Migrating to PHP 5.2.1

Ilia Alshanetsky

Vancouver PHP Conference

Vancouver, Canada

Why Migrate?

- New Features
- Improved Performance
- Much Better Security
- Greater Stability
- Actively supported

New Features in PHP 5.2

- New Extensions
  - JSON (JavaScript Object Notation)
  - Filter Extension (simple input validation)
  - ZIP (Full zip compression support read & write)
  - Date (date manipulation functions/objects)

New Features in PHP 5.2

- __toString() now works everywhere
- E_RECOVERABLE_ERROR (fewer fatal errors)
- New SPL features (Regex Iterators, SplFileObject CSV support, Caching Iterator)
- Data: stream support
- And many other “minor” features.

Performance Enchantments

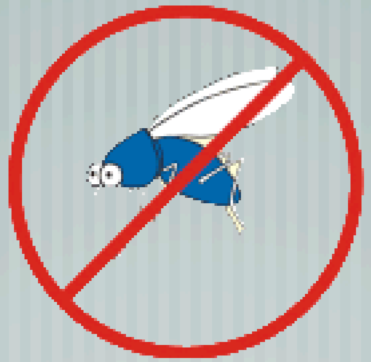
- New & Improved Memory Manager + Heap Protection
- Faster include/require_once
- Optimized str_replace() and implode() functions
- Faster try {} catch {} blocks
- Significantly faster performance on Win32
- Optimized shutdown sequence
- Many other optimizations

Improved Security

- New configuration option allow_url_include (disabled by default)
- Over 40 security fixes compared to any prior release.
- More accurate memory usage tracking
- Filter extension can help filter out hostile input preventing XSS, SQL Injection and other nastiness.
- Memory limit is always enabled.

Improved Stability

- PHP 5.2.1 includes hundreds of bug fixes compared to previous releases, over 300 since 5.1.6



- Chances are that if you’ve reported a PHP bug in the last 6-8 months, PHP 5.2.1 has the fix for it.

Brief guide to PHP Support ;-)

- PHP 4.X branch - Security fixes & critical bug fixes only
- PHP 5.0 branch - Abandoned
- PHP 5.1 branch - Abandoned
- PHP 5.2 - Actively developed, rapid bug fixes
  - average lifetime of a bug is about 4 days
- PHP 6 - Ask Andrei!

Migrating from PHP 5.0/5.1

- The value of E_ALL has changed, now includes E_RECOVERABLE_ERROR.
  - If you don’t change error reporting level you won’t see recoverable errors displayed or logged
  - You may need to adjust error_handler() function.
- If you are loading PHP files via http/ftp via include() or require you will need to enable allow_url_include.
- No more abstract static classes.

- 2 new native classes DateTime and DateTimeZone, you'll need to rename yours they carry the same names.

- To ensure proper time-zone settings and avoid date() and alike functions from generating error messages you need to set the date.timezone INI setting. (Since PHP 5.1.0)

- FilePro, Informix and hwapi extensions are gone (moved to PECL).

- You'll probably need to increase memory_limit.

- In CLI PHP no longer checks for php.ini or php-cli.ini inside the PWD (current directory).

- On Win32 PHPRC environment variable has priority over the registry for php.ini searching.

- When converted to strings, objects without __toString() no longer return object id.
  - <5.2 (string)new stdClass == Object id #1
  - 5.2> (string)new stdClass == E_RECOVERABLE_ERROR

- SQLite library in pdo_sqlite was upgraded to 3.3.7

- Fortunately it is backward compatible to earlier 3.2.8 version, so there are no issues.

- The SQLite extension still offers access to sqlite2 databases.

PHP 5.0 specific changes

- Inheritance overloading rules are a little bit stricter.

```
class a {
  function &test () {
        $foo = “val”;
        return $foo;
  }
}
```

```
class b extends a {
  function test () {
        return “val”;
  }
}
```

- In PHP 5.2. this will emit E_STRICT warning message

```
class foo {
   const foo  = “bar”;
   const foo  = “baz”;
}
```

FATAL ERROR

foo::foo == “baz”

