

Welcome!



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<http://derickrethans.nl/talks.html>
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Derick Rethans



- Dutchman living in London
- PHP development
- Author of the `mcrypt`, `input_filter`, `dbus`, `translit` and `date/time` extensions
- Author of `Xdebug`
- Contributor to the Apache Zeta Components Incubator project (formerly eZ Components)
- Freelancer doing PHP (internals) development

Development Aid
Live Debugging
Profiling

Xdebug Pimps Your Ride



Error Messages

Pimped-Up with CSS

```
| ( ! ) Fatal error: Maximum execution time of 1 second exceeded in /home/httpd/html/test/
|xdebug/docs/stack.php_on_line_66_____
|Call_Stack_____
|#|Time_____|Memory|Function_|Location_____
|1|_____0.0004_____|691504|{main}(_) |../stack.php:0_____
|2|_____0.0006_____|699472|foo(_____) |../stack.php:82_____
|Dump_$_SERVER_____
|$_SERVER['REQUEST_URI'] |string_ '/test/xdebug/docs/stack.php?level=7'_(length=35)_____
|Variables_in_local_scope_(#2)_____
|          $a |array (size=5)
|          |
|          | 42 => boolean false
|          | 'foo' => int 9121240
|          | 43 =>
|          |   object(stdClass)[1]
|          |     public 'bar' => int 100
|          |
|          | 44 =>
|          |   object(stdClass)[2]
|          |     __45__=>_resource(4, _stream)_____
|_____          $i |int_2176225_____
```

Error Message

Record and Delayed Display

```
xdebug_start_error_collection()
```

```
xdebug_stop_error_collection()
```

```
xdebug_get_collected_errors()
```

- This is still undocumented— oops!

Pretty Printing Variables

```
array
  0 => null
  1 => float 3.141592654
  2 =>
    array
      'dutch' =>
        object(locale)[1]
          public 'lang' => string 'nl' (length=2)
          public 'variation' => string 'abcdabcdabcdabcdabcdabcdabcd...' (length=2000)
          public 'charsets' =>
            array
              0 => string 'iso-88591' (length=9)
              1 => string 'iso-8859-15' (length=11)
          private 'mb_supported' => boolean false
          protected 'self' =>
            &object(locale)[1]
          protected 'id' => int 1
```

Options:

```
<?php
ini_set( 'xdebug.var_display_max_data', 25 );
ini_set( 'xdebug.var_display_max_depth', 4 );
ini_set( 'xdebug.var_display_max_children', 32 );
?>
```

Turn off in php.ini or .htaccess with:

```
xdebug.overload_var_dump = 0
```

Colours on the Command Line

new in 2.2

```
derick@whisky: ~ - Terminal
derick@whisky:~$ php -dxdebug.cli_color=1 \
> -r 'var_dump(4, 5, 6, array("fo", false, 3.14));'
int(4)
int(5)
int(6)
array(3) {
  [0] =>
  string(2) 'fo'
  [1] =>
  bool(false)
  [2] =>
  double(3.14)
}
derick@whisky:~$
```

```
derick@whisky: ~ - Terminal
derick@whisky:~$ php -dxdebug.cli_color=1 \
> -r 'function yesPlease() { trigger_error("foo"); } yesPlease()
;'

Notice: foo in Command line code on line 1

Call Stack:
  0.0001    660536    1. {main}() Command line code:0
  0.0001    660536    2. yesPlease() Command line code:1
  0.0001    660864    3. trigger_error('foo') Command line code:1
e:1

derick@whisky:~$
```

`xdebug.cli_color=1`

Scream

- PHP's @ operator hides warnings and errors
- `xdebug.scream=1` makes PHP ignore @



Recording headers

- Xdebug collects all headers being set, implicitly and explicitly
- It's very useful for testing and unit-tests
- `xdebug_get_headers()`

