

Error Handling

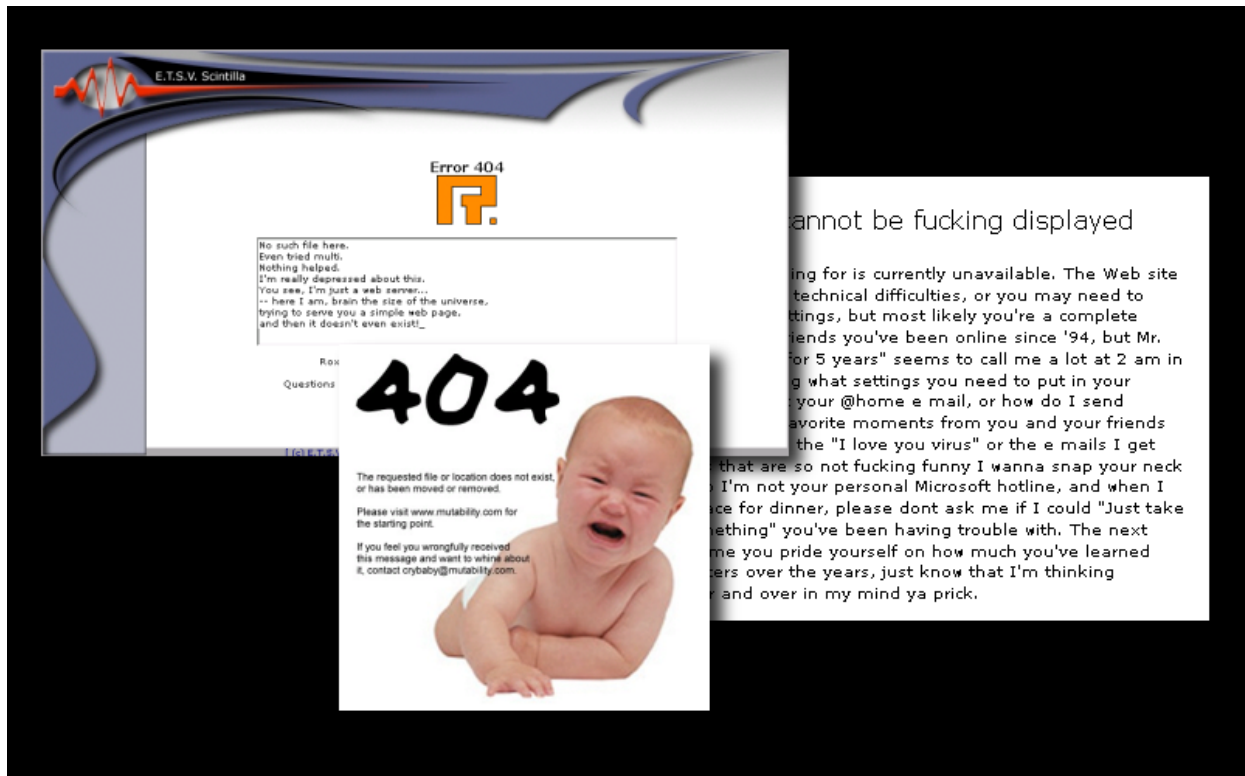
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<http://pres.derickrethans.nl/errorhandling>





ErrorDocument 404 /my404page.html

```
ErrorDocument 404 /error.php
```

```
<?php
    header("Location: http://example.com/");
? >
```

- o Pro: Hides errors from users
- o Pro: Easy to implement
- o Con: Nobody knows what went wrong
- o Con: Retyping of URL required on spelling errors

ErrorDocument 404 /search.php

search.php:

```
<?php
    $search_string = basename($_SERVER['REQUEST_URI']);
    $filename = $_SERVER['DOCUMENT_ROOT'] . ltrim($_SERVER['REQUEST_URI'], '/');

    ob_start();
? >
<html>
<head><title><?php echo "Info about $search_string"; ? ></title></head>
<body>
<?php echo "<h1>$search_string:</h1>\n"; ? >
</body>
<?php
    $data = ob_get_contents();
    ob_clean();
    echo $data."\n(In error handler, saved to $filename)";
    $f = fopen($filename, "w");
    fwrite($f, $data);
    fclose($f);
? >
```

