



# Dynamic Languages World Europe 2008

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## 6 essential PHP developer tools in 60 minutes



# About me

- Tobias Schlitt <toby@php.net>
- Qualified IT Specialist
- Studying CS at the TU Dortmund
- PHP since more than 7 years
- Open Source addicted and active
  - eZ Components
  - PEAR (currently inactive)
  - PHP / PHP projects in general

# About this talk

- What are common developer needs?
- Which tool can help me?
- Where can I get this tool?
- What does it do for me?
- Are there alternatives?

⇒ **Getting an overview!**

# So, who are you?

- Why do you attend this talk?
- What do you expect from it?
- What is your favorite PHP dev tool?

# Agenda

- Introduction
- SVN
- PHP manual
- Xdebug
- PHPUnit
- PEAR Installer
- Q/A



# The problem

- Conflicting code changes
- When was this code written?
- Why was this done as it is?
- Who did it?
- Loosing code by
  - System crash
  - Over patching it



# The tool

- Subversion(r) (SVN)
- Version control system (replacing CVS)
- Apache/BSD-style license  
(<http://subversion.tigris.org/license-1.html>)
- Many developers
- Stable: 1.4.6, Dev: 1.5.0rc5
- <http://subversion.tigris.org/>



# The features

- Version control
  - History
  - Responsibility
  - Annotation
- Distributed editing
  - Checkout
  - Commit
- Merging of conflicting changes



# Installation

- Unix (and Unix-like)
  - Favorite package manager
  - Compile from source
    - ./configure && make && make install
- Windows
  - Download pre-compiled binary
    - Extract and use
  - Download setup tool



# Creating an checking out

```
dotxp@tango ~ $ mkdir testsvn  
dotxp@tango ~ $ svnadmin create testsvn/
```

```
dotxp@tango ~ $ svn co file:///home/dotxp/testsvn testco  
Checked out revision 0.  
dotxp@tango ~ $ cd testco/  
dotxp@tango ~/testco $ la  
total 16  
5932451 4 drwxr-xr-x 3 dotxp users 4096 2008-05-17 19:10 .  
5898243 8 drwxr-xr-x 116 dotxp users 4096 2008-05-17 19:10 ..  
5932452 4 drwxr-xr-x 6 dotxp users 4096 2008-05-17 19:10 .svn  
dotxp@tango ~/testco $ mkdir mydir  
dotxp@tango ~/testco $ touch mydir/foo.txt  
dotxp@tango ~/testco $ vim readme.txt  
dotxp@tango ~/testco $ svn add mydir/  
A mydir  
A mydir/foo.txt  
dotxp@tango ~/testco $ svn ci  
Adding mydir  
Adding mydir/foo.txt  
Transmitting file data .  
Committed revision 1.  
dotxp@tango ~/testco $ svn add readme.txt  
A readme.txt  
dotxp@tango ~/testco $ svn ci  
Adding readme.txt  
Transmitting file data .  
Committed revision 2.
```





# A second checkout

```
dotxp@tango ~ $ svn co file:///home/dotxp/testsvn testco2
A    testco2/mydir
A    testco2/mydir/foo.txt
A    testco2/readme.txt
Checked out revision 2.
dotxp@tango ~ $ cd testco2/
dotxp@tango ~/testco2 $ vim readme.txt
dotxp@tango ~/testco2 $ svn ci
Sending      readme.txt
Transmitting file data .
Committed revision 3.
```



# Conflict resolution

```
dotxp@tango ~/testco $ vim readme.txt
dotxp@tango ~/testco $ svn ci
Sending      readme.txt
svn: Commit failed (details follow):
svn: File '/readme.txt' is out of date
svn: Your commit message was left in a temporary file:
svn:   '/home/dotxp/testco/svn-commit.tmp'
dotxp@tango ~/testco $ svn up
Conflict discovered in 'readme.txt'.
Select: (p) postpone, (df) diff-full, (e) edit,
        (h) help for more options: e
Select: (p) postpone, (df) diff-full, (e) edit, (r) resolved,
        (h) help for more options: r
G      readme.txt
Updated to revision 3.
dotxp@tango ~/testco $ svn ci
Sending      readme.txt
Transmitting file data .
Committed revision 4.
```



# Repository info

```
dotxp@tango ~/testco $ svn info
Path: .
URL: file:///home/dotxp/testsvn
Repository Root: file:///home/dotxp/testsvn
Repository UUID: afe10fc3-a277-4bb7-b1c5-0cb5acbf8b2d
Revision: 3
Node Kind: directory
Schedule: normal
Last Changed Author: dotxp
Last Changed Rev: 3
Last Changed Date: 2008-05-17 19:18:13 +0200 (Sat, 17 May 2008)
```



# Revision log

```
dotxp@tango ~/testco $ svn log
-----
r3 | dotxp | 2008-05-17 19:18:13 +0200 (Sat, 17 May 2008) | 2 lines
- Added suggestion about keeping this repo.

-----
r2 | dotxp | 2008-05-17 19:12:47 +0200 (Sat, 17 May 2008) | 2 lines
- Added readme.txt to instruct users.

-----
r1 | dotxp | 2008-05-17 19:12:14 +0200 (Sat, 17 May 2008) | 3 lines
- Added a directory.
- Added a file in a directory.
```



# Addtitions

- GUIs
  - Many (<http://subversion.tigris.org/links.html>)
- IDE integration
  - Eclipse  
(<http://subclipse.tigris.org/>)
  - Zend  
(<http://www zend com/en/products/studio/>)
  - Komodo integrated  
(<http://www zend com/en/products/studio/>)
- WebDAV (Apache module)



# Alternatives?

- **CVS (deprecated!)**  
(<http://www.nongnu.org/cvs/>)
- **GIT**  
(<http://git.or.cz/>)
- **Mercurial**  
(<http://www.selenic.com/mercurial/wiki/>)
- [http://en.wikipedia.org/wiki/List\\_of\\_revision\\_control\\_software](http://en.wikipedia.org/wiki/List_of_revision_control_software)
- [http://en.wikipedia.org/wiki/Comparison\\_of\\_revision\\_control\\_software](http://en.wikipedia.org/wiki/Comparison_of_revision_control_software)



# Conclusion

- All your code belongs to SVN
  - SVN is not the solution to all of your problems...
  - ... but it is a very good start!
- 
- <http://subversion.tigris.org/>
  - [http://subversion.tigris.org/project\\_packages.html](http://subversion.tigris.org/project_packages.html)
  - <http://svnbook.red-bean.com/>

# The problem

- Is there a function for...?
- What was the parameter order of...?
- Which methods requires the ... interface?
- How can I ...?



