Old Dominion University

CS 418/518
Web Programming
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Images

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Outline

- Assigned Reading
  - Chapter 7 "Manipulating and Creating Images with PHP"
- Uploading Files
- Manipulating Images

File Upload with PHP

- HTML form based
- POST method
- Content Type (enctype) attribute: multipart/form-data (and *not* application/x-www-form-urlencoded)
- define MAX_FILE_SIZE [in B] in hidden field
  - must precede input type: file
  - name is important!

```
<form enctype="multipart/form-data"
action="file_upload.php" method="POST">
<input type="hidden" name="MAX_FILE_SIZE" value="30000" />
Send this file: <input name="mkfile" type="file" />
<input type="submit" value="Send File" />
</form>
```


File Upload with PHP

- associative array `$_FILES`
- `$_FILES['mkfile']['name']`
  - original name from client
- `$_FILES['mkfile']['type']`
  - MIME type if provided
- `$_FILES['mkfile']['size']`
  - size in bytes
- `$_FILES['mkfile']['tmp_name']`
  - tmp file name on server
- `$_FILES['mkfile']['error']`
  - error code

File Upload with PHP
Error Codes

- UPLOAD_ERR_OK [0]
  - no error, file upload successful
- UPLOAD_ERR_INI_SIZE [1]
  - uploaded file exceeds upload_max_filesize in php.ini
- UPLOAD_ERR_FORM_SIZE [2]
  - uploaded file exceeds MAX_FILE_SIZE specified in HTML form
- UPLOAD_ERR_PARTIAL [3]
  - file was only partially uploaded
- UPLOAD_ERR_NO_FILE [4]
  - no file uploaded
- UPLOAD_ERR_NO_TMP_DIR [6]
  - missing temporary folder
- UPLOAD_ERR_CANT_WRITE [7]
  - write file to disk failed
- UPLOAD_ERR_EXTENSION [8]
  - PHP extension stopped the file upload

File Upload with PHP
Example

```
<?php
$uploaddir = '/home/mweigle/cs418_html/uploads/';
$uploadfile = $uploaddir . basename($_FILES['mkfile']['name']);

if (move_uploaded_file($_FILES['mkfile']['tmp_name'],
                       $uploadfile)) {
    echo "File is valid, and was successfully uploaded.\n";
} else {
    echo "Possible file upload attack!\n";
}

echo 'Here is some more debugging info:';
print_r($_FILES);
?>
```

uploaddir - must have write permissions (chmod 777)

Upload Multiple Files with PHP

- similar to single file upload
- use array of file names

```
<form enctype="multipart/form-data" action="file_upload.php"
method="POST">
Send these files:<br/>
<input name="mkfile[]" type="file" /> //file1.txt; 13KB
<input name="mkfile[]" type="file" /> //file2.png; 42KB
<input name="mkfile[]" type="file" /> //file3.pdf; 113KB
<input type="submit" value="Send Files" />
</form>
```

```
$_FILES['mkfile']['name'][0] eq file1.txt
$_FILES['mkfile']['name'][1] eq file2.png
$_FILES['mkfile']['name'][2] eq file3.pdf

$_FILES['mkfile']['size'][0] eq 13KB
$_FILES['mkfile']['size'][1] eq 42KB
$_FILES['mkfile']['size'][2] eq 113KB
```


GD Library

- "Graphics Draw" library for PHP
- Provides functions for manipulating and creating images with PHP

Converting Uploaded Images

- Create new GD-friendly image to act as temp source image
  - imagecreatefromgif(), imagecreatefrompng()
- Create new GD-friendly blank image to act as temp destination image
  - imagecreatetruecolor()
- Copy new source image to new destination image
  - imagecopyresampled()
  - params: dest_img, src_img, x_dest, y_dest, x_src, y_src, width_dest, height_dest, width_src, width_dest
- Save or output your altered image
  - imagejpeg()
- Destroy your temp source and destination images
  - imagedestroy()

Image Information
getimagesize()

```
list($width,$height,$type,$attr) =
getimagesize($srcfile);
```

Image Info
getimagesize()

- width in pixels
- height in pixels
- type
  - 1 - GIF
  - 2 - JPG
  - 3 - PNG
  - anything else - unsupported
- attr
  - string with width and height (suitable for HTML image tag)
  - ex: `width="640" height="480"`

Modifying Images
imagefilter()

- IMG_FILTER_NEGATE - reverses all colors of the image.
- IMG_FILTER_GRAYSCALE - converts the image into grayscale.
- IMG_FILTER_EDGEDETECT - uses edge detection to highlight the edges in the image.
- IMG_FILTER_EMBOSS - embosses the image.
- IMG_FILTER_GAUSSIAN_BLUR - blurs the image using the Gaussian method
- IMG_FILTER_SELECTIVE_BLUR - blurs the image.
- IMG_FILTER_MEAN_REMOVAL - uses mean removal to achieve a "sketchy" effect.

Uses arg1

- IMG_FILTER_BRIGHTNESS - changes the brightness of the image
- IMG_FILTER_CONTRAST - changes the contrast of the image
- IMG_FILTER_SMOOTH - makes the image smoother

Uses arg1, arg2, arg3

- IMG_FILTER_COLORIZE - like IMG_FILTER_GRAYSCALE, except you can specify the color.
  - arg1, arg2 and arg3 in the form of red, green, blue and arg4 for the alpha channel
- IMG_FILTER_PIXELATE - applies pixelation effect to the image
  - arg 1 - block size, arg 2 - pixelation effect mode

Outline

- Uploading Files
- Manipulating Images

Up Next: Project 3 Status Reports

Demo/Walkthrough Time

- Examples from Chapter 07

  https://mweigle418.cs.odu.edu/~mweigle/textbook/ch07.htm