Url: <http://yoursite.com/news/000001.html>

Set up a 404 error handler:

```
<Directory /home/httpd/news>
  ErrorDocument 404 /generate-news.php
</Directory>
```

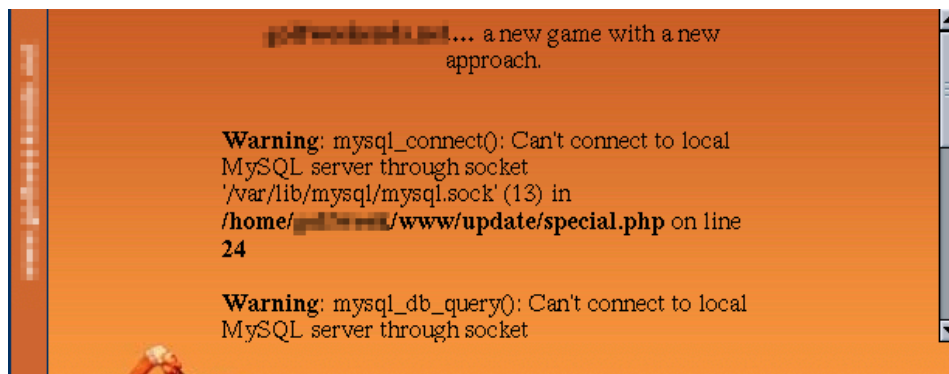
generate-news.php:

```
<?php
  $id = basename($_SERVER['REDIRECT_URL'], '.html');

  / Generate the HTML /
  include "/home/httpd/news/generator.php";
  $html = generate_html($data);

  / Show the page /
  echo $html;

  / Store the page for later use /
  $fp = fopen(sprintf("/home/httpd/news/%06d.html", $id), "w");
  fputs($fp, $html);
  fclose($fp);
? >
```



- o Yuck!
- o Lose visitors
- o Scare away potential customers
- o Unneeded



```
<?php
    if (@mysql_connect('localhost', 'root', 'ut34Fb1Y:')) {
        if (@mysql_select_db('game')) {
            $r = mysql_query('SELECT * FROM news ORDER BY date DESC LIMIT 1');
            ...
        }
    }
}
```

- o Always check return values
- o @ operator

- o `php.ini: error_reporting = E_ALL`
- o `httpd.conf: php_value error_reporting 2047`
- o `in script: error_reporting(E_ALL & ~E_NOTICE);`

