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# Commit fdc9d21



serhiy-storchaka authored on Jul 3, 2025 · 66 / 71 · Verified

[3.10] [gh-135462](#): Fix quadratic complexity in processing special input in HTMLParser ([GH-135464](#)) ([GH-135485](#))

End-of-file errors are now handled according to the HTML5 specs -- comments and declarations are automatically closed, tags are ignored. (cherry picked from commit [6eb6c5d](#))

3.10 (#135485) · v3.10.20 v3.10.19

1 parent [f297a22](#) commit fdc9d21

**3 files changed** +117 -23

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    - parser.py
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```

▼ Lib/html/parser.py ...
@@ -25,6 +25,7 @@
25 25 charref = re.compile('&#(?:[0-9]+|[xX][0-9a-fA-F+)][^0-9a-fA-F]')
```

```

26 26
27 27     starttagopen = re.compile('<[a-zA-Z]')
28 28 + endtagopen = re.compile('</[a-zA-Z]')
28 29     piclose = re.compile('>')
29 30     commentclose = re.compile(r'--\s*>')
30 31     # Note:
@@ -176,25 +177,43 @@ def goahead(self, end):
176 177         k = self.parse_pi(i)
177 178         elif startswith("<!", i):
178 179         k = self.parse_html_declaration(i)
179 -         elif (i + 1) < n:
180 +         elif (i + 1) < n or end:
180 181             self.handle_data("<")
181 182             k = i + 1
182 183         else:
183 184             break
184 185         if k < 0:
185 186             if not end:
186 187                 break
187 -         k = rawdata.find('>', i + 1)
188 -         if k < 0:
189 -             k = rawdata.find('<', i + 1)
190 -             if k < 0:
191 -                 k = i + 1
192 -         else:
193 -             k += 1
194 -         if self.convert_charrefs and not self.cdata_elem:
195 -             self.handle_data(unescape(rawdata[i:k]))
188 +         if starttagopen.match(rawdata, i): # < + letter
189 +             pass
190 +         elif startswith("</", i):
191 +             if i + 2 == n:
192 +                 self.handle_data("</")
193 +             elif endtagopen.match(rawdata, i): # </ + letter
194 +                 pass
195 +             else:
196 +                 # bogus comment
197 +                 self.handle_comment(rawdata[i+2:])
198 +         elif startswith("<!--", i):

```

```

199 +         j = n
200 +         for suffix in ("--!", "--", "-"):
201 +             if rawdata.endswith(suffix, i+4):
202 +                 j -= len(suffix)
203 +                 break
204 +             self.handle_comment(rawdata[i+4:j])
205 +         elif startswith("<![CDATA[", i):
206 +             self.unknown_decl(rawdata[i+3:])
207 +         elif rawdata[i:i+9].lower() == '<!doctype':
208 +             self.handle_decl(rawdata[i+2:])
209 +         elif startswith("<!", i):
210 +             # bogus comment
211 +             self.handle_comment(rawdata[i+2:])
212 +         elif startswith("<?", i):
213 +             self.handle_pi(rawdata[i+2:])
196 214         else:
197 -             self.handle_data(rawdata[i:k])
215 +             raise AssertionError("we should not get here!")
216 +             k = n
198 217         i = self.updatepos(i, k)
199 218         elif startswith("&#", i):
200 219         match = charref.match(rawdata, i)

```

Lib/test/test\_htmlparser.py