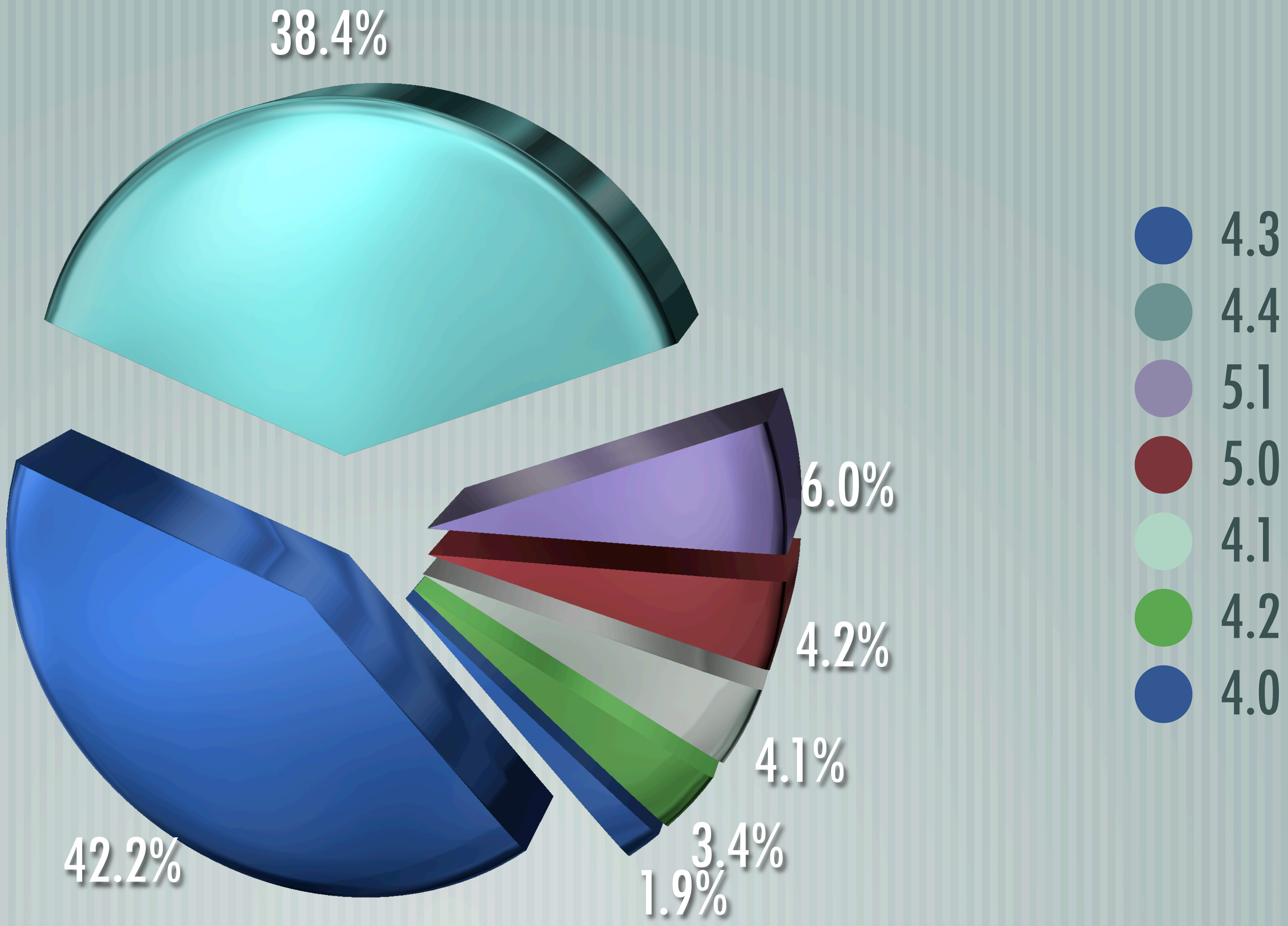
```
class a {
   const bar = “foo”;
}
class b  extends a {
   const bar = “zoom”;
}
```

b::bar == “zoom”

Bottom Line: Upgrading from 5.X to 5.2 is easy!

From PHP 4 to PHP 5.2

PHP 4 is still most popular



How to migrate from 4 to 5.2

- Major differences
  - Object handling (by-ref vs by-value)
  - DomXML to DOM extension change
  - E_STRICT error mode
  - MySQL extension no longer includes the MySQL library

Objects are finally by-ref!

- Arguably the biggest change in PHP 5 compared to PHP 4 is in the way objects are handled.
- In PHP 5 they are finally being passed by reference.
- Fortunately this change breaks very few applications.

