

New funks with PHP 5

Linux Tag 2003

July 11th, 2003. Karlsruhe, Germany

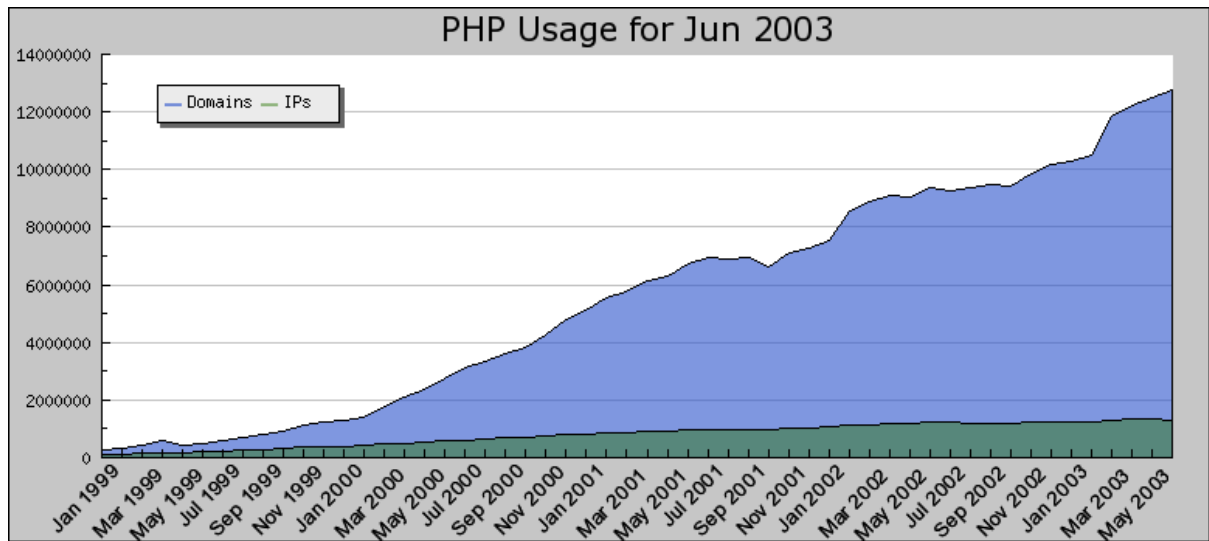
Derick Rethans <d.rethans@jdimedia.nl>

<http://pres.derickrethans.nl/php5lt>

- o PHP: Hypertext Preprocessor
- o Started in 1997
- o Apache module
- o but also IIS, Iplanet, thttpd...
- o SQLite and MySQL integration
- o but also MSSQL, Oracle, PGSql...

June 2003 Netcraft Report

- o 40,936,076 Domains queried
- o 12,749,410 Domains. 1,317,425 IP addresses
- o PHP installed on 31% of all domains



Source: Netcraft

March 2003 Apache Module Report

- o 6,813,534 Apache Servers surveyed
- o 3,510,294 (51.52%) PHP
- o 2,075,828 (30.47%) OpenSSL
- o 2,007,598 (29.46%) mod_ssl
- o 1,486,868 (21.82%) Frontpage
- o 1,407,732 (20.66%) mod_perl
- o 401,097 (5.89%) DAV
- o 348,856 (5.12%) mod_throttle
- o 206,122 (3.03%) mod_jk
- o 175,924 (2.87%) AuthMySQL
- o 190,290 (2.79%) mod_log_bytes
- o 185,076 (2.72%) mod_bwlimited

Source: SecuritySpace.com

- o Open Source: Apache like BSD-style license
- o 701 developers
- o ~25 active (on PHP source)
- o Documentation in 26 languages
- o PHP 4.0.0 since May 2000
- o PHP 4.3.2 in June 2003
- o PHP 5.0.0beta1 in June 2003