## The tool

- PHP Manual
  - The official PHP documentation
  - Open Publication License  
(<http://www.opencontent.org/openpub/>)
  - Huge lot of contributors
  - Rebuild every weekend
- 
- <http://www.php.net/docs.php>



# The features

- Knows almost everything about PHP
- Easily browsable
- Comfortable searchable
- Online and offline available



# Installation

- None
  - Look online to get it cutting edge
- Download
  - HTML
  - CHM
- Compile yourself (not recommended!)
  - <http://doc.php.net/php/dochowto/>



# Search facilities

The screenshot shows the PHP Manual homepage. At the top, there's a navigation bar with links for downloads, documentation, faq, getting help, mailing lists, reporting bugs, php.net sites, links, conferences, and my php.net. Below the navigation bar is a search bar with a placeholder "search for" and a dropdown menu labeled "in the function list". The dropdown menu lists various search scopes: function list, all php.net sites, this mirror only, online documentation, bug database, Site News Archive, All Changelogs, just pear.php.net, just pecl.php.net, just talks.php.net (which is selected), general mailing list, developer mailing list, and documentation mailing list. On the left, there's a sidebar titled "PHP Manual" with a "view this page in" dropdown set to "Bulgarian". The main content area features a large heading "PHP Manual" and a hierarchical table of contents:

- [PHP Manual](#)
  - [Copyright](#)
  - [Preface](#)
- [Getting Started](#)
  - [Introduction](#)
  - [A simple tutorial](#)
- [Installation and Configuration](#)
  - [General Installation Considerations](#)
  - [Installation on Unix systems](#)
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  - [Installation on Windows systems](#)
  - [Installation of PECL extensions](#)
  - [Problems?](#)
  - [Runtime Configuration](#)
- [Language Reference](#)
  - [Basic syntax](#)
  - [Types](#)

# Function overview



downloads | documentation | faq | getting help | mailing lists | reporting bugs | php.net sites | links | conferences | my php.net

search for  in the  function list

PHP Manual

Function Reference

Variable and Type Related Extensions

Array Functions

Introduction

Installing/Configuring

Predefined Constants

Array Functions

view this page in Bulgarian

«Arrays [array\\_change\\_key\\_case»](#)

Last updated: Fri, 16 May 2008

## Array Functions

### See Also

See also [is\\_array\(\)](#), [explode\(\)](#), [implode\(\)](#), [split\(\)](#), [preg\\_split\(\)](#), and [unset\(\)](#).

### Table of Contents

- [array\\_change\\_key\\_case](#) — Changes all keys in an array
- [array\\_chunk](#) — Split an array into chunks
- [array\\_combine](#) — Creates an array by using one array for keys and another for its values
- [array\\_count\\_values](#) — Counts all the values of an array
- [array\\_diff\\_assoc](#) — Computes the difference of arrays with additional index check
- [array\\_diff\\_key](#) — Computes the difference of arrays using keys for comparison
- [array\\_diff\\_uassoc](#) — Computes the difference of arrays with additional index check which is performed by a user supplied callback function
- [array\\_diff\\_ukey](#) — Computes the difference of arrays using a callback function on the keys for comparison
- [array\\_diff](#) — Computes the difference of arrays
- [array\\_fill\\_keys](#) — Fill an array with values, specifying keys
- [array\\_fill](#) — Fill an array with values
- [array\\_filter](#) — Filters elements of an array using a callback function
- [array\\_flip](#) — Exchanges all keys with their associated values in an array
- [array\\_intersect\\_assoc](#) — Computes the intersection of arrays with additional index check
- [array\\_intersect\\_key](#) — Computes the intersection of arrays using keys for comparison
- [array\\_intersect\\_uassoc](#) — Computes the intersection of arrays with additional index check, compares indexes by a callback function
- [array\\_intersect\\_ukey](#) — Computes the intersection of arrays using a callback function on the keys for comparison
- [array\\_intersect](#) — Computes the intersection of arrays
- [array\\_key\\_exists](#) — Checks if the given key or index exists in the array

# Function details

Variable and Type Related Extensions
^ <a href="#">Array Functions</a>
^ <a href="#">Array Functions</a>
▪ <a href="#">array_change_key_case</a>
▪ <a href="#">array_chunk</a>
▪ <a href="#">array_combine</a>
▪ <a href="#">array_count_values</a>
▪ <a href="#">array_diff_assoc</a>
▪ <a href="#">array_diff_key</a>
▪ <a href="#">array_diff_uassoc</a>
▪ <a href="#">array_diff_ukey</a>
▪ <a href="#">array_diff</a>
▪ <a href="#">array_fill_keys</a>
▪ <a href="#">array_fill</a>
▪ <a href="#">array_filter</a>
▪ <a href="#">array_flip</a>
▪ <a href="#">array_intersect_assoc</a>
▪ <a href="#">array_intersect_key</a>
▪ <a href="#">array_intersect_uassoc</a>
▪ <a href="#">array_intersect_ukey</a>
▪ <a href="#">array_intersect</a>
▪ <a href="#">array_key_exists</a>
▪ <a href="#">array_keys</a>
▪ <a href="#">array_map</a>
▪ <a href="#">array_merge_recursive</a>
<b>▪ <a href="#">array_merge</a></b>
▪ <a href="#">array_multisort</a>
▪ <a href="#">array_pad</a>
▪ <a href="#">array_pop</a>
▪ <a href="#">array_product</a>
▪ <a href="#">array_push</a>
▪ <a href="#">array_rand</a>
▪ <a href="#">array_reduce</a>
▪ <a href="#">array_reverse</a>
▪ <a href="#">array_search</a>
▪ <a href="#">array_shift</a>

## array\_merge

(PHP 4, PHP 5)

array\_merge — Merge one or more arrays

### Description

```
array array_merge ( array $array1 [, array $array2 [, array $... ] ] )
```

Merges the elements of one or more arrays together so that the values of one are appended to the end of the previous one. It returns the resulting array.

If the input arrays have the same string keys, then the later value for that key will overwrite the previous one. If, however, the arrays contain numeric keys, the later value will **not** overwrite the original value, but will be appended.

If only one array is given and the array is numerically indexed, the keys get reindexed in a continuous way.

### Parameters

#### array1

Initial array to merge.

#### array

Variable list of arrays to recursively merge.

### Return Values

Returns the resulting array.

