

## 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
- Base64 support
- Captchas
- Blobs and Images
- Exif and IPTC
- Basic graphic functions
- Magic of drawing strokes

## Introduction



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



## 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.



## 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>
```



## 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.



## JPEG Compression

MAX

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

## JPEG Compression

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Original Image

Quality = 0.1



## JPEG Compression

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Original Image

Quality = 0.4



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## JPEG Compression

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Original Image

Quality = 0.75 (default)



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## JPEG Compression

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Original Image

Quality = 1.0



## Basic image manipulation functions

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- Rotate

<!-- Rotate the image by 45 degrees. -->

```
<cfimage source="1.jpg" destination="rotated.jpg" action="rotate" angle="45">
```

```
<cfset ImageRotate(myImage, 45)>
```



## 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

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### Why Base64 support?

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

### ImageReadBase64

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

<cfimage source="....."
  destination="myImage.jpg"
  isBase64="true">
```

### ImageWriteBase64

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

- Demo

## Captchas

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- 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">
```



## Captchas

MAX

- Difficulty of captcha

Low	
Medium	
High	

- Demo
- Problems of base64 captchas with IE.



## Blobs and CFImage



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



## 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="#i#.jpg" action="write">
  </td> </tr> </cfoutput> </table>
```

- **Demo**



## Blobs and Images



- **Inserting cfimages into BLOB columns**

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

```
<cfquery name="InsertBlobImage" datasource="myaccessblobdata" >
```

```
  Insert into Employees Values ('James','Bond',
```

```
    <cfqueryparam value="#ImageGetBlob(myImage)#"
```

```
    cfsqltype="cf_sql_blob">)
```

```
</cfquery>
```



## 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



## Basic graphics functions



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

### Example:

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



## Magic of drawing strokes



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



## Magic of drawing strokes



- 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)>
```



## Photo Credits



**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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