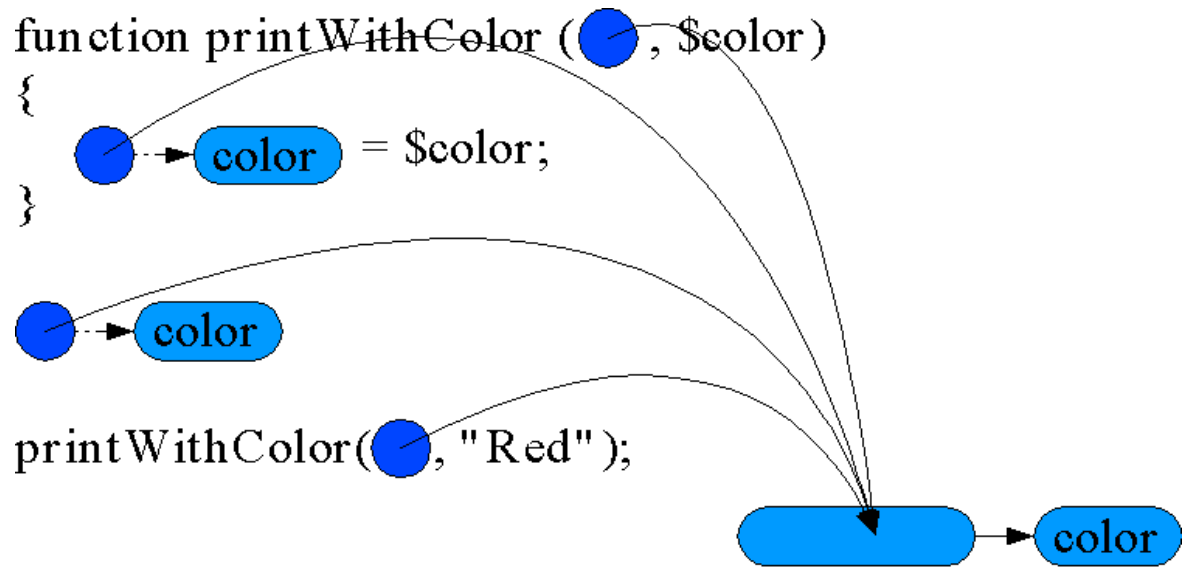
```
<?php
class OS {
    var $name;

    function OS($name) {
        $this->name = $name;
    }
}

function changeName($obj, $name) {
    $obj->name = $name;
}

$linux = new OS('linux');
changeName($linux, 'windows');
echo $linux->name;

? >
```

- o Pass by reference
- o Objects are referenced by a handle.



o Implicit cloning

```
<?php
class OS {
    var $name;

    function OS($name) {
        $this->name = $name;
    }
}

function changeName($obj, $name) {
    $obj->name = $name;
}

$linux = new OS('linux');
$win = $linux->__clone();
changeName($win, 'windows');
echo $linux->name. "\n";
echo $win->name;
```

? >

```
linux
windows
```

- o New type constructors: `__construct()`.
- o Finally destructors: `__destruct()`.



```
<?php
class Construction {
    var $area;
    function __construct($area) {
        $this->$area = $area;
    }
    function __destruct() {
        echo "Leaving {$this->area}\n";
    }
}

$c = new Construction('London');
$vegas = $c;
$vegas->area = "Las Vegas";

echo "\$c = NULL\n";
$c = NULL;
echo "\$vegas = NULL\n";
$vegas = NULL;
? >

$c = NULL
$vegas = NULL
Leaving Las Vegas
EOS
```

- o 'Strongest' access level
- o Can only be accessed/called from the same class
- o Force use of get()/set() functions to access properties

```
<?php
```

```
class Bedroom {
    private $action;

    function __construct() {
        $this->action = 'fun';
    }
}
```

```
$br = new Bedroom();
echo $br->action. "\n";
```

```
? >
```

```
Fatal error: Cannot access private property bedroom::$action in - on line 12
```

- o Only accessible/callable by the same, or an inherited class
- o Useful for 'packages'

```
<?php
class Bedroom {
    protected $action;

    function __construct() {
        $this->action = 'fun';
    }

    protected function peek() {
        echo $this->action. "\n";
    }
}

class Keyhole extends Bedroom {
    function peek() {
        echo $this->action. "\n";
    }
}

$kh = new Keyhole();
$kh->peek();

$br = new Bedroom();
$br->peek();           / Doesn't work /
? >
```

- o Property access handlers
- o In combination with private
- o As replacement for 'dynamic properties'

```
<?php
class OSses {
    private $names = array();

    public function __set($name, $value) {
        if (!in_array($name, array('windows', 'dos')))
            $this->names[$name] = $value;
    }

    public function getNames() {
        return $this->names;
    }
}

$osses = new OSses();
$osses->linux = 'rocks';
$osses->windows = 'blows';

var_dump($osses->getNames());
? >

array(1) {
    ["linux"]=>
    string(5) "rocks"
}
```

o Catch method calls

```
<?php
class hello {
    function __call($name, $args) {
        echo "Hello $name!\n";
    }
}
```

```
$h = new hello;
$h->sterling();
$h->rasmus();
? >
```

```
Hello sterling!
Hello rasmus!
```

