Welcome!

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http://files.derickrethans.nl/xdebug-phptek7.pdf

About Me

- Dutchman living in Norway
- eZ Systems A.S.
- eZ Components project lead
- PHP development
- mcrypt, input_filter, date/time support, unicode
- QA

I Do Need a Debugger

- Xdebug: An Open Source debugging tool
- About 4 years old
- Version 2 is about to be released
- Works (at least) on Linux and Mac and Windows

Installing Xdebug

Compiling

With PEAR:

- pear install xdebug-beta

Without PEAR:

- wget http://xdebug.org/files/xdebug-2.0.0RC3.tgz
- tar -xvzf xdebug-2.0.0RC3.tgz
- cd xdebug-2.0.0RC3
- phpize
- ./configure
- make
- make install

Installing Xdebug

Enabling

- in php.ini add: zend_extension=/full/path/to/xdebug.so
- Use zend_extension_debug for debug builds of PHP

Installing Xdebug

On Windows

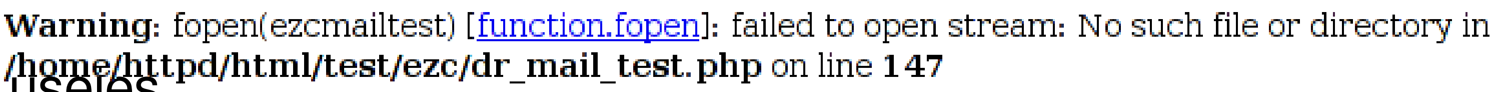
- Download the .dll for your PHP version from http://pecl4win.php.net/
- in php.ini add: zend_extension_ts=c:\php\xdebug.dll

Installing Xdebug

Gotchas

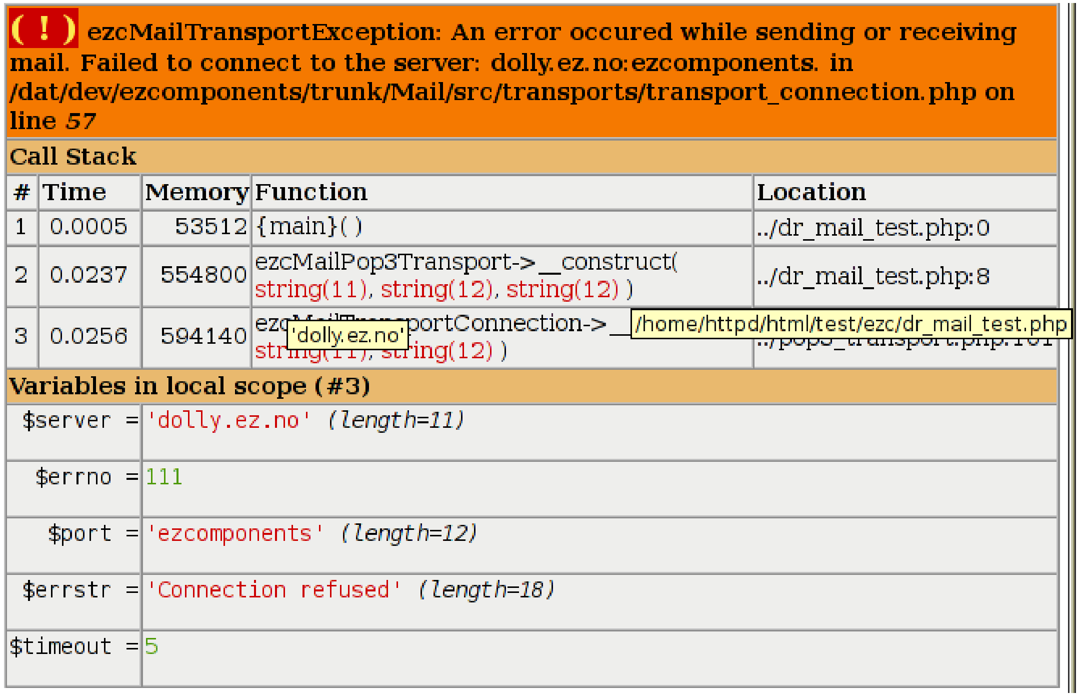
- --enable-versioning prevent Xdebug from loading
- Zend's extensions (optimizer, debugger, cache) prohibit Xdebug (and other non-Zend zend-extensions) from loading

Help By Error Messages



Warning: fopen(ezcmailtest) [function.fopen]: failed to open stream: No such file or directory in **/home/httpd/html/test/ezc/dr_mail_test.php** on line **147**

... is kinda useles.