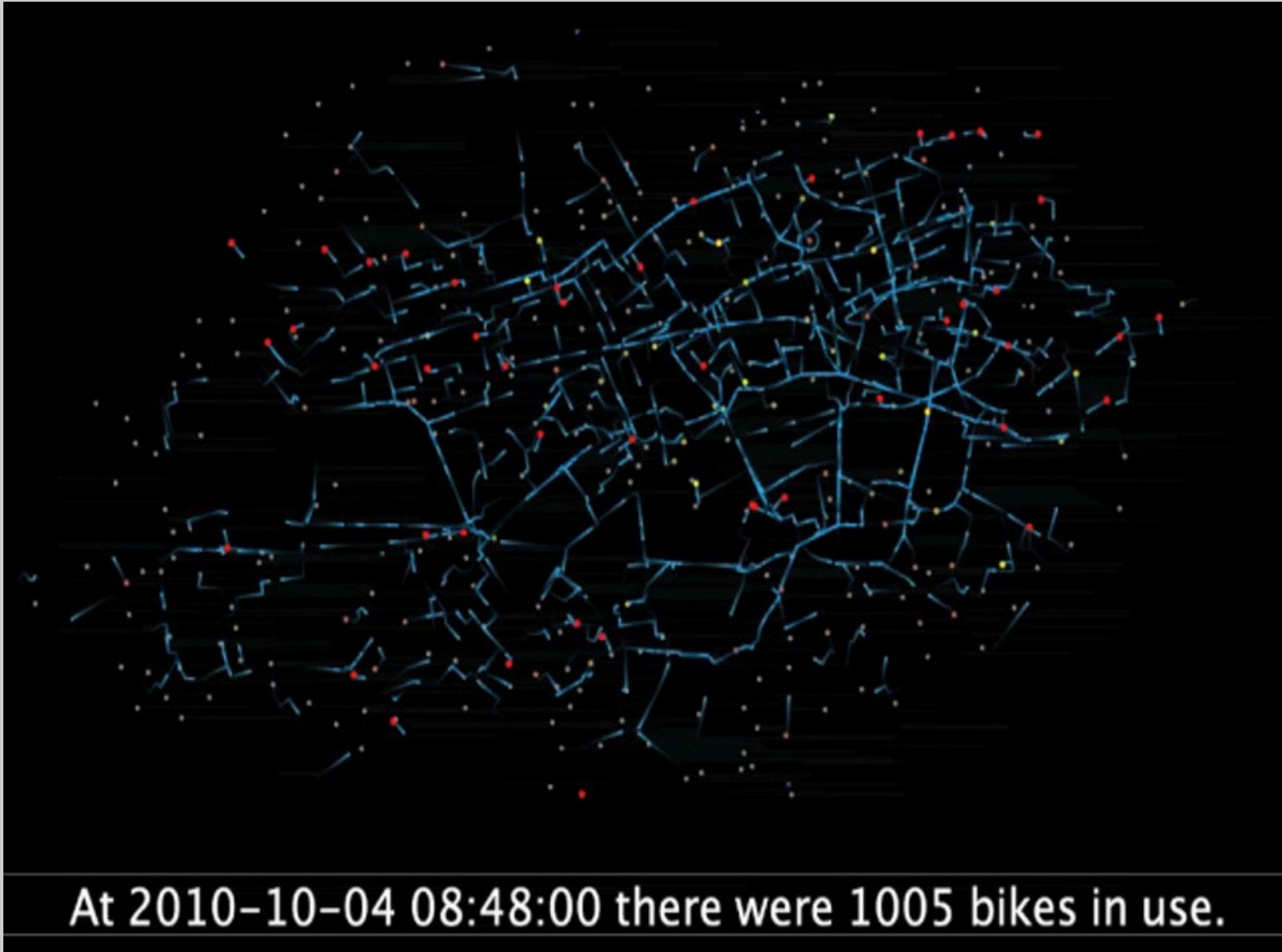
```
<?php
session_start();

setcookie( 'key', 'value', time() + 86400 );

header( "Status: 403" );

var_dump( xdebug_get_headers() );
?>
```

