

What's New in PHP 8.4?

Berkshire PHP

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<https://derickrethans.nl/talks/php-berkshire24>

About Me

Derick Rethans

- I'm European, living in London
- ~~PHP 7.4 Release Manager~~
- **PHP Foundation**
- **Xdebug** & PHP's Date/Time support
- I ♥ 🌐 maps, I ♥ 🍺 beer, I ♥ 🥃 whisky
- mastodon: @derickr@phpc.social



PHP 8.4: Asymmetric Visibility

```
<?php
class Reader
{
    /**
     * @var array[Track]
     */
    private array $tracks;

    function __construct( string $fileName )
    {
        $this->parseGpx( $fileName );
    }

    private function parseGpx( $fileName )
    {
        // sets $this->tracks
    }

    public function getTracks() : array
    {
        return $this->tracks;
    }
}
?>
```


PHP 8.4: Asymmetric Visibility

```
<?php
class Reader
{
    /**
     * @var array[Track]
     */
    public private(set) array $tracks;

    function __construct( string $fileName )
    {
        $this->parseGpx( $fileName );
    }

    private function parseGpx( $fileName )
    {
        // sets $this->tracks
    }
}
?>
```


PHP 8.4: Asymmetric Visibility

```
<?php
class Reader
{
    /**
     * @var array[Track]
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    function __construct( string $fileName )
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    private function parseGpx( $fileName )
    {
        // sets $this->tracks
    }
}
?>
```

PHP 8.4: Asymmetric Visibility

- Only works on typed properties
- `set` visibility must be equal or lesser than `get` visibility
- Using `$obj->array[]` follows `set` visibility
- Inherited properties must have the same time, and might have a wider visibility
- `private(set)` also implies `final`
- `readonly` (without `private(set)`) is analogous to `protected(set)` (+ write once semantics)

PHP 8.4: Property Hooks

```
<?php
class User implements Named
{
    private bool $isModified = false;

    public function __construct(private string $first, private string $last) {}

    public string $fullName {
        // Override the "read" action with arbitrary logic.
        get => $this->first . " " . $this->last;

        // Override the "write" action with arbitrary logic.
        set {
            [$this->first, $this->last] = explode(' ', $value);
            $this->isModified = true;
        }
    }
}
?>
```


PHP 7.4: Typed Properties

```
<?php
class ezcMailImapTransportOptions
{
    protected $properties;

    public function __construct( array $options = array() )
    {
        $this->uidReferencing = false;
    }

    public function __set( $name, $value )
    {
        switch ( $name ) {
            case 'uidReferencing':
                if ( !is_bool( $value ) ) {
                    throw new ezcBaseValueException( $name, $value, 'bool' );
                }
                $this->properties[$name] = $value;
                break;
        }
    }

    public function __isset( $propertyName )
    {
        return array_key_exists( $propertyName, $this->properties );
    }
}
```


PHP 7.4: Typed Properties

```
<?php
class ezcMailImapTransportOptions
{
    public bool $uidReferencing;

    public function __construct( array $options = array() )
    {
        $this->uidReferencing = false;
    }
}

?>
```

PHP 8.4: Real Life Example with Property Hooks

```
<?php
class ezcMailImapTransportOptions
{
    protected $properties;

    public function __construct( array $options = array() )
    {
        $this->listLimit = 0;
    }

    public function __set( $name, $value )
    {
        switch ( $name ) {
            case 'listLimit':
                if ( !is_int( $value ) || $value < 0 ) {
                    throw new ezcBaseValueException( $name, $value, 'int >= 0' );
                }
                $this->properties[$name] = $value;
                break;
        }
    }

    public function __isset( $propertyName )
    {
        return array_key_exists( $propertyName, $this->properties );
    }
}
```

PHP 8.4: Real Life Example with Property Hooks

```
<?php
class ezcMailImapTransportOptions
{
    public int $listLimit {
        set {
            if ( $value < 0 ) {
                throw new ValueError( "listLimit was set to <{$value}>, but must be"
            }
        }
    }

    public function __construct( array $options = array() )
    {
        $this->listLimit = 0;
    }
}
?>
```


PHP 8.4: New Without Parentheses

```
<?php
class Request implements Psr\Http\Message\RequestInterface
{
    // ...
}

$request = (new Request())->withMethod( 'GET' )->withUri( '/hello-world' );
?>
```


PHP 8.4: New Without Parentheses

```
<?php
class Request implements Psr\Http\Message\RequestInterface
{
    // ...
}

$request = new Request()->withMethod('GET')->withUri('/hello-world');
?>
```

PHP 8.4: New Without Parentheses

```
<?php
class MyClass extends ArrayObject
{
    const CONSTANT = 'constant';
    public static $staticProperty = 'staticProperty';
    public static function staticMethod(): string { return 'staticMethod'; }
    public $property = 'property';
    public function method(): string { return 'method'; }
    public function __invoke(): string { return '__invoke'; }
}

var_dump(
    new MyClass()::CONSTANT,           // string(8)  "constant"
    new MyClass()::$staticProperty,    // string(14) "staticProperty"
    new MyClass()::staticMethod(),     // string(12) "staticMethod"
    new MyClass()->property,           // string(8)  "property"
    new MyClass()->method(),           // string(6)  "method"
    new MyClass()(),                  // string(8)  "__invoke"
    new MyClass(['value'])[0],        // string(5)  "value"
);
?>
```