`E_ALL == 2047`

`E_NOTICE == 8`

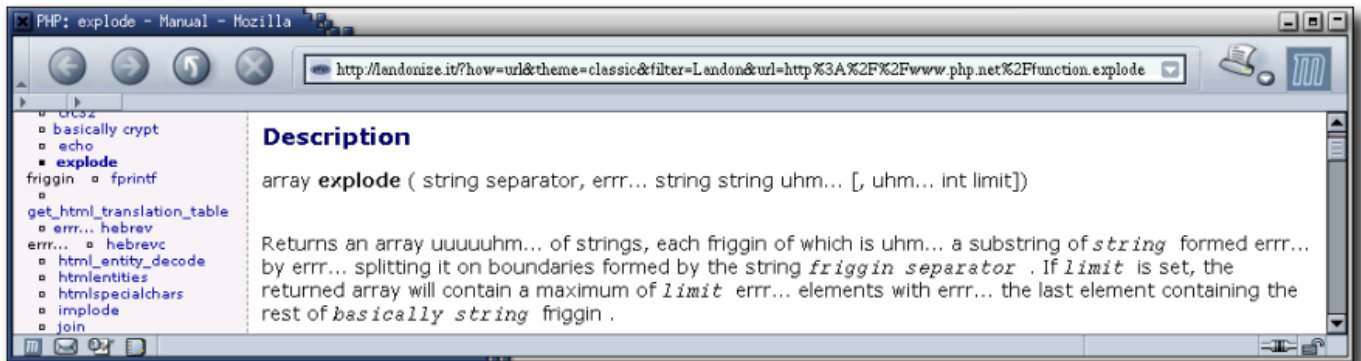
`E_ALL & ~E_NOTICE == 2039`

<http://www.php.net/manual/en/ref.errorfunc.php#errorfunc.constants>

- o `display_errors = On`
- o `display_startup_errors = Off`
- o `html_errors = On/Off`
- o `error_prepend_string/error_append_string`
- o `docref_root/docref_ext`

```
docref_root="http://londonize.it/?how=url&theme=classic&filter=Landon&url=http3A2F2Fwww.php.net2"
docref_ext=""
```

Warning: explode() [function explode](#): Empty delimiter. in `/home/httpd/html/test/error.php` on line 2



- o `log_errors = On`
- o `log_errors_max_len = 1024`
- o `error_log = /var/log/phperrors`
- o `error_log = syslog`

- o Users are evil!
- o `register_globals == evil`
- o `$_GET, $_POST, $_COOKIE, $_REQUEST, $_ENV, $_SERVER`

- o Cross Site Scripting
- o SQL injection
- o String cut attacks
- o include() and eval()

PHP 4:

```
<?php
    if (@mysql_connect('localhost', 'root', 'ut34Fb1Y:')) {
        if (@mysql_select_db('game')) {
            $r = mysql_query('SELECT * FROM news ORDER BY date DESC LIMIT 1');
            ...
        }
    }
```

PHP 5:

```
<?php
    try {
        mysql_connect('localhost', 'root', 'ut34Fb1Y:');
        mysql_select_db('game');
        $r = mysql_query('SELECT * FROM news ORDER BY date DESC LIMIT 1');
    } catch (Exception $e) {
        / Do recovery /
        exit();
    }
```

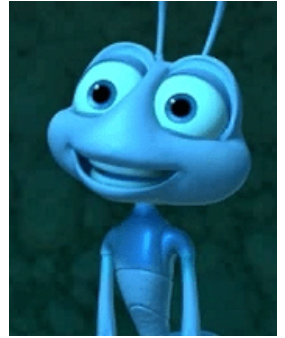
- o Parse Errors

```
<br /> <table align='center' border='1' cellspacing='0'> <tr><td bgcolor='#ffbfff'
colspan='3'><b>Parse error</b>: parse error in <b>/home/httpd/html/test/parse.php</b> on line
<b>3</b><br /> <tr><th bgcolor='#aaaaaa' colspan='3'>Call Stack</th></tr> <tr><th
bgcolor='#cccccc'>#</th><th
                                bgcolor='#cccccc'>Function</th><th
bgcolor='#cccccc'>Location</th></tr> </table>
```

- o Never on a production box

- o php -l

```
[derick@kossu test]$ php -l parse.php
Parse error: parse error in parse.php on line 3
```

- o Logical Errors
- o Always on a production box
- o Test code!
- o Also called bugs



```
<?php
function course_correction($x, $y, $z, $speed)
{
    if ($x $x $y $y $z > $speed) {
        $speed = $speed - 5;
    }
    return $speed;
}

$speed = 34;
echo course_correction(2, 2, 2, $speed);
? >
```

Output:

34



```

<?php
function crop_string ($str, $length)
{
    if (strlen($str) > $length - 3) {
        $lines = split("\n", wordwrap($str, $length - 3));
        return $lines[0]. "...";
    } else {
        return $str;
    }
}
? >

<?php
include 'lib.php';

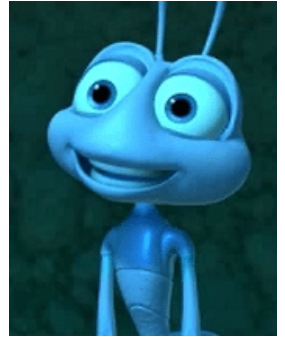
$tests = array (
    'crop_string' => array(
        array('foo...', 'foo', 1),
        array('foo...', 'foo', 3),
        array('foo', 'foo', 7),
        array('', '', 1),
        array('', '', 7),
        array('Hello...', 'Hello world', 1),
        array('Hello...', 'Hello world', 7),
        array('Hello world', 'Hello world', 17),
    ),
);
$functions = get_defined_functions();
$functions = $functions['user'];

foreach ($functions as $function) {
    if (isset($tests[$function])) {
        $i = 0;

        foreach ($tests[$function] as $test) {
            $i++;
            switch (count($test)) {
                case 2: $res = $function($test[1]); break;
                case 3: $res = $function($test[1], $test[2]); break;
            }

            if ($res != $test[0]) {
                echo "FAILED test $function, $i: Expected '{$test[0]}' got '$res'\n";
            } else {
                echo "PASSED test $function, $i\n";
            }
        }
    }
}
? >

```



- o PEAR Class
- o pear install PHPUnit
- o Easy testing of class (methods)
- o Automated

```
<?php
class CropString {
    function cropString($str, $length)
    {
        if (strlen($str) > $length - 3) {
            $lines = split("\n", wordwrap($str, $length - 3));
            $this->result = $lines[0]. "...";
        } else {
            $this->result = $str;
        }
    }
}
? >

<?php
require_once 'crop_string.class.php';
require_once 'PHPUnit.php';

class CropStringTest extends PHPUnit_TestCase {
    function CropStringTest($name) {
        PHPUnit_TestCase::PHPUnit_TestCase($name);
    }

    function emptyTest() {
        $cstring = new CropString('', 1);
        $this->assertTrue($cstring->result == '');
    }

    function fooTest() {
        $cstring = new CropString('foo', 1);
        $this->assertTrue($cstring->result == 'foo...');
    }

    function helloWorldTest() {
        $cstring = new CropString('Hello world', 1);
        $this->assertTrue($cstring->result == 'Hello...');
    }
}

$suite = new PHPUnit_TestSuite();
$suite->addTest(new CropStringTest('emptyTest'));
$suite->addTest(new CropStringTest('fooTest'));
$suite->addTest(new CropStringTest('helloWorldTest'));
$result = PHPUnit::run($suite);
echo $result->toString();
? >
```



- o Not perfect code
- o Time to debug!
- o "echo" debugging
- o Time consuming

- o Helps finding bugs
- o Zend extension
 - zend_extension=/path/to/xdebug.so
 - zend_extension_ts=C:/path/to/xdebug.dll
- o Hooks into error handler
and function execution

Modified error handler:

```
Warning: mysql_select_db() [function.mysql-select-db]: Can't connect to local MySQL server through socket '/var/lib/mysql/mysql.sock' (2) in /home/httpd/html/www.derickrethans.nl/html/xdebug/include/header.php on line 97
```

Call Stack		
#	Function	Location
1	{main}()	/home/httpd/html/www.derickrethans.nl/html/xdebug/updates.php:0
2	include(include/header.php)	/home/httpd/html/www.derickrethans.nl/html/xdebug/updates.php:1
3	mysql_select_db('blog')	/home/httpd/html/www.derickrethans.nl/html/xdebug/include/header.php:97

Modified var_dump() function:

```
array
  0 =>
    array
      0 => true
      1 => false
      2 => 3
    'tree' =>
      array
        0 => '4'
        1 => null
        2 => '6'
```