Tracing



Function trace

```
TRACE START [2010-03-24 11:03:12]
0.0022    787776    -> {main}() /home/httpd/pres2/show2.php:0
0.0028    803160    -> require (/home/derick/dev/ezcomponents/trunk/Base/src/ezc_bootstrap.php) /home/httpd/pres2/show2.php:2
0.0029    803552    -> dirname('/home/derick/dev/ezcomponents/trunk/Base/src/ezc_bootstrap.php')
```

Some settings:

```
xdebug.auto_trace=1
xdebug.trace_output_dir=/tmp
xdebug.collect_params=1
xdebug.collect_return=1
xdebug.collect_includes=1
xdebug.collect_assignments=1
```

Function trace to file

Automatic readable format

```
[derick@kossu]
File Edit View Terminal Tabs Help
Version: 2.0.0dev
TRACE START [2004-08-28 21:12:37]
1 0 0 0.001881 57336 {main} 1 /home/httpd/pres2/show.php 0
2 1 0 0.002255 57336 error_reporting 0 /home/httpd/pres2/show.php 2
2 1 1 0.002332 57344
2 2 0 0.002862 64360 require_once 1 /home/httpd/pres2/config.php /home/httpd
2 2 1 0.003043 65576
2 3 0 0.003120 62840 compact 0 /home/httpd/pres2/show.php 7
2 3 1 0.003225 63816
2 4 0 0.003459 66824 require_once 1 /home/httpd/pres2/sniff.php /home/httpd/pre
3 5 0 0.003563 66832 strstr 0 /home/httpd/pres2/sniff.php 4
3 5 1 0.003641 66832
2 4 1 0.003696 66888
2 6 0 0.003748 64160 set_time_limit 0 /home/httpd/pres2/show.php 10
2 6 1 0.003855 64160
2 7 0 0.003893 64160 strlen 0 /home/httpd/pres2/show.php 11
2 7 1 0.003949 64160
2 8 0 0.005437 99816 require_once 1 /home/httpd/pres2/XML_Presentation.php /ho
3 9 0 0.010074 143232 require_once 1 /usr/local/lib/php/XML/Parser.php /home/h
4 10 0 0.014375 250952 require_once 1 /usr/local/lib/php/PEAR.php /usr/local/lib/
5 11 0 0.014486 250992 define 0 /usr/local/lib/php/PEAR.php 25
5 11 1 0.014576 250992
/tmp/trace.2043925204.xt [R0] 1,1 Top
```

```
xdebug.auto_trace=1 ; enable tracing
xdebug.trace_format=1 ; selects computerized format
xdebug.trace_options=0 ; sets extra option (1 = append)
```

- HTML traces
- Tracing only parts of an application with `xdebug_start_trace()` and `xdebug_stop_trace()`.
- Fetching the trace file name that is being used with `xdebug_get_tracefile_name()`.
- Changing how much data is shown with `xdebug.var_display_max_children`, `xdebug.var_display_max_data` and `xdebug.var_display_max_depth`.

demo

Swatting Bugs



- DBGp, common Debugging protocol
- Cross-language: PHP, Python, Perl...

Clients:

- Eclipse/PDT (Java based — free)
- Komodo (Linux, Windows, Mac — commercial)
- MacGDBp (free)
- Netbeans (Java-based — free)
- PHPStorm (Java-based — commercial)
- Zend Studio for Eclipse (Eclipse-based — commercial)
- Stand-alone client (Linux (for now)):
- (and many others:)

Activating the Remote Debugger

php.ini settings:

```
xdebug.remote_enable=1  
xdebug.remote_host=localhost  
xdebug.remote_port=9000
```

php.ini settings:

```
xdebug.remote_enable=1  
xdebug.remote_host=localhost  
xdebug.remote_port=9000  
xdebug.remote_connect_back=1
```