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 PHP Extension and Application Repository
- o Commandline tool for maintenance
- o Dependency checking

```
[derick@kossu derick]$ sudo pear -v install Net_DIME
downloading Net_DIME-0.3.tgz ...
...done: 6,740 bytes
install ok: Net_DIME 0.3
```

```
[derick@kossu derick]$ sudo pear list-upgrades
Available Upgrades (beta):
=====
Package          Version  Size
DB                1.4.0   60kB
HTML_QuickForm   3.0Beta2 60kB
Net_SMTP         1.2.3   6.1kB
```

```
[derick@kossu derick]$ sudo pear list-all | head -6
All packages:
=====
Package          Latest  Local
apd              0.4p2
bcompiler        0.4    0.4
PHPDoc           0.1.0  0.1.0
```

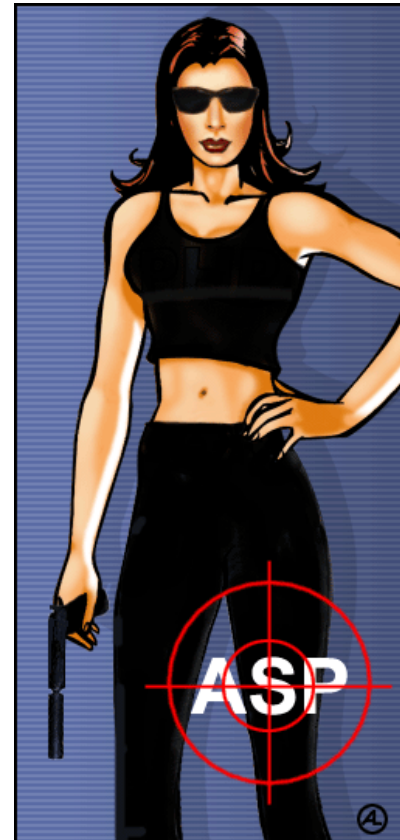



- o PHP Extension Code Library
- o Shared extensions
- o Makes use of the 'pear' tool
- o Future home for all extensions

```
[derick@kossu nl]$ sudo pear -v install
http://files.derickrethans.nl/xdebug-1.2.0.tgz
downloading xdebug-1.2.0.tgz ...
...done: 58,608 bytes
28 source files, building
running: phpize
PHP Api Version      : 20020918
Zend Module Api No   : 20020429
Zend Extension Api No : 20021010
building in /var/tmp/pear-build-root/xdebug-1.2.0
running: /tmp/tmpXOqy3A/xdebug-1.2.0/configure
running: make
xdebug.so copied to /tmp/tmpXOqy3A/xdebug-1.2.0/xdebug.so
install ok: xdebug 1.2.0
```

- o Command Line Interface
- o Actually not new in PHP 5, but was introduced in PHP 4.2.0
- o Useful tool for shell scripts

```
[derick@kossu nl]$ php -v  
PHP 5.0.0-dev (cli) (built: May 20 2003 11:06:44)  
Copyright (c) 1997-2003 The PHP Group  
Zend Engine v2.0.0-dev, Copyright (c) 1998-2003 Zend Technologies
```