### Examples



# Function examples

- [asort](#)
- [asort](#)
- [compact](#)
- [count](#)
- [current](#)
- [each](#)
- [end](#)
- [extract](#)
- [in\\_array](#)
- [key](#)
- [krsort](#)
- [ksort](#)
- [list](#)
- [natcasesort](#)
- [natsort](#)
- [next](#)
- [pos](#)
- [prev](#)
- [range](#)
- [reset](#)
- [rsort](#)
- [shuffle](#)
- [sizeof](#)
- [sort](#)
- [uasort](#)
- [uksort](#)
- [usort](#)

```
[4] => 4  
)
```

## Example #2 Simple array\_merge() example

```
<?php  
$array1 = array();  
$array2 = array(1 => "data");  
$result = array_merge($array1, $array2);  
?>
```

Don't forget that numeric keys will be renumbered!

```
Array  
(  
    [0] => data  
)
```

If you want to completely preserve the arrays and just want to append them to each other (not overwriting the previous keys), use the + operator:

```
<?php  
$array1 = array();  
$array2 = array(1 => "data");  
$result = $array1 + $array2;  
?>
```

The numeric key will be preserved and thus the association remains.

```
Array  
(  
    [1] => data  
)
```



# Useful hints

## Warning

The behavior of **array\_merge()** was modified in PHP 5. Unlike PHP 4, **array\_merge()** now only accepts parameters of type array. However, you can use typecasting to merge other types. See the example below for details.

### Example #3 array\_merge() PHP 5 example

```
<?php
$beginning = 'foo';
$end = array(1 => 'bar');
$result = array_merge((array)$beginning, (array)$end);
print_r($result);
?>
```

The above example will output:

```
Array
(
    [0] => foo
    [1] => bar
)
```

## See Also

- [array\\_merge\\_recursive\(\)](#)
- [array\\_combine\(\)](#)
- [array operators](#)

[«array\\_merge\\_recursive](#)

[array\\_multisort»](#)

Last updated: Fri, 16 May 2008



# User comments

User Contributed Notes

[+ add a note](#)

**array\_merge**

david dot lay at axlr8 dot com

[08-May-2008 03:19](#)

probably simpler versions of this (below) but thought i'd post my solution up as it might be helpful :)

```
<?php
function array_merge_php4_comp() {
    $n=func_num_args();
    if( $n>0 ) {
        $rval=func_get_arg(0);
        if( !is_array($rval) ) (
            $rval=(array)$rval;
        )
        if( $n>1 ) (
            for( $i=1; $i<$n; $i++ ) (
                $tval=func_get_arg($i);
                if( !is_array($tval) ) (
                    $tval=(array)$tval;
                )
                $rval=array_merge($rval, $tval);
            )
        } else {
            $rval=array_merge($rval);
        }
    } else {
        $rval=array_merge();
    }
    return $rval;
}
```



# Manual overview

- [Installation and Configuration](#)
  - [General Installation Considerations](#)
  - [Installation on Unix systems](#)
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  - [Expressions](#)
  - [Operators](#)
  - [Control Structures](#)
  - [Functions](#)
  - [Classes and Objects \(PHP 4\)](#)
  - [Classes and Objects \(PHP 5\)](#)
  - [Namespaces](#)
  - ..

# Additions

- Download:
  - <http://php.net/download-docs.php>
  - Single HTML, Multiple HTML, Extended HTML, Windows CHM
- Link collection: <http://php.net/links.php>
- Search engines are your friends!
  - But remember: The internet lies! ;)
- Books

# Alternatives?

- None, really
- Translations:
  - <http://php.net/docs.php>
  - English, Bulgarian, Brazilian Portuguese, French, German, Italian, Japanese, Polish, Romanian, Russian, Spanish
  - **Attention:** Might be outdated!



# Conclusion

- RTFM
- Use search engines
- If you still have problems problem:
  - Mailinglists
  - IRC
  - Beware: <http://catb.org/~esr/faqs/smarter-questions.html>



## The problem

- The method call on nesting level 42 fails
  - A bug in the method itself?
  - What data is received?
  - Where is the data generated?
- A problem with your software is reported
- What makes your application sooooo slow?



## The tool

- Xdebug
- PHP debugger (PHP extension).
- PHP-like license  
(<http://www.xdebug.org/license.php>)
- Author: Derick Rethans
- Latest version: 2.0.3
- <http://www.xdebug.org/>



## The features

- Enhances your daily work with PHP
- Tracing of function calls
- Profiling applications
- Integration with 3rd party IDEs



# Installation

- Unix (and Unix-like)
  - Favorite package manager
  - PECL (PEAR)
    - `pecl install xdebug`
  - Compile from source
    - `phpize`
    - `./configure --enable-xdebug && make`
    - `cp modules/xdebug.so /to/wherever/you/want/it`
- Windows
  - Download pre-compiled binary



# Exception traces

```
Fatal error: Uncaught exception 'ezcMailTransportException' with message 'An error occurred while sending or receiving mail. Failed to connect to the server: schlitt.info:23.' in /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transports/transport_connection.php:97 Stack trace: #0 /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transports/imap/imap_transport.php(358): ezcMailTransportConnection->__construct('schlitt.info', 23, Object(ezcMailImapTransportOptions)) #1 /var/www/localhost/htdocs/foo.php(8): ezcMailImapTransport->__construct('schlitt.info', 23, Object(ezcMailImapTransportOptions)) #2 {main} thrown in /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transports/transport_connection.php on line 97
```

( ! ) ezcMailTransportException: An error occurred while sending or receiving mail. Failed to connect to the server: schlitt.info:23. in /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transports/transport\_connection.php on line 97

## Call Stack

#	Time	Memory	Function	Location
1	0.0008	64436	{main}()	./foo.php:0
2	0.0280	689364	ezcMailImapTransport->__construct( string(12), long, object(ezcMailImapTransportOptions)[1] )	./foo.php:8
3	0.0299	726616	ezcMailTransportConnection->__construct( string(12), long, object(ezcMailImapTransportOptions)[1] )	./imap_transport.php:358

class ezcMailImapTransportOptions { protected \$properties = array ('ui...')