On the shell:

```
export XDEBUG_CONFIG="idekey=xdebugrocks"
```

With a browser:

```
http://pres/show.php?XDEBUG_SESSION_START=xdebugrocks
```

```
http://pres/show.php?XDEBUG_SESSION_STOP=1
```

With browser extensions:

easy Xdebug (FireFox):

Xdebug Helper (Chrome):

www.derickrethans.nl - NetBeans IDE 6.9.1

File Edit View Navigate Source Refactor Run Debug Team Tools Window Help

<default> Search (Ctrl+I)

Proj... Files Services Start Page x test.php x index.php x

www.derickrethans.nl

- Source Files
 - cache
 - html
 - cache
 - content
 - errorhandling
 - files
 - images

index.php - Navigator

```
1 <?php
2 require 'php/config.php';
3 $url = trim( $_SERVER['REQUEST_URI'], '/' );
4 $doppler = true;
5
6 if ( $_SERVER['SERVER_NAME'] == 'www.derickrethans.nl' )
7 {
8     header( "Location: http://derickrethans.nl/$url" );
9 }
10
11 //check common thingies
12 if ( $url == '' )
13 {
14     $title = "Home";
```

Variables Call Stack Breakpoints Tasks

Name	Type	Value
Superglobals		
api	drBlogApi	
d	ezcDbHandlerSqlite	
transactionNestingLevel	integer	0
transactionErrorFlag	boolean	0
identifierQuoteChars	array	

Filters: netbeans-xdebug running 4 | 1 | INS

test.php (~dev/php/xdebug-demos/cli-debug) - ActiveState Komodo IDE 6.1 - Debugger

File Edit Code Navigation View Debug Project Tools Help

Start Page test.php x

```
4 private $priv;
5 protected $prot;
6 public $publ;
7
8 function __construct($a)
9 {
10     $this->priv = $a * 2;
11     $this->prot = $a * 2.5;
12     $this->publ = $a * M_PI;
13 }
14
15
16 function foo($a)
17 {
```

Break at /home/derick/dev/php/xdebug-demos/cli-debug/test.php, line 11.

Name	Type	Value
a	float	2.718281828459
▼ this	TheClass	
priv	float	5.4365636569181
prot	null	
publ	null	