(!) ezcMailTransportException: An error occured while sending or receiving mail. Failed to connect to the server: dolly.ez.no:ezcomponents. in /dat/dev/ezcomponents/trunk/Mail/src/transports/transport_connection.php on line *57*

Call Stack

#	Time	Memory	Function	Location
1	0.0005	53512	{main}( )	../dr_mail_test.php:0
2	0.0237	554800	ezcMailPop3Transport->__construct(string(11), string(12), string(12))	../dr_mail_test.php:8
3	0.0256	594140	ezc'dolly.ez.no'portConnection->__ string(11), string(12))	/home/httpd/html/test/ezc/dr_mail_test.php ../pop3_transport.php:101

Variables in local scope (#3)

$server =	'dolly.ez.no' *(length=11)*
$errno =	111
$port =	'ezcomponents' *(length=12)*
$errstr =	'Connection refused' *(length=18)*
$timeout =	5

xdebug.collect_params=1 and xdebug.show_local_vars=1

Demo

demo

How Much Time Does It Take

```
<pre>
<?php
require_once 'ezc/Base/base.php';

function __autoload( $className )
{
    ezcBase::autoload( $className );
}

$cfg = ezcConfigurationManager::getInstance();
$cfg->init( 'ezcConfigurationIniReader', dirname( __FILE__ ) . '/examples' );

echo "Time Index: ", xdebug_time_index(), "\n";
$pw = $cfg->getSetting( 'settings', 'db', 'password' );
echo "The password is <$pw>.\n";
echo "Time Index: ", xdebug_time_index(), "\n";
?>
```

How Much Memory Does It Use

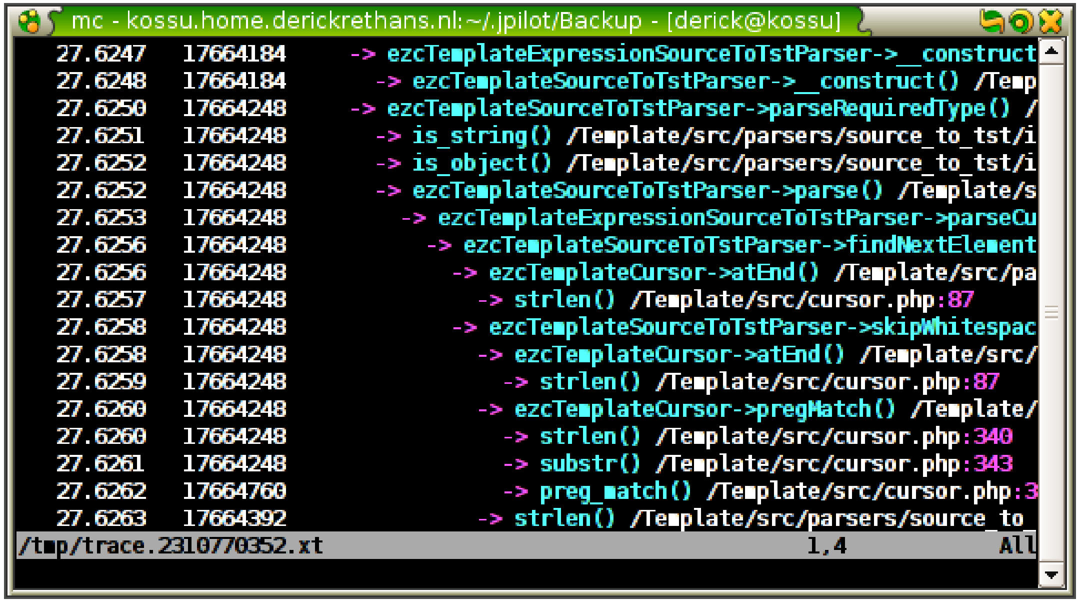
```
<pre>
<?php
require 'ezc_mail_setup.php';
error_reporting(E_ALL);

$parser = new ezcMailParser();
$set = new ezcMailFileSet( array( dirname(__FILE__).'/ezcmailtest.mail' ) );
echo "Memory: ", xdebug_memory_usage(), " bytes\n\n";

$mail = $parser->parseMail( $set );
foreach( $mail as $mailPart )
{
    echo "From: {$mailPart->from->email}\n";
    echo "Subject: {$mailPart->subject}\n";
}
unset( $mail );

echo "\nMaximum Memory: ", xdebug_peak_memory_usage(), " bytes\n";
?>
```