# var\_dump()

```
object(ezcMailImapTransport)#2 (5) { ["currentTag:protected"]=> string(5) "A0000" ["state:protected"]=> int(2) ["selectedMailbox:protected"]=> NULL  
["connection:protected"]=> object(ezcMailTransportConnection)#3 (2) { ["connection:private"]=> resource(12) of type (stream) ["options:private"]=>  
object(ezcMailImapTransportOptions)#1 (1) { ["properties:protected"]=> array(3) { ["uidReferencing"]=> bool(false) ["timeout"]=> int(5) ["ssl"]=> bool(true)  
} } } ["options:private"]=> object(ezcMailImapTransportOptions)#1 (1) { ["properties:protected"]=> array(3) { ["uidReferencing"]=> bool(false) ["timeout"]=>  
int(5) ["ssl"]=> bool(true) } } }
```

```
object(ezcMailImapTransport)[2]  
protected 'currentTag' => string 'A0000' (length=5)  
protected 'state' => int 2  
protected 'selectedMailbox' => null  
protected 'connection' =>  
object(ezcMailTransportConnection)[3]  
private 'connection' => resource(12, stream)  
private 'options' =>  
object(ezcMailImapTransportOptions)[1]  
protected 'properties' =>  
array  
...  
private 'options' =>  
object(ezcMailImapTransportOptions)[1]  
protected 'properties' =>  
array  
'uidReferencing' => boolean false  
'timeout' => int 5  
'ssl' => boolean true
```



# Call traces

```
1 TRACE START [2008-05-18 17:49:36]
2   0.3419    116456    -> __autoload(string(20)) /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/src/
3   0.3419    116456    -> ezcBase::__autoload(string(20)) /home/dotxp/dev/PHP/actual/ezcomponents/trunk/
4   0.3419    116456    -> ezcBase::setPackageDir() /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Bas
5   >=> NULL
6   0.3420    116456    -> array_key_exists(string(20), array(94)) /home/dotxp/dev/PHP/actual/ezcompo
7   >=> TRUE
8   0.3420    116456    -> ezcBase::loadFile(string(39)) /home/dotxp/dev/PHP/actual/ezcomponents/trun
9   0.3420    116456    -> explode(string(1), string(39), long) /home/dotxp/dev/PHP/actual/ezcompon
10  >=> array (0 => 'Mail', 1 => 'transports/imap/imap_transport.php')
11  0.3421    116616    -> file_exists(string(104)) /home/dotxp/dev/PHP/actual/ezcomponents/trunk/B
12  >=> TRUE
13  0.3512    134120    -> require(/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transport
14  >=> 1
15  >=> NULL
16  >=> TRUE
17  >=> NULL
18  0.3513    134016    -> ezcMailImapTransport->__construct(string(12), long, class ezcMailImapTransport
19  0.3513    134064    -> __autoload(string(26)) /home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/sr
20  0.3513    134064    -> ezcBase::__autoload(string(26)) /home/dotxp/dev/PHP/actual/ezcomponents/trun
21  0.3513    134064    -> ezcBase::setPackageDir() /home/dotxp/dev/PHP/actual/ezcomponents/trunk/B
22  >=> NULL
23  0.3514    134088    -> array_key_exists(string(26), array(94)) /home/dotxp/dev/PHP/actual/ezcom
24  >=> TRUE
25  0.3514    134088    -> ezcBase::loadFile(string(40)) /home/dotxp/dev/PHP/actual/ezcomponents/tr
26  0.3514    134192    -> explode(string(1), string(40), long) /home/dotxp/dev/PHP/actual/ezcomp
27  >=> array (0 => 'Mail', 1 => 'transports/transport_connection.php')
28  0.3515    134616    -> file_exists(string(105)) /home/dotxp/dev/PHP/actual/ezcomponents/trunk
29  >=> TRUE
30  0.3515    137312    -> require(/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Mail/src/transpo
31  >=> 1
32  >=> NULL
33  >=> TRUE
```