Watch Locals Superglobals

Output Call Stack HTML

Ready ● __construct UTF-8 Ln: 11 Col: 1 PHP

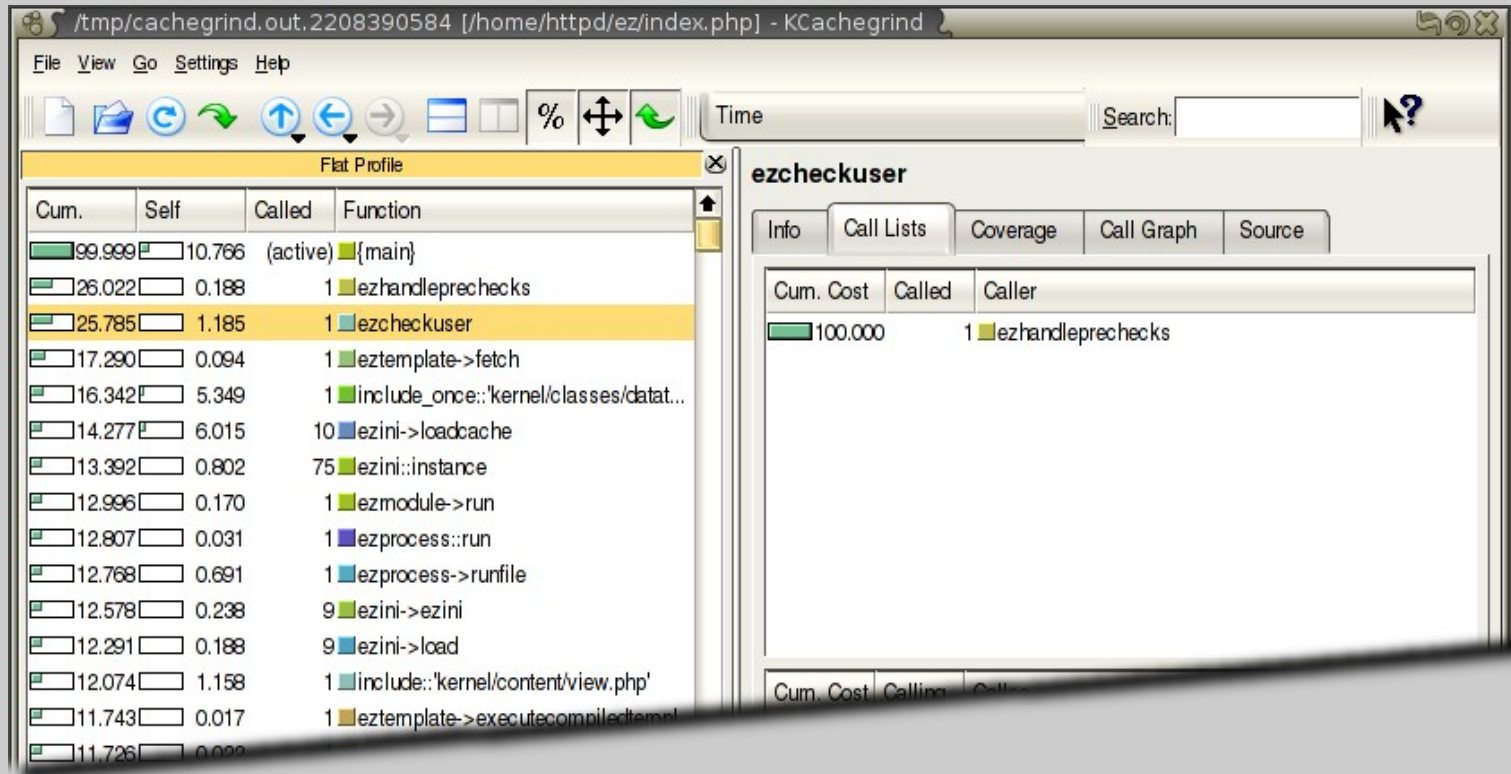
demo

Profiling



Profiling

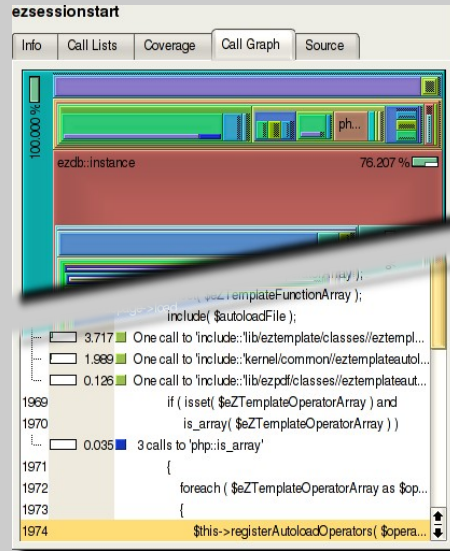
KCacheGrind's Flat Profile and Call List



```
xdebug.profiler_enable=1           ; enable profiler  
xdebug.profiler_output_dir=/tmp    ; output directory  
xdebug.profiler_output_name=cachegrind.out.%p
```