Execution trace


mc - kossu.home.derickrethans.nl:~/.jpilot/Backup - [derick@kossu]

```
  27.6247    17664184     -> ezcTemplateExpressionSourceToTstParser->__construct
  27.6248    17664184      -> ezcTemplateSourceToTstParser->__construct() /Temp
  27.6250    17664248     -> ezcTemplateSourceToTstParser->parseRequiredType() /
  27.6251    17664248      -> is_string() /Template/src/parsers/source_to_tst/i
  27.6252    17664248      -> is_object() /Template/src/parsers/source_to_tst/i
  27.6252    17664248      -> ezcTemplateSourceToTstParser->parse() /Template/s
  27.6253    17664248       -> ezcTemplateExpressionSourceToTstParser->parseCu
  27.6256    17664248        -> ezcTemplateSourceToTstParser->findNextElement
  27.6256    17664248         -> ezcTemplateCursor->atEnd() /Template/src/pa
  27.6257    17664248          -> strlen() /Template/src/cursor.php:87
  27.6258    17664248         -> ezcTemplateSourceToTstParser->skipWhitespac
  27.6258    17664248          -> ezcTemplateCursor->atEnd() /Template/src/
  27.6259    17664248           -> strlen() /Template/src/cursor.php:87
  27.6260    17664248          -> ezcTemplateCursor->pregMatch() /Template/
  27.6260    17664248           -> strlen() /Template/src/cursor.php:340
  27.6261    17664248           -> substr() /Template/src/cursor.php:343
  27.6262    17664760           -> preg_match() /Template/src/cursor.php:3
  27.6263    17664392          -> strlen() /Template/src/parsers/source_to
/tmp/trace.2310770352.xt                                       1,4       All
```

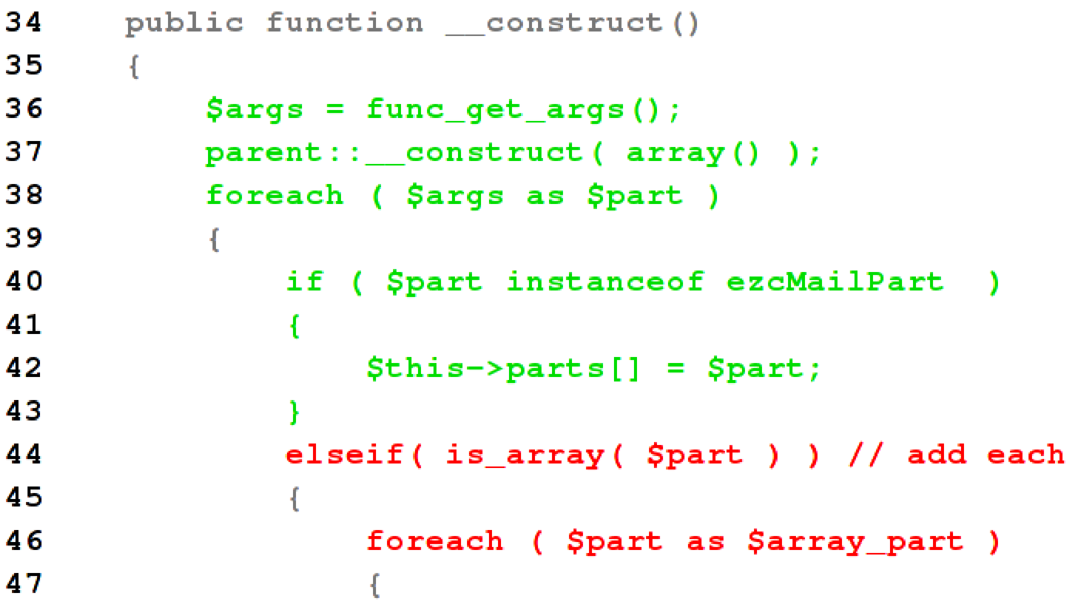
Available settings:

```
xdebug.auto_trace=1
xdebug.trace_output_dir=/tmp
xdebug.collect_vars=1
xdebug.collect_params=1
xdebug.collect_return=1
xdebug.trace_options=1
xdebug.trace_output_name=crc32 # crc32, timestamp, pid
```