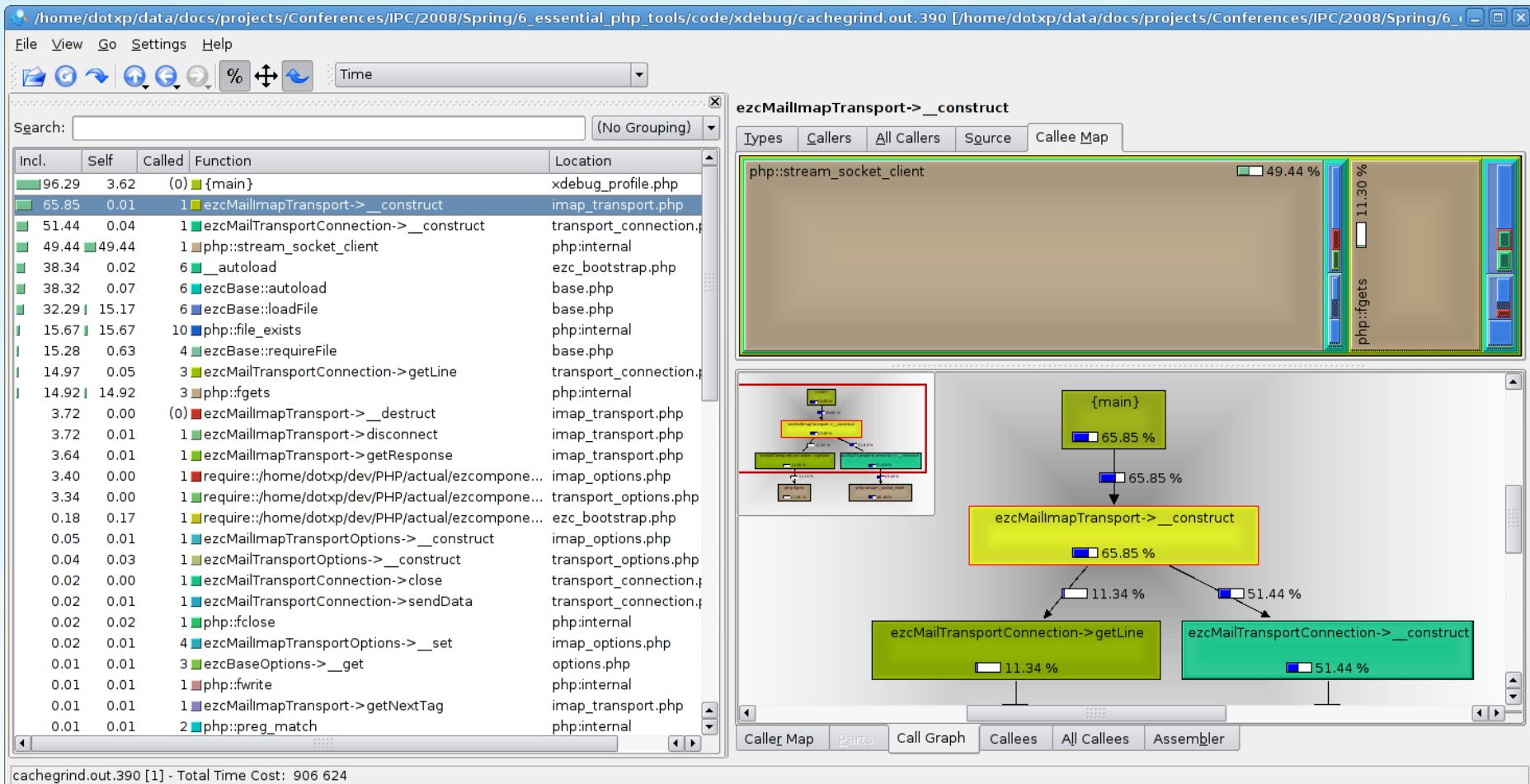


# Profiling data

```
1 Version: 0.9.6
2 cmd: /home/dotxp/data/docs/projects/Conferences/IPC/2008/Spring/6_essential_php_tools/code/xdebug/xdebug_profile.php
3 part: 1
4
5 events: Time
6
7 fl=php:internal
8 fn=php::dirname
9 11 7
10
11 fl=php:internal
12 fn=php::explode
13 12 7
14
15 fl=php:internal
16 fn=php::count
17 14 8
18
19 fl=php:internal
20 fn=php::array_slice
21 16 5
22
23 fl=php:internal
24 fn=php::join
25 16 3
26
27 fl=/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/src/base.php
28 fn=require::/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/src/base.php
29 1 2
30
31 fl=/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/src/ezc_bootstrap.php
32 fn=require::/home/dotxp/dev/PHP/actual/ezcomponents/trunk/Base/src/ezc_bootstrap.php
33 1 1561
34 cfn=php::dirname
35 calls=1 0 0
36 11 7
37 cfn=php::explode
38 calls=1 0 0
39 12 7
40 cfn=php::count
```



# Visual profiling





# Additions

- Profile visualization
  - Kcachegrind  
(<http://kcachegrind.sourceforge.net/cgi-bin/show.cgi>)
- Integration with IDEs
  - Protoeditor  
(<http://protoeditor.sourceforge.net>)
  - Komodo IDE (commercial)  
([http://www.activestate.com/Products/komodo\\_ide/](http://www.activestate.com/Products/komodo_ide/))
  - VIM (plugin)  
([http://www.vim.org/scripts/script.php?script\\_id=1929](http://www.vim.org/scripts/script.php?script_id=1929))



# Alternatives?

- APD (unmaintained)  
(<http://pecl.php.net/package/apd>)
- DBG (half-commercial)  
(<http://dd.cron.ru/dbg/>)
- Zend studio (commercial)  
(<http://www zend com/en/products/studio/>)



# Conclusion

- You want Xdebug!
  - Always
  - Everywhere (except for production)
- <http://www.xdebug.org/>
- <http://www.xdebug.org/docs/>
- <http://devzone.zend.com/article/2803-Introducing-xdebug>

# The problem

- Bugs! Everywhere bugs!
  - Angry customers
  - Frustrated developers
  - Less revenue



# The tool

- PHPUnit
- Unit testing framework for PHP.
- BSD-License  
(<http://www.opensource.org/licenses/bsd-license.php>)
- Author: Sebastian Bergmann & others
- Recent version: 3.2.19
- <http://phpunit.it/>

# Features

- Framework to create unit tests
  - Test cases & suites
  - Assertions (new: Hamcrest)
  - Database tests
  - Mock objects
  - Data providers
- Test runner
- Test generator



# Installation

- Via PEAR
  - `pear channel-discover pear.phpunit.de`
  - `pear install phpunit/PHPUnit`
- Download manually
  - <http://pear.phpunit.de/get/>
  - **Unpack and follow**  
[http://www.phpunit.de/pocket\\_guide/3.2/en/installation.html](http://www.phpunit.de/pocket_guide/3.2/en/installation.html)
- Checkout from SVN
  - `svn://svn.phpunit.de/phpunit/phpunit/branches/release/3.2`
  - `svn://svn.phpunit.de/phpunit/phpunit/trunk`

# A simple cache class

```
class tsCache
{
    protected $location;

    public function __construct( $location )
    {
        if ( !is_dir( $location ) )
        {
            throw new RuntimeException( ... );
        }
        $this->location = realpath( $location );
    }

    // ...
}
```

# A simple cache class

```
class tsCache
{
    // ...

    public function store( $key, $data )
    {
        if ( !is_string( $key ) )
        {
            throw new RuntimeException( ... );
        }
        file_put_contents(
            "{$this->location}/$key",
            serialize( $data )
        );
    }

    // ...
}
```

# A simple cache class

```
class tsCache
{
    // ...
    public function restore( $key )
    {
        if ( !is_string( $key ) )
        {
            throw new RuntimeException( ... );
        }
        $file = "{$this->location}/$key";
        if ( !file_exists( $file ) )
        {
            throw new RuntimeException( ... );
        }
        return unserialize(
            file_get_contents( $file )
        );
    }
}
```



# A simple test case

```
require_once 'PHPUnit/Framework.php';
require_once 'cache.php';

class tsCacheTest extends PHPUnit_Framework_TestCase
{
    public static function suite()
    {
        return new PHPUnit_Framework_TestSuite(__CLASS__);
    }
    public function testCtorSuccess()
    {
        $cache = new tsCache( './tmp' );

        $this->assertAttributeEquals(
            realpath( './tmp' ),
            'location',
            $cache
        );
    } // ...
}
```



# A simple test case

```
class tsCacheTest extends PHPUnit_Framework_TestCase
{
    // ...
    public function testCtorFailure()
    {
        try
        {
            $cache = new tsCache( './nonexistent' );
            $this->fail( 'RuntimeException not ...' );
        }
        catch ( RuntimeException $e )
        {
            $this->assertEquals(
                "The cache location ... does not exist.",
                $e->getMessage()
            );
        }
    }
    // ...
}
```



# A simple test case

```
class tsCacheTest extends PHPUnit_Framework_TestCase
{
    // ...
    public function testStoreSuccessSimple()
    {
        $cache = new tsCache( './tmp' );
        $data  = 'Some data';
        $key   = 'key';

        $cache->store( $key, $data );

        $this->assertEquals(
            $data,
            unserialize(
                file_get_contents( "./tmp/$key" )
            )
        );
    }
    // ...
}
```



# Running the tests

```
$ phpunit tsCacheTest cache_test.php
PHPUnit @package_version@ by Sebastian Bergmann.
```

....