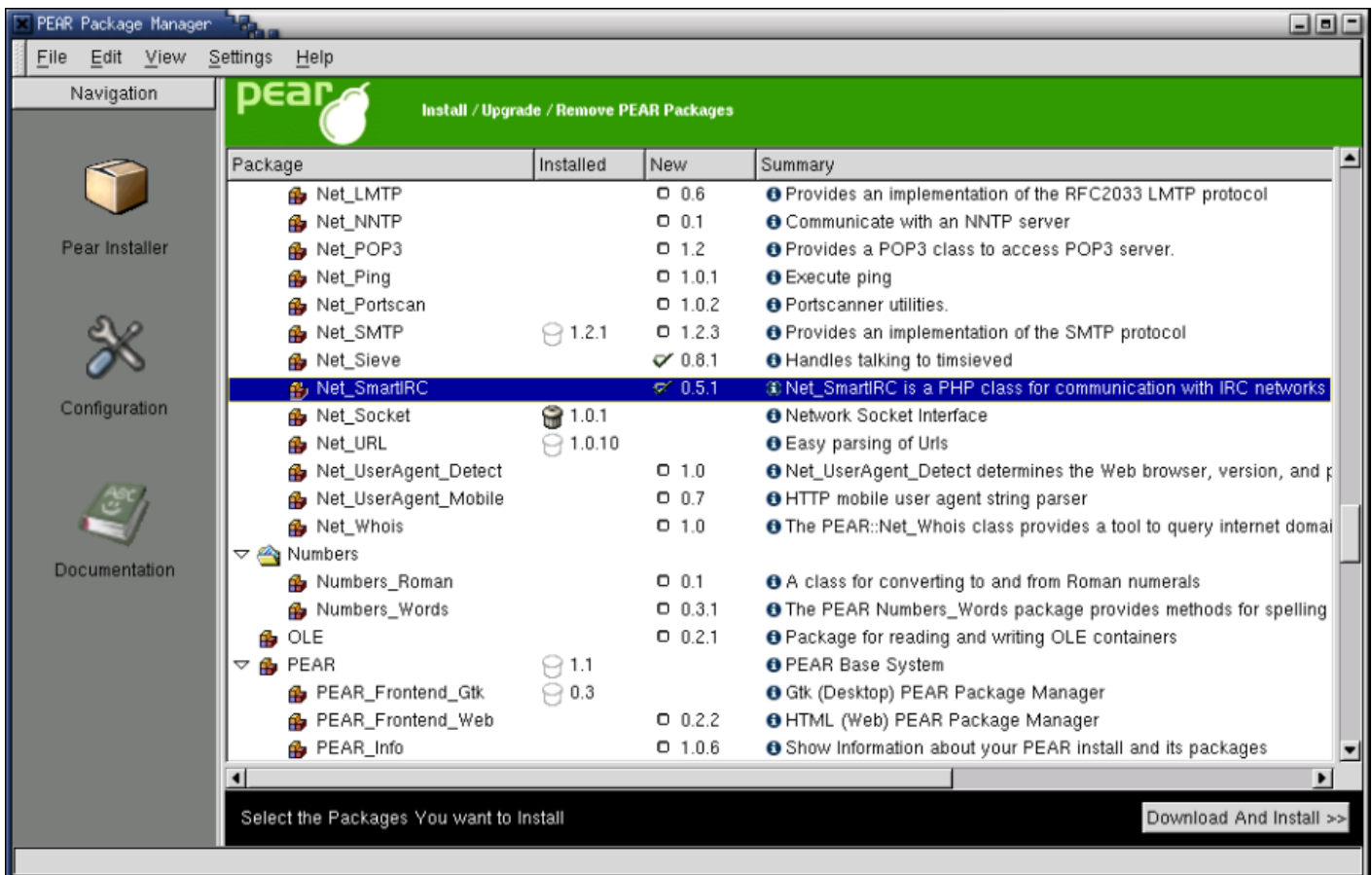
- o New in PHP 5

- o Processing from the commandline

```
-B <begin_code> Run PHP <begin_code> before processing input lines  
-R <code>       Run PHP <code> for every input line  
-F <file>      Parse and execute <file> for every input line  
-E <end_code>  Run PHP <end_code> after processing all input lines
```

```
$ find . |  
  php -B '$1 = 0;'  
      -R '$1+=count(file($argn));'  
      -E 'echo "Lines: $1\n";'
```

```
Lines: 102643
```



```
<?php
if (!extension_loaded('gtk')) {
    dl( 'php_gtk.' . PHP_SHLIB_SUFFIX);
}

/ Called when the window is being destroyed. Simply quit the main loop. /
function destroy()
{
    Gtk::main_quit();
}

/ Called when button is clicked. Print the message and destroy the window. /
function hello()
{
    global $window;
    print "Hello World!\n";
    $window->destroy();
}

$window = &new GtkWindow();
$window->connect('destroy', 'destroy');

/* Create a button, connect its clicked signal to hello() function and add
   the button to the window. /
$button = &new GtkButton('Hello World!');
$button->connect('clicked', 'hello');
$window->add($button);

$window->show_all();
Gtk::main();
? >
```



Example XML to parse:

```
<books>
  <book>
    <title>The Grapes of Wrath</title>
    <author>John Steinbeck</author>
  </book>
  <book>
    <title>The Pearl</title>
    <author>John Steinbeck</author>
  </book>
</books>
```

Expected output:

```
The Grapes of Wrath was written by John Steinbeck
The Pearl was written by John Steinbeck
```

```
<?php
$doc = domxml_open_file('book.xml');
$root = $doc->child_nodes();
$root = $root[0];
$books = $root->child_nodes();

foreach ($books as $book) {
    if (@$book->tagname == 'book') {
        $content = $book->child_nodes();
        foreach ($content as $elem) {
            if (@$elem->tagname == 'author') {
                $author = $elem->get_content();
            }
            if (@$elem->tagname == 'title') {
                $title = $elem->get_content();
            }
        }
        echo "{$title} was written by {$author}\n";
    }
}
? >
```

```
<?php
$books = simplexml_load_file('book.xml')->book;

foreach ($books as $book) {
    echo $book->title." was written by {$book->author}\n";
}
? >
```

