBLOBs.Photo#" destination="image##.jpg" action="write">
  </td> </tr> </cfoutput> </table>
```
- Demo**

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## Blobs and Images

- Inserting cfimages into BLOB columns**

```
<cfimage source="xyz.jpg" name="myImage">

<cfquery name="InsertBlobImage" datasource="myaccessblobdata" >
  Insert into Employees Values ('Prayank','Swaroop',
    <cfqueryparam value="#ImageGetBlob(myImage)#"
      cfsqltype="cf_sql_blob">)
</cfquery>
```

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## EXIF & IPTC

- Reading Exif metadata**

```
<cfimage source=#ExpandPath('Canon IXUS 300.jpg')# name="myImage" action="read">
<cfset data = ImageGetExifMetaData(myImage)>
<cfdump var=#data#>
```
- Reading IPTC metadata**

```
<cfimage source=#ExpandPath('Canon IXUS 300.jpg')# name="myImage" action="read">
<cfset data = ImageGetIPTCMetaData(myImage)>
<cfdump var=#data#>
```
- Only for JPEGs
- Demo

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## Basic graphics functions

- Drawing geometric primitives
- Cubic and Quadratic curves
- Color handling

**Example:**

```
<cfset ImageSetDrawingColor(myImage,"cyan")>
<cfset ImageDrawLine(myImage,30,40,200,190)>
<cfset ImageDrawRect(myImage,200,50,210,200)>
<cfset ImageDrawQuadraticCurve(myImage, x1, y1, x2, y2, x3, y3)>
```

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## Magic of drawing strokes

- Increasing/decreasing width of strokes
- Dashed lines
- Line joins – round, butt, bevel

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## Magic of drawing strokes

MAX

- Demo

**Example:**

```
<cfset attr = StructNew()>
<cfset attr.width = 40>
<cfset attr.endcaps = "round">
<cfset dashPattern = ArrayNew(1)>
<cfset dashPattern[1] = 8>
<cfset dashPattern[2] = 4>
<cfset attr.dashArray = dashPattern>
<cfset ImageSetDrawingStroke(myImage, attr)>
```

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## Photo Credits

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All photos have been taken from:

- <http://www.amgmedia.com/freephotos/index.html>
- <http://www.geekphilosopher.com/>
- <http://pdphoto.org/PictureDetail.php?mat=pdef&pg=8135>

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