

Semver range (npm style)

npm semver range — ^1.2.3, ~1.2.3, >=1.0.0, etc.

```
^( [^~>=<]+ )? \d+ \. \d+ \. \d+ ( - [a-zA-Z0-9. - ]+ )? ( \+ [a-zA-Z0-9. - ]+ )? $
```

Token-by-token breakdown

Token	Meaning
^	start of string (or line in multiline mode)
(	start of a capturing group
[^~>=<]+	one or more: any of: “^”, “~”, “>”, “=”, “<”
)?	end of group, optional (zero or one)
\d+	one or more: digit (0–9)
\.	literal “.”
\d+	one or more: digit (0–9)
\.	literal “.”
\d+	one or more: digit (0–9)
(	start of a capturing group
-	literal text “-”
[a-zA-Z0-9. -]+	one or more: any of: lowercase letters, uppercase letters, digits, “.”, “-”
)?	end of group, optional (zero or one)
(	start of a capturing group
\+	literal “+”
[a-zA-Z0-9. -]+	one or more: any of: lowercase letters, uppercase letters, digits, “.”, “-”
)?	end of group, optional (zero or one)
\$	end of string (or line in multiline mode)

Quick usage in 7 languages

JavaScript	<pre>const re = /^([^~>=<]+)? \d+ \. \d+ \. \d+ (- [a-zA-Z0-9. -]+)? (\+ [a-zA-Z0-9. -]+)? \$/; re.test(value);</pre>
Python	<pre>import re re.match(r"^([^~>=<]+)? \d+ \. \d+ \. \d+ (- [a-zA-Z0-9. -]+)? (\+ [a-zA-Z0-9. -]+)? \$", value)</pre>
Java	<pre>Pattern.compile("^([^~>=<]+)? \d+ \. \d+ \. \d+ (- [a-zA-Z0-9. -]+)? (\+ [a-zA-Z0-9. -]+)? \$") .matcher(value).matches();</pre>
C# / .NET	<pre>Regex.IsMatch(value, @"^([^~>=<]+)? \d+ \. \d+ \. \d+ (- [a-zA-Z0-9. -]+)? (\+ [a-zA-Z0-9. -]+)? \$"</pre>
Go	<pre>regexp.MustCompile(`^( [^~>=<]+ )? \d+ \. \d+ \. \d+ ( - [a-zA-Z0-9. - ]+ )? ( \+ [a-zA-Z0-9. - ]+ )? \$`). MatchString(value)</pre>
Ruby	<pre>/^([^~>=<]+)? \d+ \. \d+ \. \d+ (- [a-zA-Z0-9. -]+)? (\+ [a-zA-Z0-9. -]+)? \$/.match?(value)</pre>

PHP

```
preg_match('~^([\^\~>=<]+)?\d+\.\d+\.\d+(-[a-zA-Z0-9.-]+)?(\+[a-zA-Z0-9.-]+)?$~',  
$value);
```

Common pitfalls

- **Anchored to the whole string.** This pattern uses ^ and \$, so it requires the entire input to match. To find it inside a longer text, drop the anchors and use the global (g) flag.
- **ASCII letters only.** [a-zA-Z] excludes accented and non-Latin letters (é, ü, ß, ñ, and non-Latin scripts). For international input use Unicode properties like \p{L} with the u flag.
- **Escape it correctly per language.** In Java and JavaScript strings each backslash must be doubled (\\d); in Python, Go, and C# use raw/verbatim strings so the backslashes survive.
- **Validate beyond format.** Matching the format doesn't guarantee the value is real. Confirm the semver range (npm style) against a source of truth (database, API, or checksum) where it matters.