



PHP RegEx

What is a **Regular Expression**?

A regular expression is a sequence of characters that forms a search pattern. When you search for data in a text, you can use this search pattern to describe what you are searching for.

A regular expression can be a single character, or a more complicated pattern.

Regular expressions can be used to perform all types of text search and text replace operations.

Syntax

In PHP, regular expressions are strings composed of delimiters, a pattern and optional modifiers.

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```
$exp = "/w3schools/i";
```

In the example above, `/` is the **delimiter**, `w3schools` is the **pattern** that is being searched for, and `i` is a **modifier** that makes the search case-insensitive.

The delimiter can be any character that is not a letter, number, backslash or space. The most common delimiter is the forward slash (`/`), but when your pattern contains forward slashes it is convenient to choose other delimiters such as `#` or `~`.



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Regular Expression Functions

PHP provides a variety of functions that allow you to use regular expressions.

The `preg_match()`, `preg_match_all()` and `preg_replace()` functions are some of the most commonly used ones:

Function	Description
<code>preg_match()</code>	Returns 1 if the pattern was found in the string and 0 if not
<code>preg_match_all()</code>	Returns the number of times the pattern was found in the string, which may also be 0
<code>preg_replace()</code>	Returns a new string where matched patterns have been replaced with another string



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Using preg_match()

The `preg_match()` function will tell you whether a string contains matches of a pattern.

Example

Use a regular expression to do a case-insensitive search for "w3schools" in a string:

```
<?php
$str = "Visit W3Schools";
$pattern = "/w3schools/i";
echo preg_match($pattern, $str);
?>
```

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Using `preg_match_all()`

The `preg_match_all()` function will tell you how many matches were found for a pattern in a string.

Example

Use a regular expression to do a case-insensitive count of the number of occurrences of "ain" in a string:

```
<?php
$str = "The rain in SPAIN falls mainly on the plains.";
$pattern = "/ain/i";
echo preg_match_all($pattern, $str);
?>
```

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Using preg_replace()

The `preg_replace()` function will replace all of the matches of the pattern in a string with another string.

Example

Use a case-insensitive regular expression to replace Microsoft with W3Schools in a string:

```
<?php
$str = "Visit Microsoft!";
$pattern = "/microsoft/i";
echo preg_replace($pattern, "W3Schools", $str);
?>
```



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Regular Expression Modifiers

Modifiers can change how a search is performed.

Modifier	Description
i	Performs a case-insensitive search
m	Performs a multiline search (patterns that search for the beginning or end of a string will match the beginning or end of each line)
u	Enables correct matching of UTF-8 encoded patterns



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Regular Expression Patterns

Brackets are used to find a range of characters:

Expression	Description
[abc]	Find one character from the options between the brackets
[^abc]	Find any character NOT between the brackets
[0-9]	Find one character from the range 0 to 9

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Metacharacters

Metacharacters are characters with a special meaning:

Metacharacter	Description
	Find a match for any one of the patterns separated by as in: cat dog fish
.	Find just one instance of any character
^	Finds a match as the beginning of a string as in: ^Hello
\$	Finds a match at the end of the string as in: World\$
\d	Find a digit
\s	Find a whitespace character
\b	Find a match at the beginning of a word like this: \bWORD, or at the end of a word like this: WORD\b
\uxxxx	Find the Unicode character specified by the hexadecimal number xxxx



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Quantifiers

Quantifiers define quantities:

Quantifier	Description
n^+	Matches any string that contains at least one n
n^*	Matches any string that contains zero or more occurrences of n
$n^?$	Matches any string that contains zero or one occurrences of n
$n\{x\}$	Matches any string that contains a sequence of X n 's
$n\{x,y\}$	Matches any string that contains a sequence of X to Y n 's
$n\{x,\}$	Matches any string that contains a sequence of at least X n 's