PHP 4

```
<?php
$a =& new Class;

function foo(&$obj) {
  $obj->prop = 123;
}

$obj_copy = $obj;

function &a() {
    $a =& new Object;
    return $a;
}
```

needs change

PHP 5.2

```
<?php
$a = new Class;

function foo($obj) {
  $obj->prop = 123;
}

$obj_copy = clone($obj);

function a()
{
  return new Object;
}
```

Object upgrade myths

- Fiction: var keyword generates warnings
  - Fact: Since PHP 5.1.6, it is silently translated to public.
- Fiction: old style constructors won't work
  - Fact: Old style constructors still work perfectly.
- Fiction: code will break if I don't remove &
  - Fact: completely unnecessary
- Fiction: PHP is turning into Java, and I hate Java
  - Fact: Not as long Marcus is not in charge ;-)

DOMXML Replaced By DOM

- If you've used DOMXML extension to parse XML, well, it is time to rewrite your code.
  - New extension is faster
  - Does not leak memory
  - It works, as opposed to; on good days, unless they fall on a Friday.
- However, it can still be installed from PECL repository.

New Error Mode, E_STRICT

- Designed to identify deprecated behavior & functionality
- Will new errors be spewed to screen or filling my log files?
  - No, E_STRICT error reporting needs to be explicitly enabled.
- Do I need to change my configuration file?
  - Not at all.
- Do I need to change/rewrite my code?
  - Not until PHP 6, and even then...

A little more strict

```
$a = “test”;
$a[0][1][2] = “a”;
```

Fatal Error

In PHP 4 this was a warning.

```
array_merge("string", 123);
```

Warning &
NULL

In PHP 4 this *worked*.

```
class foo {
   function a($obj) { $this = $obj; }
}
```

Fatal Error

A few minor behavior changes

strrpos() searches for the complete “needle”
rather then just the 1st character.

```
<?php
var_dump(strrpos(“kangaroo”, “an”));
// int(4)
```

PHP 4

PHP 5.2

```
<?php
var_dump(strrpos(“kangaroo”, “an”));
// int(1)
```

PHP 4

```
class Foo {
  function AbC() {}
}
class baR extends foo {}

$a = new bar;
echo get_class($a);
// bar
print_r(
get_class_methods($a)
); // array(“abc”);
echo get_parent_class($a);
// foo
```

PHP 5.2

```
class Foo {
  function AbC() {}
}
class baR extends foo {}

$a = new bar;
echo get_class($a);
// baR
print_r(
get_class_methods($a)
); // array(“AbC”);
echo get_parent_class($a);
// Foo
```

```
var_dump(
ip2long(“000.000.999.888”),
ip2long(“255.255.255.255”)
);
// int(-1)
// int(-1)

$a = new stdClass;
var_dump(empty($a));
// bool(true)
```

```
var_dump(
ip2long(“000.000.999.888”),
ip2long(“255.255.255.255”)
);
// bool(false)
// int(-1)

$a = new stdClass;
var_dump(empty($a));
// bool(false)
```

Reference Fixes (4.4 has this too)

When a function expects a reference and is given a non-reference-able value, E_STRICT will be raised and parameter will be passed by value.

```
array_pop(explode(“a”, “abc”));
```

```
$a = 123;
function foo() { return $GLOBALS[‘a’]; }
$b = &foo();
```

Deprecated Functionality

- Things you should avoid using in the future:
  - is_a() - replaced by instanceof operator
    - is_a($obj,"foo"); → $obj instanceof foo
  - dl() - use extension= in php.ini
  - mktime() without any parameters, just use time()

- Daylight savings parameter for mktime()
  - mktime(h,m,s,m,d,y,dst);
- Calling non-static methods statically
  - class foo { function bar() {} } foo::bar();
- Using {} to access string offsets
  - $a = “foo”; $a{0} = “F”;

So long MySQL ... Hello SQLite

- Well, not really.
- As of PHP 5 MySQL client library is no longer bundled due to licensing issues.

- All this means is that mysql/mysqli/pdo_mysql extensions are not enabled by default.
- Not really a concern unless you compile PHP yourself.

Migration Code Validator

Directory to scan

PHP script extensions

```
find /source/directory \
-name \*.php -o -name \*.inc \
 | xargs -n1 \
php -ddisplay_errors=1 -derror_reporting=8191 -l
```

E_ALL | E_STRICT

Thank you for listening

- Additional Resources
  - These slides: http://www.ilia.ws
  - PHP 4 to 5 migration docs: http://php.net/manual/migration5.php
  - PHP 5.2 changes: http://www.php.net/ChangeLog-5.php#5.2.1
  - Upgrade Guide http://www.php.net/UPDATE_5_2.txt