# PHP 8 migration notes for your code

What to change in older PHP code so it runs cleanly on PHP 8.0 to 8.5 (PHP 7.4 usable without support) under Exponential 6 - dynamic properties, count() on non-arrays, null passed to string functions, SPL return types...

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This page is for PHP developers who bring older code, often an extension written for PHP 5 or 7, up to PHP 8 for Exponential 6. The kernel went through the same work between December 2023 and April 2026 (PHP 8 support); this page turns its lessons into a list you can work through.

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## How to find the problems

- **Debug output on a development copy.** Enable `[DebugSettings] DebugOutput=enabled` and use the pages of your extension; look for "Deprecated" notices that name your files.
- **The logs.** `var/log/warning.log` and `var/log/error.log` collect what the debug output shows (Logs, the log viewer and request logs).
- **Static checks.** `.devtools/vendor/bin/phpcs --standard=phpcs.xml.dist extension/<ext>/` reports PHPCompatibility findings (removed and deprecated functions), and PHPStan finds undefined methods and wrong argument counts (Static analysis with PHPStan).
- **Syntax on the oldest and newest PHP.** `php -l` with 8.0 and with 8.5.

## Declare the properties you use

PHP 8.2 deprecates creating a property that the class does not declare. Old extensions do this constantly, often in classes extending `eZPersistentObject` or `eZDataType`:

PHP

```php
class acmeReport extends eZPersistentObject
{
    /** declared, so PHP 8.2 and later do not warn */
    public $ID;
    public $Title;
}
```

`eZPersistentObject` subclasses no longer cause warnings in the debug output since 6.0.4, but declaring the properties is still the clean fix, and it documents the class (Dynamic properties).

## Test before you count

`count()` throws a `TypeError` on `null` and scalars since PHP 8.0:

PHP

```php
// before
if ( count( $list ) > 0 ) { ... }

// after
if ( is_array( $list ) && count( $list ) > 0 ) { ... }
// or, for arrays and Countable objects
if ( is_countable( $list ) && count( $list ) > 0 ) { ... }
```

The same applies to `foreach` over a value that may be `null`: guard it or default it (`$list ?? array()`).

## Do not pass null to string functions

PHP 8.1 deprecates `null` for non-nullable internal parameters (`strlen( null )`, `trim( null )`, `preg_match( $p, null )`). Values from settings, the database and `$Params` are often `null`:

PHP

```php
$title = trim( (string)( $row['title'] ?? '' ) );
```

The kernel fixed this in `mysqli_real_escape_string()` and `preg_match()` calls in 6.0.11.

## Mark methods of SPL interfaces

Methods implementing `Iterator`, `ArrayAccess`, `Countable` or `IteratorAggregate` must declare PHP 8.1's tentative return types or carry the attribute. The kernel style has no return types, so use the attribute:

PHP

```php
#[\ReturnTypeWillChange]
public function current()
{
    return $this->items[$this->position];
}
```

PHPStan cannot baseline a missing tentative return type; that is why `phpstan.neon.dist` excludes `dfs_filter_iterator.php` until it is fixed.

## Nullable parameters

PHP 8.4 deprecates a parameter that has a class type and a `null` default without `?` (implicitly nullable). Write the `?` explicitly; nullable class hints are allowed by the coding standard:

**PHP**

```php
// before
public static function reportDirectory( eZINI $siteINI = null )
// after
public static function reportDirectory( ?eZINI $siteINI = null )
```

See Nullable parameters and types.

## Removed functions and constants

| Removed | Since | Use |
|---|---|---|
| `each()` | 8.0 | `foreach`, or `key()` and `current()` |
| `create_function()` | 8.0 | a closure |
| `split()`, `ereg()`, `eregi()`, `ereg_replace()` | 7.0 | `explode()`, `preg_split()`, `preg_match()`, `preg_replace()` |
| `mysql_*` | 7.0 | eZDB |
| `E_STRICT` | deprecated in 8.4 | leave it out of error masks |
| `utf8_decode()`, `utf8_encode()` | deprecated in 8.2 | `mb_convert_encoding()` |

`phpcs.xml.dist` forbids `each`, `create_function`, `split`, `ereg`, `eregi`, `ereg_replace`, `mysql_query`, `mysql_connect`, `sizeof` and `delete` (The coding standard).

## Signatures that must match the kernel

A class that overrides a kernel method must keep its parameters: same count (more with defaults is fine), same by-reference markers. On PHP 8 a mismatch is a fatal error **when the class loads**, so the whole page breaks, not only the method. Compare with the parent in `kernel/classes/` when you upgrade an extension; the boot smoke test finds these (Writing code that runs on PHP 8.0).

## A working order

1. Make every file pass `php -l` on 8.0 and 8.5.
2. Load every class (boot smoke test or open every page): fix signatures.
3. Fix `count()`, `null` and property warnings from the debug output, page by page.
4. Run PHPCompatibility and PHPStan on the extension.
5. Raise the `composer.json` PHP constraint to `^8.0` and release (The upgrade checklist).

## Related pages

- PHP 8.1 to 8.5 deprecations
- PHP 8 errors that stop old code
- Database code for PHP 8
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