Profiling

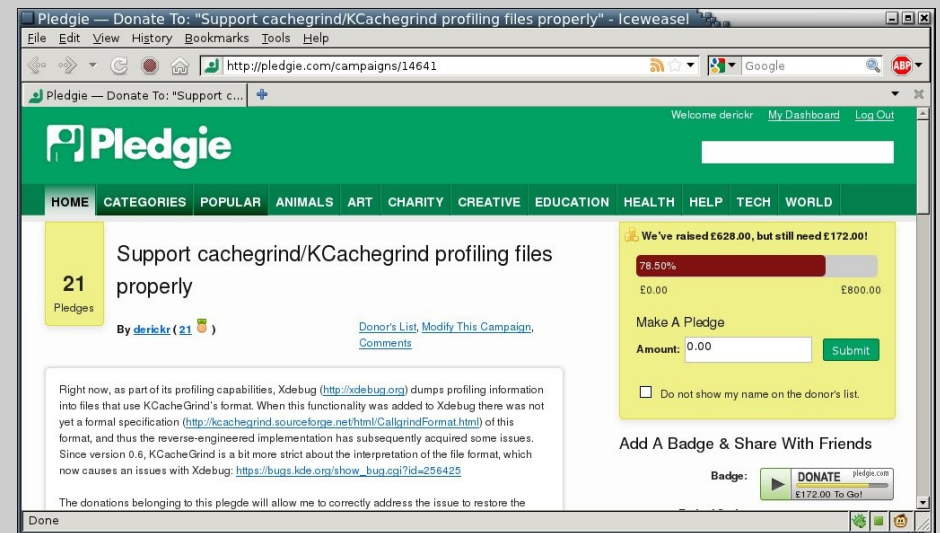
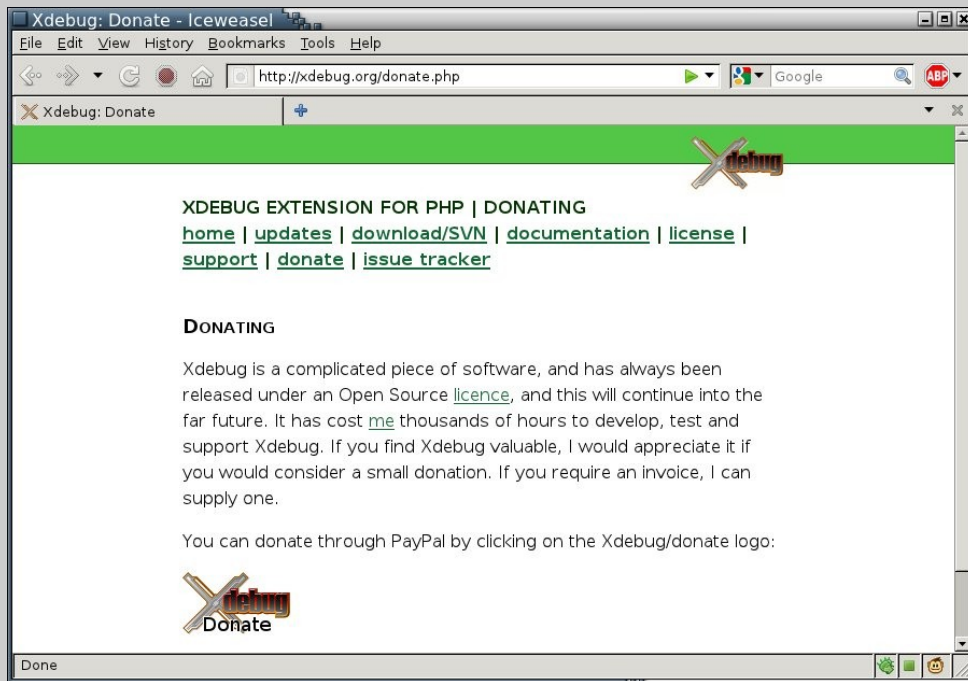
KCacheGrind's Call Graph and Source Annotations



- Call graph
- Area shows time spend
- Stacked to show callees
- Source annotations
- Number of calls
- Total time per function

demo

- It's Open Source and free (as in "free beer")
- Working on Xdebug takes up a lot of spare time
- I don't have a lot of spare time





- Xdebug site: <http://xdebug.org>
- Xdebug documentation:
<http://xdebug.org/docs.php>
- DBGp specification: <http://xdebug.org/docs-dbgp.php>
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