Function trace				
Time	#	Function	Location	Memory
0	->	require_once(config.php)	/home/httpd/html/ecommerce/modules/user/webshop/index.php:13	190928
0.010361	->	require_once(session.php)	/home/httpd/html/ecommerce/modules/user/webshop/index.php:14	349944
0.010426	->	define ('IMAGE_THUMBNAI', 1)	/home/httpd/html/ecommerce/common/session.php:17	350008
0.010527	->	define ('IMAGE_ITEMINFO', 2)	/home/httpd/html/ecommerce/common/session.php:18	349960
0.010587	->	define ('BASKET_FROM_SESSION', 0)	/home/httpd/html/ecommerce/common/session.php:22	350176
0.010620	->	define ('BASKET_FROM_ORDER', -2147483648)	/home/httpd/html/ecommerce/common/session.php:23	350120
0.010649	->	define ('BASKET_EDIT', 1)	/home/httpd/html/ecommerce/common/session.php:25	350088
0.010673	->	define ('BASKET_FOOTER', 2)	/home/httpd/html/ecommerce/common/session.php:26	350104
0.010695	->	define ('BASKET_USERINFO', 4)	/home/httpd/html/ecommerce/common/session.php:27	350120
0.010717	->	define ('BASKET_CHECKOUT', 8)	/home/httpd/html/ecommerce/common/session.php:28	350136
0.010740	->	define ('BASKET_BONUS_ON', 16)	/home/httpd/html/ecommerce/common/session.php:29	350152
0.010762	->	define ('BASKET_BONUS_OFF', 32)	/home/httpd/html/ecommerce/common/session.php:30	350168
0.010786	->	define ('CONTACT_COMPANY', 1)	/home/httpd/html/ecommerce/common/session.php:33	350120
0.010808	->	define ('CONTACT_PERSON', 2)	/home/httpd/html/ecommerce/common/session.php:34	350136
0.010831	->	define ('ORDER_STATUS_UNFINISHED', 1)	/home/httpd/html/ecommerce/common/session.php:37	350152
0.010855	->	define ('ORDER_STATUS_ORDERED', 2)	/home/httpd/html/ecommerce/common/session.php:38	350176

- o xdebug_start_trace()
- o xdebug_dump_function_trace()

Function Summary Profile (sorted by avg. execution time)			
Total Time Taken	Avg. Time Taken	Number of Calls	Function Name
0.0402980473	0.0402980473	1	*teaser_boxes
0.0315849416	0.0315849416	1	{include}
0.0170339423	0.0170339423	1	*set_sidebar_basket
0.0064459829	0.0064459829	1	{require_once}
0.0064249564	0.0064249564	1	*randomize_boxes
0.0247020079	0.0041170013	6	*currency_output_vat
0.0243179310	0.0034739901	7	*convert_currency
0.0288108429	0.0028810843	10	preg_replace_callback
0.0016710435	0.0016710435	1	*get_category_box
0.0014149420	0.0014149420	1	*get_manufacturer_box
0.0013270202	0.0013270202	1	*db->db
0.0129320472	0.0012932047	10	*get_cache_object

- o xdebug_start_profile()
- o xdebug_dump_function_profile(mode)
- o 8 profiling modes

```
root@kossu.office.jdimedia.nl: /dat/dev/php/xdebug/debugclient
This is Xdebug version 1.3.0dev.
Copyright 2002 by Derick Rethans, JDI Media Solutions.
(init) bre convert_currency
1 Breakpoint set on function.
(init) run
Starting program: /home/httpd/html/ecommerce/modules/user/webshop/index.php
Breakpoint, convert_currency(2300,005)
    at /home/httpd/html/ecommerce/common/algorithms.php:299
260         global $db;

(cmd) print db
$db = class db {var $con = resource(8) of type (mysql link); var $options = array ()}

(cmd) show
$db
$_SESSION
$value
$curr_data
$GLOBALS
(cmd) print value
$value = 2300,005

(cmd) eval $value = 2350
2350

(cmd) print value
$value = 2350

(cmd) cont
Continuing.
Breakpoint, convert_currency(2300,005)
    at /home/httpd/html/ecommerce/common/algorithms.php:299
262         $curr_data = get_currency_data ($db);

(cmd) delete convert_currency
2 Breakpoint removed.
```