- o **K.I.S.S.**
Keep It Simple Stupid

Before:

```
<security>
  <id>15</id>
</security>
```

Change the ID:

```
<?php
$s = simplexml_load_file('security.xml');
echo $s->id;
$s->id = 20;
simplexml_save_file($s, 'security.new.xml');
? >
```

After:

```
<security>
  <id>20</id>
</security>
```

- o Streams?
- o php://
- o http://, https://, ftp://, ftps://
- o compression.gzip://, compression.bz2://
- o User streams (register_streams())
- o Filters (php://filter)

```
<?php
/* This will output the contents of
   www.example.com entirely in uppercase */
readfile("php://filter/read=string.toupper/resource=http://www.example.com");

/ This will do the same as above except it will ROT13 encode it /
readfile("php://filter/read=string.rot13/resource=http://www.example.com");
? >
```

- o Bundled with PHP 5
- o Fast and easy interface to 'flatfiles'
- o SQL 99 subset
- o No daemon required
- o Enabled by default
- o Callbacks for normal functions and aggregation functions

```
<?php
function sqlite_starts_with($title, $char)
{
    $title = strtolower($title);
    $char = strtolower($char);
    if (!strlen($title) || !strlen($char)) {
        return FALSE;
    }
    return ($title{0} == $char{0});
}

$idx = sqlite_open("livedocs-en.sqlite");
sqlite_create_function($idx, 'STARTS_WITH', 'sqlite_starts_with');

$q = sqlite_query($idx,
    "SELECT title, id FROM idents WHERE STARTS_WITH(title, '$idx')");
if ($q) {
    while ($r = sqlite_fetch_array($q, SQLITE_NUM)) {
        list($title, $id) = $r;
        echo "$id: $title\n";
    }
}
? >
```

- o No more "echo" debugging"
- o Zend extension
 - zend_extension=/path/to/xdebug.so
 - zend_extension_ts=C:/path/to/xdebug.dll
- o Hooks into the standard error handler
and into the execution of functions

Updated 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

Updated var_dump() function:

```
array
  0 =>
    array
      0 => true
      1 => false
      2 => 3
    'twee' =>
      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 Basic profiling.
- 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

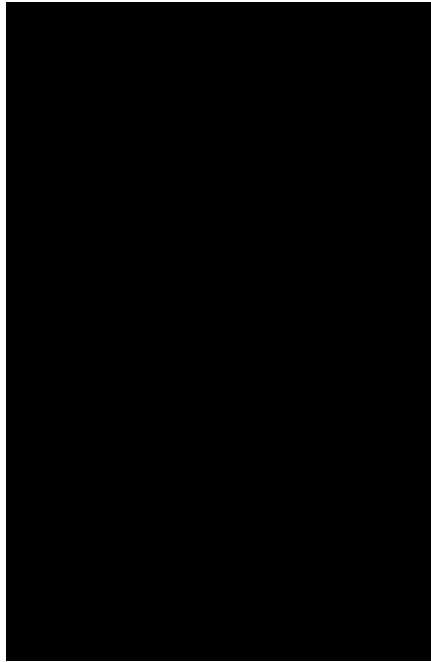
(cmd) cont
Continuing.
Breakpoint, convert_currency(2300,005)
    at /home/httpd/html/ecommerce/common/algorithms.php:299
262         $curr_data = get_currency_data ($db);

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

**PowerBook G4 867MHz
Combo 12.1"**
G4 tehoa pienessä 2,1kg
alumiinikuorisessa
paketissa.
Tässä koneessa on hinta ja
ominaisuudet kohdallaan!

€ 2350.00

► **Applen tuotetiedot**



This presentation: <http://pres.derickrethans.nl/php5lt>

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

SQLite: <http://www.sqlite.org>

e-mail: d.rethans@jdimedia.nl

Index

Introduction	2
PHP is Big!	3
PHP Project	4
Objectmodel in PHP 4	5
Objectmodel in PHP 4	6
Objectmodel in PHP 5	7
Namespaces	8
Clone	9
Constructors/Destructors	10
Private	11
Protected	12
__set() and __get()	13
__call()	14
Exceptions	15
PEAR	16
PECL	17
CLI	18
CLI Tricks	19
PHP-GTK	20
PHP-GTK Simple	21
Parsing XML	22
DOMXML load	23
SimpleXML load	24
SimpleXML save	25
Streams and filters	26
SQLite	27
SQLite (example)	28
Xdebug	29
Replacement functions	30
Tracing	31
Profiling	32
Demo	33
Questions	34
Resources	35