```

@@ -4,6 +4,8 @@
4 4     import pprint
5 5     import unittest
7 +   from test import support
8 +
7 9
8 10    class EventCollector(html.parser.HTMLParser):
9 11
@@ -391,28 +393,34 @@ def test_tolerant_parsing(self):
391 393        ('data', '<'),
392 394        ('starttag', 'bc<', [('a', None)]),
393 395        ('endtag', 'html'),
394 -        ('data', '\n", [('data', '<>')])                     |
| 401 | +   | self._run_check("< >", [('data', '< >')])                   |
| 402 | +   | self._run_check("< ", [('data', '< ')])                     |
| 399 | 403 | self._run_check("</>", [])                                  |
| 404 | +   | self._run_check("<\$>", [('data', '<\$>')])                 |
| 400 | 405 | self._run_check("</\$>", [('comment', '\$')])               |
| 401 | 406 | self._run_check("</", [('data', '</')])                     |
| 402 | -   | self._run_check("</a", [('data', '</a')])                   |
| 407 | +   | self._run_check("</a", [])                                  |
| 408 | +   | self._run_check("</ a>", [('endtag', 'a')])                 |
| 409 | +   | self._run_check("</ a", [('comment', 'a')])                 |
| 403 | 410 | self._run_check("<a<a>", [('starttag', 'a<a', [])])         |
| 404 | 411 | self._run_check("</a<a>", [('endtag', 'a<a')])              |
| 405 | -   | self._run_check("<!", [('data', '<!')])                     |
| 406 | -   | self._run_check("<a", [('data', '<a')])                     |
| 407 | -   | self._run_check("<a foo='bar'", [('data', '<a foo='bar'')]) |
| 408 | -   | self._run_check("<a foo='bar", [('data', '<a foo='bar'')])  |
| 409 | -   | self._run_check("<a foo='>", [('data', '<a foo='>')])       |
| 410 | -   | self._run_check("<a foo='>", [('data', '<a foo='>')])       |
| 412 | +   | self._run_check("<!", [('comment', '!')])                   |
| 413 | +   | self._run_check("<a", [])                                   |
| 414 | +   | self._run_check("<a foo='bar'", [])                         |
| 415 | +   | self._run_check("<a foo='bar", [])                          |
| 416 | +   | self._run_check("<a foo='>", [])                            |
| 417 | +   | self._run_check("<a foo='>", [])                            |
| 411 | 418 | self._run_check("<a\$a>", [('starttag', 'a\$a', [])])       |
| 412 | 419 | self._run_check("<a\$b>", [('starttag', 'a\$b', [])])       |
| 413 | 420 | self._run_check("<a\$b/>", [('startendtag', 'a\$b', [])])   |
| 414 | 421 | self._run_check("<a\$b >", [('starttag', 'a\$b', [])])      |
| 415 | 422 | self._run_check("<a\$b />", [('startendtag', 'a\$b', [])])  |
| 423 | +   | self._run_check("</a\$b>", [('endtag', 'a\$b')])            |
| 416 | 424 |                                                             |
| 417 | 425 | def test_slashes_in_starttag(self):                         |

```

418 426         self._run_check('<a foo="var"/>', [( 'startendtag', 'a', [( 'foo',
        'var')]))])

```



```

@@ -537,13 +545,56 @@ def test_eof_in_charref(self):

```

```

537 545         for html, expected in data:
538 546             self._run_check(html, expected)

```

```

539 547

```

```

540 -     def test_broken_comments(self):
541 -         html = ('<! not really a comment >'