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► **Applen tuotetiedot**

The screenshot shows the Xdebug Client interface. The main window displays the PHP code being debugged, with the current execution point at line 16. The code reads a file and writes XML output. The right pane shows the environment variables (ENV) list.

```

1 <?php
2
3 $file_txt = './german.lng';
4 $file_xml = './lng_german.xml';
5
6 header('Content-Type: text/plain');
7 if ($fh1 = fopen($file_txt, 'r')) {
8     echo 'opened lng file for reading...'\n";
9     if ($fh2 = fopen($file_xml, 'w')) {
10        echo 'opened xml file for writing...'\n";
11        fwrite($fh2, '<?xml version="1.0"?>'\n");
12        fwrite($fh2, '<Translations>'\n");
13        $writeXML = false;
14        $counter = -1;
15        while (!feof($fh1)) {
16            $line = trim(fgets($fh1, 64000));
17            if ($line && $writeXML) {
18                list($key,$val) = explode('=', $line);
19                if ($key) {
20                    if (!(++$counter % 10)) echo "\n";
21                    echo '... ';
22                    flush();
23                    fwrite($fh2, ' <Translation>'\n");
24                    fwrite($fh2, " <App>$key</App>\n");

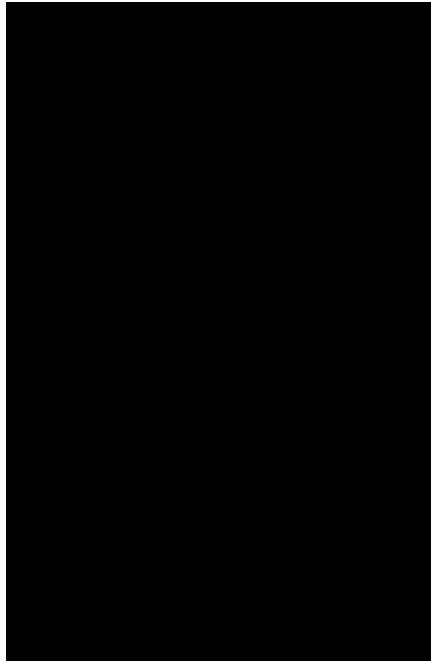
```

The environment variables (ENV) list is as follows:

Variable	Type	Value
COOKIE	array	
_ENV	array	
ALLUSERSPROFILE	string	C:\Dokumente und Einstellung
APPDATA	string	C:\Dokumente und Einstellung
CommonProgramFiles	string	C:\Programme\Gemeinsame D
COMPUTERNAME	string	SMALL-SUBJ
ComSpec	string	C:\WINNT\system32\cmd.e
Home	string	c:\vs\ssh
HOMEDRIVE	string	C:
HOMEPATH	string	\
LOGONSERVER	string	\\SMALL-SUBJ
NUMBER_OF_PROCESSORS	string	1
OS	string	Windows_NT
Os2LibPath	string	C:\WINNT\system32\os2\ld
Path	string	C:\WINNT\system32;C:\WIN
PATHEXT	string	.COM;.EXE;.BAT;.CMD;.VBS;.VI
PROCESSOR_ARCHITECTURE	string	x86
PROCESSOR_IDENTIFIER	string	x86 Family 6 Model 8 Stepping 3
PROCESSOR_LEVEL	string	6
PROCESSOR_REVISION	string	0803
ProgramFiles	string	C:\Programme
SystemDrive	string	C:
SystemRoot	string	C:\WINNT
TEMP	string	C:\DOKUME~1\sub\LOKAL
TMP	string	C:\DOKUME~1\sub\LOKAL
USERDOMAIN	string	SMALL-SUBJ
USERNAME	string	subj
USERPROFILE	string	C:\Dokumente und Einstellung
windir	string	C:\WINNT

The backtrace shows the following function call:

Function	File	Line
(main)	d:\www\phpug.de\htdocs\lng\index.php	0



These Slides: <http://pres.derickrethans.nl/errorhandling>

PHP: <http://www.php.net>

PHPUnit: <http://pear.php.net/package-info.php?pacid=38>

Xdebug: <http://xdebug.derickrethans.nl>

404s: <http://www.plinko.net/404/>

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