PHP 8.4: Parsing HTML5

HTML 5 parsing, through the following new class hierarchy:

```
<?php
namespace DOM {
    abstract class Document extends DOM\Node implements DOM\ParentNode {
        /* all properties and methods that are common and sensible for both XML
        * & HTML documents */
    }

    final class XMLDocument extends Document {
        /* XML specific properties and methods */
    }

    final class HTMLDocument extends Document {
        /* HTML specific properties and methods */
    }
}

class DOMDocument extends DOM\Document {
    /* Keep methods, properties, and constructor the same as they are now */
}
?>
```


PHP 8.4: #[Deprecated] Attribute

```
<?php
#[\Deprecated("use test() instead", since: "2.4")]
function test3() {
}

test3();
?>
```

Result:

Deprecated: Function test3() is deprecated since 2.4, use test() instead in /home.

PHP 8.4: #[Deprecated] Attribute

```
<?php
class Clazz {
    #[\Deprecated]
    public const OLD_WAY = 'foo';

    #[\Deprecated("use test() instead", since: "2024-10-08")]
    function test2() {
    }
}

$c = new Clazz()->test2();
echo Clazz::OLD_WAY, "\n";
?>
```

Result:

Deprecated: Method Clazz::test2() is deprecated since 2024-10-08, use test() inst

Deprecated: Constant Clazz::OLD_WAY is deprecated in /home/httpd/pres2/show2.php(
foo

PHP 8.4: BCrypt Cost

PHP's default BCrypt cost for `password_hash()` is unchanged since the addition of the password hashing API in PHP 5.5 which was 11 years ago.

- The current cost is 10
- Increasing the cost by one, doubles the time
- New cost in PHP 8.4: 12 (~less than 330ms per hash)

PHP 8.4: grapheme_str_split

```
<?php
foreach (str_split("👩") as $element) {
    printf("%8s : %s\n", bin2hex($element), $element);
}
?>
```

Result:

```
f0 : ?
9f : ?
99 : ?
87 : ?
e2 : ?
80 : ?
8d : ?
e2 : ?
99 : ?
82 : ?
ef : ?
b8 : ?
8f : ?
```

PHP 8.4: grapheme_str_split

```
<?php
foreach (mb_str_split("👦") as $element) {
    printf("%8s : %s\n", bin2hex($element), $element);
}
?>
```

Result:

```
f09f9987 : 👦
e2808d   :
e29982   : ♂
efb88f   :
```


PHP 8.4: grapheme_str_split

```
<?php
foreach (mb_str_split("👨") as $element) {
    printf("%8s : %s\n", bin2hex($element), $element);
}
?>
```

PHP 8.4: grapheme_str_split

```
<?php
foreach (grapheme_str_split("👨") as $element) {
    printf("%8s : %s\n", bin2hex($element), $element);
}
?>
```

Result:

```
f09f9987e2808de29982efb88f : 👨
```


Policies and Procedures

- Information hidden away in many RFCs
- No consolidated documentation

<https://github.com/php/policies>

Release Cycle Update

Current:

- 2 + 1 years of support
- 3 alphas, 3, betas, 6 RCs
- No new minor features in beta releases
- New minor features could be added during RC and bug fix releases
- Support ends exactly 3 years after initial release



Any Queries?

Resources



Slides

<https://derickrethans.nl/talks/php-berkshire24>

<https://xdebug.cloud>

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Warning: Undefined array key 20 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 20 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('20') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**

Warning: Undefined array key 21 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 21 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('21') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**

Warning: Undefined array key 22 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 22 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('22') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**

Warning: Undefined array key 23 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 23 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('23') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**

Warning: Undefined array key 24 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 24 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('24') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**

Warning: Undefined array key 25 in **/home/httpd/pres2/show2.php** on line **215**

Notice: DOMDocument::load(): Read of 8192 bytes failed with errno=21 Is a directory in **/home/httpd/pres2/show2.php** on line **215**

Warning: DOMDocument::load(): Document is empty in /home/httpd/presentations, line: 1 in **/home/httpd/pres2/show2.php** on line **215**

Warning: Undefined array key 25 in **/home/httpd/pres2/show2.php** on line **216**

Fatal error: Uncaught ezcTemplateRuntimeException: The external (use) variable 'node' is not set in template: /home/httpd/pres2/presentations/templates/default/slide.ezt and called from the application code in /tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php:9 Stack trace: #0 /home/httpd/pres2/vendor/zetacomponents/template/src/compiled_code.php(188): include() #1 /home/httpd/pres2/vendor/zetacomponents/template/src/template.php(341): ezcTemplateCompiledCode->execute() #2 /home/httpd/pres2/show2.php(228): ezcTemplate->process('slide.ezt') #3 /home/httpd/pres2/show2.php(154): Presentation->display('25') #4 {main} thrown in **/tmp/template-cache/compiled_templates/xhtmll-updqr0/slide-5eb6f7fc995a21e41e7fdbd1e4869726.php** on line **9**