Element Locators Strategies in Selenium

Element Locators tell Selenium which HTML element a command refers to.

There are several strategies to locate Elements in selenium. Selenium support the following strategies for locating elements.

- **Standard identifier**
- **XPATHS**
- **CSS Locators**
- **Link**
- **Partial Link**
- **Dom(Javascript Expression)**

Standard identifier

- **id**=*'first_name'*: Select the element with the specified @id attribute.

```
<input type="hidden" value="submit" name="action">
<fieldset>
    <legend>Name</legend>
    <div class="mbl clearfix">
        <label class="mrl" for="first_name">First Name</label>
        <input id="first_name" class="input-box" type="text" value="" maxlength="50" name="first_name">
    </div>
    <div class="mbl clearfix">
        <label class="mrl" for="last_name">Last Name</label>
        <input id="last_name" class="input-box" type="text" value="" maxlength="50" name="last_name">
    </div>
```

- **name**=*'last_name'*: Select the first element with the specified @name attribute

```
<input type="hidden" value="submit" name="action">
<fieldset>
    <legend>Name</legend>
    <div class="mbl clearfix">
        <label class="mrl" for="first_name">First Name</label>
        <input id="first_name" class="input-box" type="text" value="" maxlength="50" name="first_name">
    </div>
    <div class="mbl clearfix">
        <label class="mrl" for="last_name">Last Name</label>
        <input id="last_name" class="input-box" type="text" value="" maxlength="50" name="last_name">
    </div>
```

XPATH

•**xpath**=*xpathExpression*: Locate an element using an XPath expression.

There are following way to write a xpath expressions

1.Xpath expressions using attributes of element.

2.Xpath expressions using Relative path to reach element.

3.Xpath expressions using position element

XPATH expressions using attributes of element.

- Using class Attribute : xpath='//input[@value='Create Account']'

```
☐ <form id="user-details" name="user-details" method="POST">
      <input type="hidden" value="register" name="type">
      <input type="hidden" value="submit" name="action">
   ⊞ <div class="mbl clearfix">
   ⊞ <fieldset class="mvx">
   ☐ <p class="pvl">
         <input type="hidden" value="0" name="long_form">
         <input class="button button_large" type="submit" value="Create Account" style="background-color: transparent;">
      </p>
   </form>
```

Using href Attribute: xpath='//a[@href='/category/Animals-Wildlife-1/']'

```
   ☐ <div class="un: /html/body/div/div/div[3]/h3 (http://www.w3.org/1999/xhtml)
      ☐ <ul>
         ☐ <li class="">
               <a data-category="1" href="/category/Animals-Wildlife-1/" style="background-color: transparent;">Animals/Wildlife</a>
            </li>
         ⊞ <li class="">
         ⊞ <li class="">
         ⊞ <li class="">
         ⊞ <li class="last">
```

Xpath expressions using Relative path to reach element

- xpath='//td[@class='has-account plx']//a[@href='/login.html']'

```
☐ <td class="has-account plx">
    ☐ <ul class="plx">
        ☐ <li class="mbl">
            If you already have an account, visit our
            <a style="font-weight: bold" href="/login.html">login page</a>
            to continue.
        </li>
        <li class="mbl">You can use the same account to browse photos at www.shutterstock.com</li>
    </ul>
    ⊞ <script>
</td>
```

- xpath='//div[@id='wrapper']/div[@class='bt mbm ptm']/h3'

```
☐ <div id="wrapper" class="centered cf">
    ⊞ <div class="line mbl">
    ☐ <div class="line mbl mts">
        ⊞ <div class="unit size12of19">
        <div class="unit size7of19 lastUnit">    </div>
    </div>
    ☐ <div class="bt mbl ptm">
        <h3 class="pbs">Keywords</h3>
        ⊞ <div id="clip-keywords" class="bubble-links cf">
    </div>
    ☐ <div class="bt mbm ptm">
        <h3 class="pbs" style="background-color: transparent;">Related Videos</h3>
        ⊞ <div id="clip-related" class="cf" data-referer="1210102">
```

Xpath expressions using position element

- Xpath='//ul[@id='clip-related-categories']/li[2]/a'

```
<ul id="clip-related-categories" class="category-list category-list-inline secondary-links">
    <li>
        <a href="/category/Backgrounds-Textures-3/">Backgrounds/Textures</a>
    </li>
    <li>
        <a href="/category/Objects-9/">Objects</a>
    </li>
</ul>
```

- xpath='//div[@id='clip-related']/a[3]/img'

```
<div id="clip-related" class="cf" data-referer="1210102">
    <a class="bordered round_3 fourth-list " data-position="1" data-clip-id="252565" href="/clip-252565-stock-footage-slow-motion-video-of-wave-breaking-on-rock.html" style="background-color: rgb(51, 51, 51);">
    <a class="bordered round_3 fourth-list " data-position="2" data-clip-id="23002" href="/clip-23002-stock-footage-fire-bungalow-water-spray-small-flames-betacamsp-good-audio.html">
    <a class="bordered round_3 fourth-list " data-position="3" data-clip-id="23005" href="/clip-23005-stock-footage-fire-bungalow-zoom-in-fireman-spraying-water-betacamsp-good-audio.html">
    <a class="bordered round_3 fourth-list last-fourth" data-position="4" data-clip-id="144253" href="/clip-144253-stock-footage-panorama-of-the-canadian-niagara-falls-and-part-of-niagara-escarpment-over-which-the-niagara-river.html">
        <img alt="Panorama of the Canadian Niagara Falls and part of Niagara Escarpment over which the Niagara River falling in the Niagara Falls, frozen river and the fine water spray-mist, in sunny winter day." src="http://ak.picdn.net/shutterstock/videos/144253/preview/stock-footage-panorama-of-the-canadian-niagara-falls-and-part-of-niagara-escarpment-over-which-the-niagara-river.jpg">
    </a>
</div>
```