Demo

demo

What Code Do I Use



```
public function __construct()
{
    $args = func_get_args();
    parent::__construct( array() );
    foreach ( $args as $part )
    {
        if ( $part instanceof ezcMailPart  )
        {
            $this->parts[] = $part;
        }
        elseif( is_array( $part ) ) // add each
        {
            foreach ( $part as $array_part )
            {
```

Available functions:

```
xdebug_start_code_coverage();
xdebug_get_code_coverage();
xdebug_stop_code_coverage();
```

What Code Do I Use

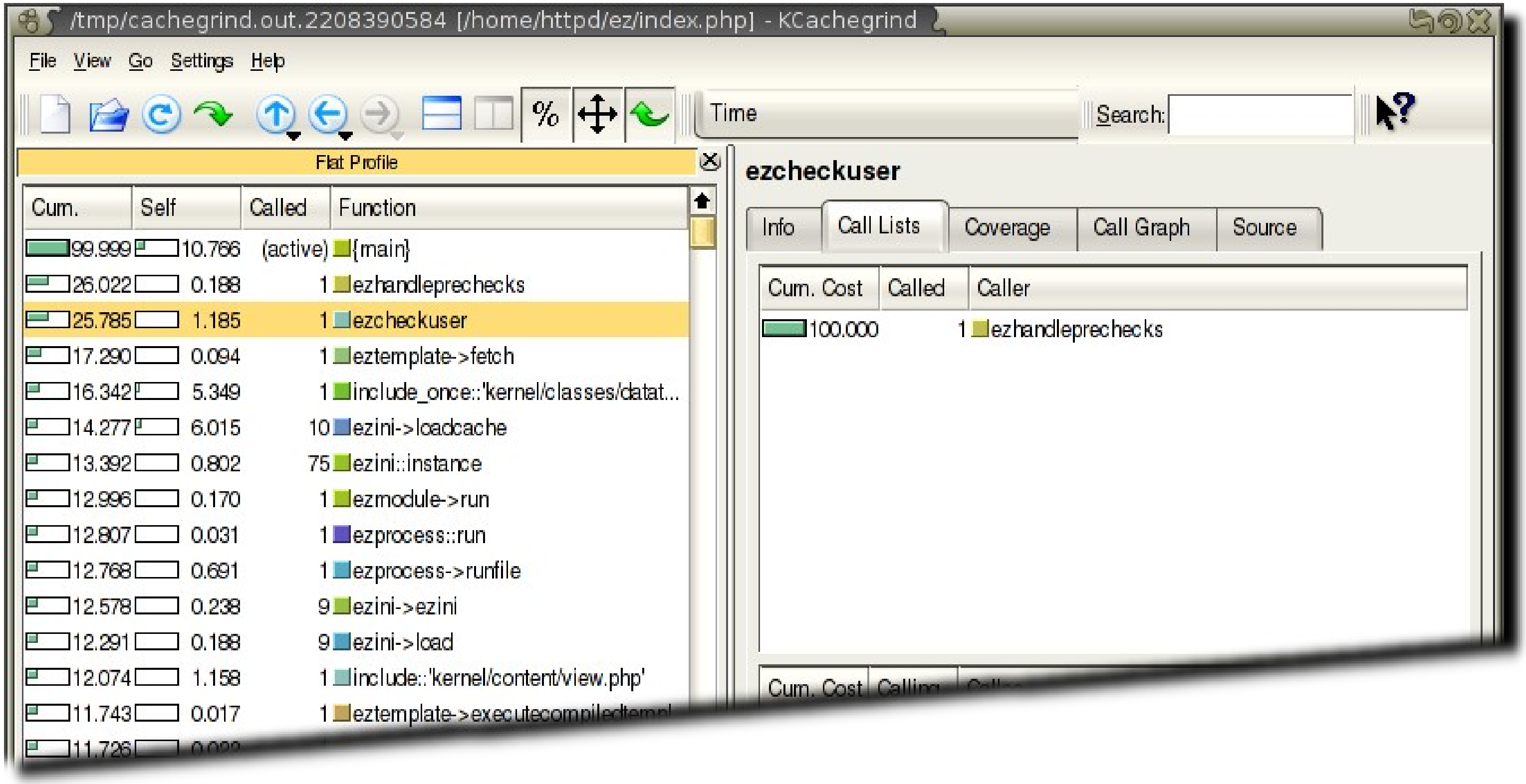
Options to xdebug_start_code_coverage():