Time: 0 seconds

OK (4 tests)

# A cache user class

```
class tsCacheUser
{
    protected $cache;
    public function __construct( tsCache $cache )
    {   $this->cache = $cache;      }
    public function performOperation( array $data )
    {
        $key = 'array_'. count( $data );
        $this->cache->store( $key, $data );
    }
    public function repeatOperation( $num )
    {
        $data = $this->cache->restore( 'array_'. $num );
        if ( count( $data ) !== $number )
        {
            throw new RuntimeException( '....' );
        }
    }
}
```



# Testing with mock objects

```
// ...
public function testCtorSuccess()
{
    $cache = $this->getMock(
        'tsCache', // Class to mock
        array(),   // Methods to mock
        array(),   // Ctor params
        '',        // Mock class name
        false      // Call parent ctor
    );
    $user = new tsCacheUser( $cache );

    $this->assertAttributeSame(
        $cache,
        'cache',
        $user
    );
}
// ...
```

Tobias Schlitt <toby@php.net>



# Testing with mock objects

```
// ...
public function testPerformOperationSuccess()
{
    $data = array( 23, 42 );
    $cache = $this->getMock(
        'tsCache',
        array( 'store', 'restore' ),
        array(), '', false
    );
    $cache->expects( $this->once() )
        ->method( 'store' )
        ->with( 'array_2', $data );
    $cache->expects( $this->never() )
        ->method( 'restore' );

    $user = new tsCacheUser( $cache );
    $user->performOperation( $data );
}
// ...
```

Tobias Schlitt <toby@php.net>



# Generating code coverage

```
$ phpunit --coverage-html cc/ tsCacheTest cache_test.php  
PHPUnit @package_version@ by Sebastian Bergmann.
```

....

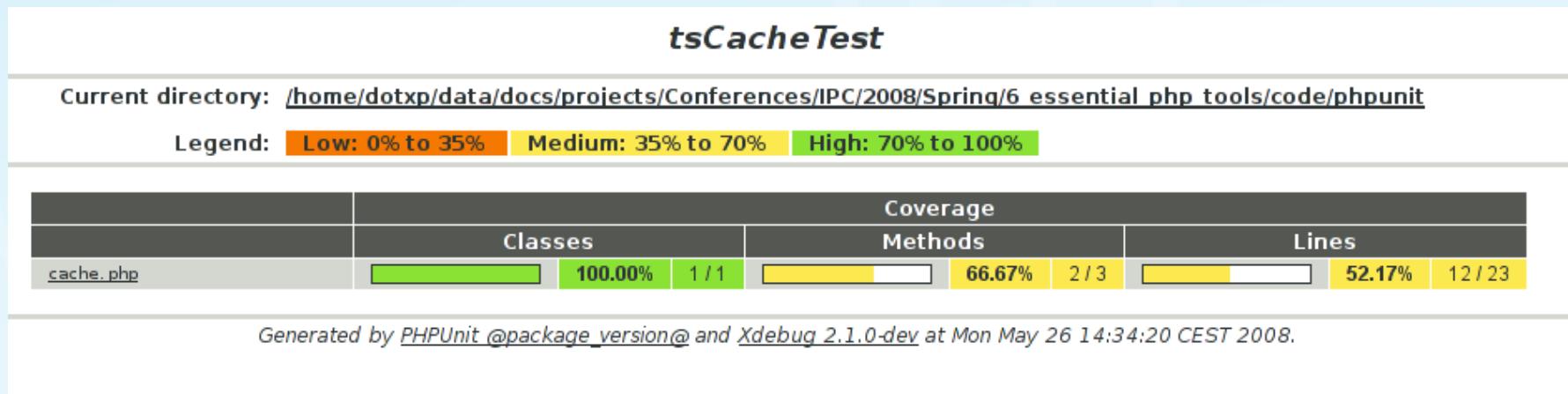
Time: 0 seconds

OK (4 tests)

Generating code coverage report, this may take a moment.



# Code coverage overview





# Code coverage details

**tsCacheTest**

Current file: [/home/dotxp/data/docs/projects/Conferences/IPC/2008/Spring/6 essential php tools/code/phpunit/cache.php](#)

Legend: executed not executed dead code

	Coverage		
	Classes	Methods	Lines
Total	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 66.67%;"> </div> 66.67% 2 / 3	<div style="width: 52.17%;"> </div> 52.17% 12 / 23
<b>tsCache</b>	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 66.67%;"> </div> 66.67% 2 / 3	<div style="width: 52.17%;"> </div> 52.17% 12 / 23
public function __construct(\$location)	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 100.00%;"> </div> 100.00% 5 / 5
public function store(\$key, \$data)	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 100.00%;"> </div> 100.00% 1 / 1	<div style="width: 87.50%;"> </div> 87.50% 7 / 8
public function restore(\$key)	<div style="width: 0.00%;"> </div> 0.00% 0 / 1	<div style="width: 0.00%;"> </div> 0.00% 0 / 1	<div style="width: 0.00%;"> </div> 0.00% 0 / 10

```
1 : <?php
2 :
3 : class tsCache
4 : {
5 :   protected $location;
6 :
7 :   public function __construct( $location )
8 :   {
9 :     if ( !is_dir( $location ) )
10:    {
11:      throw new RuntimeException( "The cache location '$location' does not exist." );
12:    }
13:    $this->location = realpath( $location );
14:  }
15:
16:   public function store( $key, $data )
17:   {
18:     if ( !is_string( $key ) )
2 tests cover line 18
● testStoreSuccessSimple(tsCacheTest)
● testStoreSuccessComplex(tsCacheTest)       throw new RuntimeException( "The cache key '$key' is not a string." );
25:     put_contents(
26:       "{$this->location}/{$key}",
27:       serialize( $data )
28:
29:   public function restore( $key )
30:   {
31:     if ( !is_string( $key ) )
32:     {
33:       throw new RuntimeException( "The cache key '$key' is not a string." );
34:       $file = "{$this->location}/{$key}";

```

# Additions

- Continuous integration
  - **PhpUnderControl**  
(<http://www.phpundercontrol.org>)
- IDE integration
  - **Komodo**  
(<http://community.activestate.com/products/Komodo>)
  - **PHPEdit**  
(<http://www.phpedit.com/>)
  - **ZendStudio**  
(<http://www zend com/en/products/studio/>)

# Alternatives?

- **SimpleTest**  
(<http://simpletest.org/>)
- **PHPT**  
(<http://phpt.info/>)

# The problem

- Writing documentation sucks
- Writing docs twice sucks even more
- Creating good docs is not easy
- Documentation is so important!