```

```

548 +     def test_eof_in_comments(self):
549 +         data = [
550 +             ('<!--', [( 'comment', ' ')]),
551 +             ('<!---', [( 'comment', ' ')]),
552 +             ('<!----', [( 'comment', ' ')]),
553 +             ('<!-----', [( 'comment', '- ')]),
554 +             ('<!------', [( 'comment', '-- ')]),
555 +             ('<!---!', [( 'comment', ' ')]),
556 +             ('<!---!', [( 'comment', '-! ')]),
557 +             ('<!---!>', [( 'comment', '-!> ')]),
558 +             ('<!--foo', [( 'comment', 'foo ')]),
559 +             ('<!--foo-', [( 'comment', 'foo ')]),
560 +             ('<!--foo--', [( 'comment', 'foo ')]),
561 +             ('<!--foo--!', [( 'comment', 'foo ')]),
562 +             ('<!--<!--', [( 'comment', '<! ')]),
563 +             ('<!--<!--!', [( 'comment', '<! ')]),
564 +         ]
565 +         for html, expected in data:
566 +             self._run_check(html, expected)
567 +
568 +     def test_eof_in_declarations(self):
569 +         data = [
570 +             ('<!', [( 'comment', ' ')]),
571 +             ('<!--', [( 'comment', '- ')]),
572 +             ('<![', [( 'comment', '[' ')]),
573 +             ('<![CDATA[', [( 'unknown decl', 'CDATA[ ')]),
574 +             ('<![CDATA[x', [( 'unknown decl', 'CDATA[x ')]),
575 +             ('<![CDATA[x]', [( 'unknown decl', 'CDATA[x ')]),
576 +             ('<![CDATA[x]]', [( 'unknown decl', 'CDATA[x]] ')]),
577 +             ('<!DOCTYPE', [( 'decl', 'DOCTYPE ')]),
578 +             ('<!DOCTYPE ', [( 'decl', 'DOCTYPE ')]),

```

```

579 +         ('<!DOCTYPE html', [('decl', 'DOCTYPE html')] ),
580 +         ('<!DOCTYPE html ', [('decl', 'DOCTYPE html ')] ),
581 +         ('<!DOCTYPE html PUBLIC', [('decl', 'DOCTYPE html PUBLIC')] ),
582 +         ('<!DOCTYPE html PUBLIC "foo', [('decl', 'DOCTYPE html PUBLIC
"foo')] ),
583 +         ('<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN" "foo',
584 +         [('decl', 'DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN"
"foo')] ),
585 +     ]
586 +     for html, expected in data:
587 +         self._run_check(html, expected)
588 +
589 +     def test_bogus_comments(self):
590 +         html = ('<!ELEMENT br EMPTY>'
591 +                '<! not really a comment >'
592 +                '<! not a comment either -->'
593 +                '<! -- close enough -->'
594 +                '<!><!-- this was an empty comment>'
595 +                '<!!! another bogus comment !!!>')
596 +         expected = [
597 +             ('comment', 'ELEMENT br EMPTY'),
598 +             ('comment', ' not really a comment '),
599 +             ('comment', ' not a comment either --'),
600 +             ('comment', ' -- close enough --'),
601 +
602 +             @@ -598,6 +649,26 @@ def test_convert_charrefs_dropped_text(self):
603 +
604 +             ('endtag', 'a'), ('data', ' bar & baz')]
605 +         )
606 +
607 +     @support.requires_resource('cpu')
608 +     def test_eof_no_quadratic_complexity(self):
609 +         # Each of these examples used to take about an hour.
610 +         # Now they take a fraction of a second.
611 +         def check(source):
612 +             parser = html.parser.HTMLParser()
613 +             parser.feed(source)
614 +             parser.close()
615 +         n = 120_000
616 +         check("<a " * n)
617 +         check("<a a=" * n)

```

```
663 +     check("</a " * 14 * n)
664 +     check("</a a=" * 11 * n)
665 +     check("<!--" * 4 * n)
666 +     check("<!" * 60 * n)
667 +     check("<?" * 19 * n)
668 +     check("</ $" * 15 * n)
669 +     check("<![CDATA[" * 9 * n)
670 +     check("<!doctype" * 35 * n)
671 +
```

```
601 672
```

```
602 673     class AttributesTestCase(TestCaseBase):
```

```
603 674
```



...5-06-13-15-55-22.gh-issue-135462.KBeJpc.rst



```
... @@ -0,0 +1,4 @@
```

```
1 + Fix quadratic complexity in processing specially crafted input in
2 + :class:`html.parser.HTMLParser`. End-of-file errors are now handled according
3 + to the HTML5 specs -- comments and declarations are automatically closed,
4 + tags are ignored.
```

Comments 0