- XDEBUG_CC_UNUSED: Enables scanning of code to figure out which line has executable code.
- XDEBUG_CC_DEAD_CODE: Enables branch analyzation to figure out whether code can be executed.

http://kossu/coverage/index.html

Profiling

KCacheGrind's Flat Profile and Call List



/tmp/cachegrind.out.2208390584 [/home/httpd/ez/index.php] - KCachegrind
File View Go Settings Help
%
Time
Search:
Flat Profile
ezcheckuser
Info
Call Lists
Coverage
Call Graph
Source
Cum. Cost
Calling
Calle

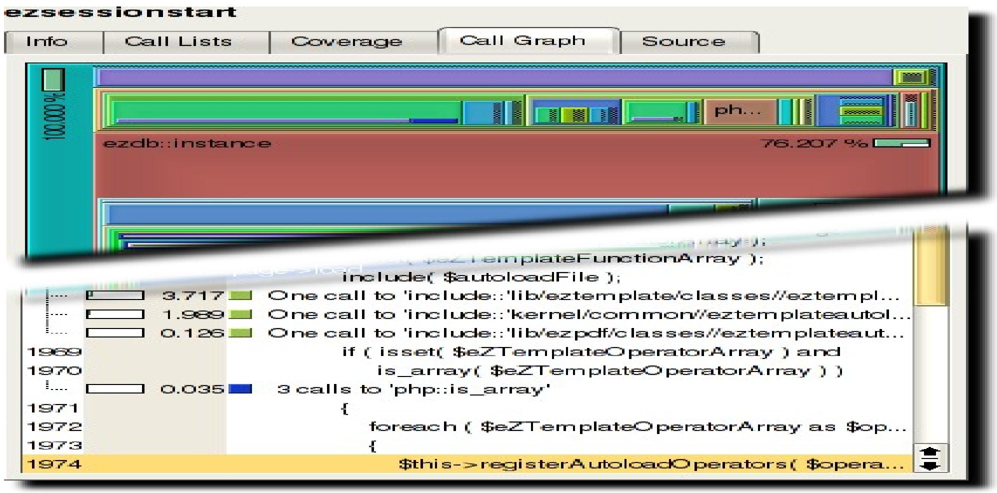
Cum.	Self	Called	Function
99.999	10.766	(active)	{main}
26.022	0.188	1	ezhandleprechecks
25.785	1.185	1	ezcheckuser
17.290	0.094	1	eztemplate->fetch
16.342	5.349	1	include_once::'kernel/classes/datat...
14.277	6.015	10	ezini->loadcache
13.392	0.802	75	ezini::instance
12.996	0.170	1	ezmodule->run
12.807	0.031	1	ezprocess::run
12.768	0.691	1	ezprocess->runfile
12.578	0.238	9	ezini->ezini
12.291	0.188	9	ezini->load
12.074	1.158	1	include::'kernel/content/view.php'
11.743	0.017	1	eztemplate->executecompiledtempl
11.726	0.022		

Cum. Cost	Called	Caller
100.000	1	ezhandleprechecks

```
xdebug.profiler_enable=1          ; enable profiler
xdebug.profile_output_dir=/tmp     ; output directory
xdebug.profile_output_name=crc32 ; file extension
```

Profiling

KCacheGrind's Call Graph and Source Annotations



```
                    emplateFunctionArray );
              include( $autoloadFile );
   3.717  One call to 'include::'lib/eztemplate/classes//eztempl...
   1.989  One call to 'include::'kernel/common//eztemplateautol...
   0.126  One call to 'include::'lib/ezpdf/classes//eztemplateaut...
1969          if ( isset( $eZTemplateOperatorArray ) and
                 is_array( $eZTemplateOperatorArray ) )
   0.035   3 calls to 'php::is_array'
1971          {
1972             foreach ( $eZTemplateOperatorArray as $op...
1973             {
1974                $this->registerAutoloadOperators( $opera...
```

- Call graph
- Area shows time spend
- Stacked to show callees

- Source annotations
- Number of calls
- Total time per function

Demo

demo

Analyzing Running Scripts

- DBGp, common Debugging protocol
- Cross-language: PHP, Python, Perl...
- Supported in Xdebug 2
- Clients: Komodo, Maguma Workbench, TruStudio (PHP Eclipse Plugin) and many other smaller ones

Let's demo this...

Demo

demo

Resources

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

Questions?: derick@xdebug.org