## The tool

- phpDocumentor (phpDoc)
- Documentation generation framework
- GPL v2.1 or later
- Authors: Joshua Eichorn, Greg Beaver & others
- Recent version: 1.4.0
- <http://phpdoc.org/>

# The features

- Generate readable API docs (JavaDoc)
- Documentation checks
- Integrate tutorials and examples
- Template based output
  - HTML, PDF, DocBook, CHM (needs Windows compiler)
- Parses README/CHANGELOG/INSTALL/FAQ files

# Installation

- Via PEAR
  - `pear install phpdocumentor`
- Manual Download
  - [http://sourceforge.net/project/showfiles.php?group\\_id=11194](http://sourceforge.net/project/showfiles.php?group_id=11194)

# File level doc block

```
/**  
 * File containing the ezcWebdavTransport class.  
 *  
 * @package Webdav  
 * @version //autogentag//  
 * @copyright Copyright (C) 2005-2008 eZ systems as. ....  
 * @license http://ez.no/licenses/new_bsd New BSD License  
 */
```

# Class level doc block

```
/**  
 * Transport layer mainclass that implements RFC ...  
 *  
 * This basis transport class is able to interact with RFC  
 * 2518 compliant WebDAV clients. It can parse all request  
 * types defined in the RFC into the ...  
 *  
 * @see ezcWebdavProperty  
 *  
 * @version //autogentag//  
 * @package Webdav  
 * @link http://tools.ietf.org/html/rfc2518 RFC 2518  
 */  
class ezcWebdavTransport  
{  
    // ...
```

# Method level doc block

```
/**  
 * Parses the incoming request into a fitting ...  
 *  
 * This method is the main entry point of {@link  
 * ezcWebdavServer} and is utilized by it to parse the  
 * incoming request into an instance of {@link  
 * ezcWebdavRequest}.  
 *  
 * @param string $uri  
 * @return ezcWebdavRequest|ezcWebdavResponse  
 */  
public final function parseRequest( $uri )  
{  
    // ...
```

# Generating docs

```
$ phpdoc -d Webdav/src/ \
    -ct 'mainclass' \
    -s on \
    -t phpdoc/generated
```

```
$ phpdoc -d Webdav/src/ \
    -ct 'mainclass' \
    -s 'on' \
    -o 'HTML:Smarty:PHP' \
    -t phpdoc/generated_nice
```

# Generate docs

- Let's take a look...

# Additions

- Does anybody know any?
- All major IDEs „support“ phpDoc style documentation

# Alternatives?

- **Doxygen**  
(<http://www.stack.nl/~dimitri/doxygen/>)
- **Headerdoc**  
(<http://developer.apple.comopensource/tools/headerdoc.html>)
- [http://en.wikipedia.org/wiki/Comparison\\_of\\_documentation\\_generators](http://en.wikipedia.org/wiki/Comparison_of_documentation_generators)

# Conclusion

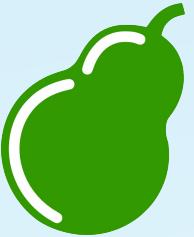
- Documentation rules!
- phpDocumentor saves your time
- Publishing docs in multiple formats is easy

# The problem

- How to distribute your application?
- How to keep installed apps up2date?
- PHP does not offer a unified deployment infrastructure

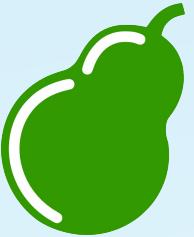
## The tool

- PEAR Installer
- Installer for PHP code and extensions
- PHP License  
([http://www.php.net/license/3\\_01.txt](http://www.php.net/license/3_01.txt))
- Authors: Greg Beaver and many others
- Stable: 1.7.1, Dev: 2.0.0dev1
- <http://pear.php.net/package/PEAR>



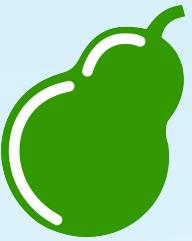
# Features

- Keep 3rd party code
  - Install / uninstall / upgrade
  - List / search
- Support for channels
  - Main: PEAR repository
  - Many other projects offer channels:
    - eZ Components, Horde, Midgard, Symphony
  - Open your own!



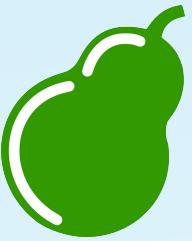
# Installation

- Shipped with PHP
  - Don't use "--without-pear"
- Manually
  - Unix / Linux
    - lynx -source <http://pear.php.net/go-pear> | php
  - MacOS
    - sudo curl <http://pear.php.net/go-pear> | php
  - Windows
    - Download <http://pear.php.net/go-pear>
    - php go-pear.php



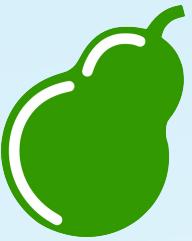
# Help overview

```
dotxp@tango ~ $ pear
Commands:
channel-delete          Remove a Channel From the List
channel-discover        Initialize a Channel from its server
config-set               Change Setting
config-show              Show All Settings
info                     Display information about a package
install                  Install Package
list                     List Installed Packages In The Default Channel
list-all                 List All Packages
list-channels            List Available Channels
list-files               List Files In Installed Package
list-upgrades             List Available Upgrades
remote-list              List Remote Packages
run-scripts              Run Post-Install Scripts bundled with a package
run-tests                Run Regression Tests
search                   Search remote package database
shell-test               Shell Script Test
sign                     Sign a package distribution file
uninstall                Un-install Package
update-channels           Update the Channel List
upgrade                 Upgrade Package
upgrade-all              Upgrade All Packages
Usage: pear [options] command [command-options] <parameters>
Type "pear help options" to list all options.
Type "pear help shortcuts" to list all command shortcuts.
Type "pear help <command>" to get the help for the specified command.
```



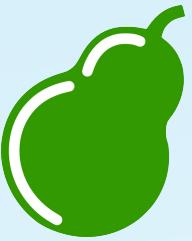
# Listing packages

```
dotxp@tango ~ $ pear list
Installed packages, channel pear.php.net:
=====
Package           Version State
Archive_Tar       1.3.2   stable
Cache_Lite        1.7.2   stable
Console_Getopt    1.2.3   stable
PEAR              1.6.2   stable
PhpDocumentor     1.4.2   stable
Structures_Graph 1.0.2   stable
XML_RPC2          1.0.2   stable
```



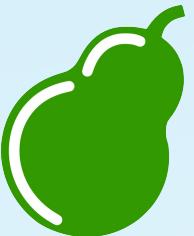
# Installing a package

```
dotxp@tango ~ $ pear install Services_Trackback-beta
downloading Services_Trackback-0.6.1.tgz ...
Starting to download Services_Trackback-0.6.1.tgz (18,533 bytes)
.....done: 18,533 bytes
install ok: channel://pear.php.net/Services_Trackback-0.6.1
Services_Trackback: Optional feature autodiscover available (Usage of Services_Trackback::autodiscover())
Services_Trackback: Optional feature akismet available (Akismet.com spam checks.)
Services_Trackback: Optional feature dnsbl available (DNSBL/SURBL spam checks.)
Services_Trackback: To install optional features use "pear install pear/Services_Trackback#featurename"
```



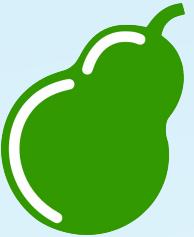
# Listing upgrades

```
dotxp@tango ~ $ pear list-upgrades
pear.php.net Available Upgrades (stable):
=====
Channel      Package Local          Remote         Size
pear.php.net Cache_Lite 1.7.2 (stable) 1.7.3 (stable) 29kB
pear.php.net PEAR       1.6.2 (stable)   1.7.2 (stable) 296kB
pecl.php.net Available Upgrades (stable):
=====
Channel      Package Local          Remote         Size
pecl.php.net APC       3.0.17 (stable) 3.0.19 (stable) 114kB
```



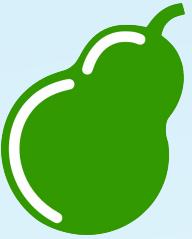
# Upgrading all packages

```
dotxp@tango ~ $ pear upgrade-all
Will upgrade channel://pear.php.net/cache_lite
Will upgrade channel://pear.php.net/pear
Will upgrade channel://pecl.php.net/apc
Did not download optional dependencies: pear/XML_RPC, use --alldeps to download automatically
pear/PEAR can optionally use package "pear/XML_RPC" (version >= 1.4.0)
downloading Cache_Lite-1.7.3.tgz ...
Starting to download Cache_Lite-1.7.3.tgz (29,421 bytes)
.....done: 29,421 bytes
downloading PEAR-1.7.2.tgz ...
Starting to download PEAR-1.7.2.tgz (302,744 bytes)
...done: 302,744 bytes
downloading APC-3.0.19.tgz ...
Starting to download APC-3.0.19.tgz (115,735 bytes)
...done: 115,735 bytes
upgrade-all ok: channel://pear.php.net/PEAR-1.7.2
47 source files, building
```



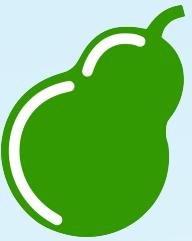
# Discovering a channel

```
dotxp@tango ~ $ pear channel-discover components.ez.no
Adding Channel "components.ez.no" succeeded
Discovery of channel "components.ez.no" succeeded
```



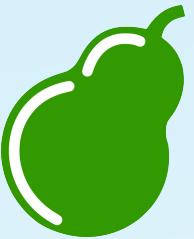
# Listing remote packages

Package	Latest	Local	Description
ezc/Archive	1.3alpha1		Allows you to extract and create archive files, such as .tar and .zip.
ezc/Cache	1.4alpha1		A solution for caching, supporting multiple backends allowing you to choose the best one.
ezc/Configuration	1.3alpha1		A component that allows you to use configuration files in different formats.
ezc/Feed	1.1alpha1		This component handles parsing and creating RSS and ATOM feeds.
ezc/File	1.2		Provides support for file operations which are not covered by PHP core.
ezc/PhpGenerator	1.0.4		Provides a simple interface for creating PHP files and executing PHP code.
ezc/TranslationCacheTiein	1.1.2		This component adds the TranslationCache backend to the Translation component and allows cached translations.
ezc/Authentication	1.2alpha1		The purpose of the Authentication component is to provide support for user authentication.
ezc/AuthenticationDatabaseTiein	1.1		The purpose of the Authentication component is to provide support for user authentication.
ezc/Search	1.0alpha2		The Search component provides an interface to index and query documents.
ezc/SystemInformation	1.0.6		Provides access to common system variables.
ezc/Url	1.2.1		The Url package provides basic operations to handle urls (parse, build).
ezc/Webdav	1.0		This component allows you to set up and run your own WebDAV (RFC 2518).
ezc/Base	1.5alpha2		The Base package provides the basic infrastructure that all packages depend on.
ezc/Document	1.0alpha1		The Document components provides a general conversion framework for documents.
ezc/eZComponents	2008.1alpha2		The Meta package that depends on all the components.
ezc/Tree	1.1alpha1		The Tree component handles the creating, manipulating and querying of trees.
ezc/TreePersistentObjectTiein	1.0		The Tree component handles the creating, manipulating and querying of trees.
ezc/Debug	1.2alpha1		This component provides a set of classes that help you to debug an application.
ezc/EventLog	1.3alpha3		Allows you to log events into files or other storage spaces in different formats.
ezc/EventLogDatabaseTiein	1.0.2		Contains the database writer backend for the EventLog component.
ezc/Graph	1.3alpha1		A component for creating pie charts, line graphs and other kinds of graphs.
ezc/GraphDatabaseTiein	1.0		The GraphDatabaseTiein provides functionality to directly use PDO statements.
ezc/ImageAnalysis	1.1.3		This class allows you to analyse image files in different ways.
ezc/ImageConversion	1.3.4		A set of classes to apply different filters on images, such as color conversion.
ezc/Mail	1.5alpha1		The components allows you construct Mail messages conforming to the various standards.



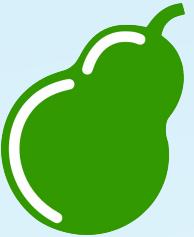
# Additions

- Frontends
  - Web  
([http://pear.php.net/package/PEAR\\_Frontend\\_Web](http://pear.php.net/package/PEAR_Frontend_Web))
  - GTK2 (unmaintained)  
([http://pear.php.net/package/PEAR\\_Frontend\\_Gtk2](http://pear.php.net/package/PEAR_Frontend_Gtk2))
- Package file manager  
([http://pear.php.net/package/PEAR\\_PackageFileManager](http://pear.php.net/package/PEAR_PackageFileManager))
- Package updater
- ([http://pear.php.net/package/PEAR\\_PackageUpdate](http://pear.php.net/package/PEAR_PackageUpdate))



# Alternatives?

- None, really (AFAIK)



# Conclusion

- Uploading TAR balls sucks
  - PEAR Installer != PEAR
  - Allows to keep applications in sync
  - Available almost everywhere
- 
- <http://pear.php.net/package/PEAR>
  - <http://pear.php.net/package/PEAR/download>
  - <http://pear.php.net/go-pear>
  - <http://pear.php.net/manual/en/installation.php>

# Q/A

- Thank you for listening!
- I hope you enjoyed the session
- Any questions left?

# End

- Slides will be up soonish
  - Watch <http://blog.schlitt.info/>
- Enjoy the rest of the conference

# License

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- <http://creativecommons.org/licenses/by-nc-sa/2.0/deed.en>