XPATH using 'contains' keyword

•contains using partial match of attributes of a element:-

xpath='//div[@class='shadow_gray language-menu']//a[contains(@href,'language=fr')]'

```
☐ <div class="shadow_gray language-menu" style="display: block;">
    ☐ <ul>
        ⊞ <li>
        ⊞ <li>
        ☐ <li>
            ⊞ <a class="lang-link" title="Français" href="http://video.qa.shutterstock.com/video.html?id=256402&language=fr">
            </li>
        ⊞ <li>
        ⊞ <li>
```

•Contains using partial match of Text

xpath='//a[contains(text(),'purchase')]'

```
                    <br>
                </td>
            </tr>
        </tbody>
    </table>
☐ <div style="padding:20px">
        <a target="_blank" href="http://video.qa.shutterstock.com/invoice_view.mhtml?order_id=4617100">View receipt for this purchase</a>
    </div>
⊞ <table cellspacing="0" cellpadding="0" border="0" style="border: 1px solid #d0d0d0; padding: 5px 8px;">
```

Navigation from child to parent and siblings in xpath

•Xpath='//nobr[contains(text(),'Purchase')]/../..//td[@class='order-summary-title']/b'

```
☐ <tr>
    ☐ <td class="order-summary-title">
    ☐ <td class="order-summary-value" style="width: 130px">
        <a target="_blank" href="http://video.qa.shutterstock.com/invoice_view.mhtml?order_id=4617100">4617100</a>
    </td>
    </tr>
☐ <tr style="background-color: transparent;">
    ☐ <td class="order-summary-title" style="background-color: transparent;">
        <b style="background-color: transparent;">Your order summary:</b>
    </td>
    ☐ <td class="order-summary-value" style="background-color: transparent;">
        <nobr style="background-color: transparent;">Purchase of sd video 1159078</nobr>
```

Sibling in Xpath

•Xpath='//form[@id='main-form']/following-sibling::a'

```
<p>Downloading via subscription is more economical, and requires only a single purchase.</p>
<a class="button" onclick="document.getElementById('main-form').submit(); return false" style="margin:0px auto;">Subscribe</a>
☐ <form id="main-form" action="/subscribe.html">
    <a class="button" onclick="document.getElementById('main-form').submit(); return false" style="margin: 0px auto; background-color: transparent;">Subscribe</a>
    <p class="subscription footnote">Videos must be downloaded within one year of purchase</p>
```

Xpath using 'AND', 'OR', & 'LAST'

- xpath='//tr[contains(@id,'subscription-row-25') and contains(@class,'subscription-row')]//span[text()="25"][last()]'

```
⊟ <tr id="subscription-row-25-4639348" class="subscription-row " onclick="toggleRow('25-4639348')">
     <td class="left-margin-column"></td>
  ⊞ <td rowspan="1">
  ⊞ <td class="subscription-indicator-column" rowspan="1">
  ⊞ <td class="subscription-type-column">
  ⊟ <td>
     ⊟ <nobr>
          <span class="downloads-left">25</span>
          <span class="punctuation">/</span>
          <span class="downloads-limit" style="background-color: transparent;">25</span>
          <br>
        </nobr>
```

- xpath='//div[@id='container' or @class='footer-link-container']//a[contains(@href,'faq')]'

```
⊟ <div class="footer-link-container">
  ⊟ <nobr>
       <a class="footer-link" href="/faq.html" style="background-color: transparent;">Frequently Asked Questions</a>
     </nobr>
  </div>
```

```
⊟ <footer id="site-footer">
  ⊟ <div class="centered pal secondary-links">
     ⊞ <div class="stat-line cf">
     ⊟ <div class="line ptl">
        ⊟ <div class="unit size1of4">
             <h4 class="core_h6 mbm">Shutterstock Footage</h4>
          ⊟ <ul>
             ⊞ <li>
             ⊟ <li>
                  <a href="/faq.html">Frequently Asked Questions</a>
                </li>
```

CSS Locators

•Css selector locator supports all css1, css2 and css3 selectors but some namespace in css3, some pseudo classes are not supported by selenium. These are given below

namespace:--

:nth-of-type, :nth-last-of-type, :first-of-type, :last-of-type, :only-of-type, :visited, :hover, :active, :focus, :indeterminate)

pseudo elements:--

::first-line, ::first-letter, ::selection, ::before, ::after

Examples of CSS Locators : ---

css=li[id='user_options_selector']>a>span

```
⊟ <ul>
    ⊟ <li id="user_options_selector" class="">
        ⊟ <a>
              Hi,
              <strong title="autoanshu">autoanshu</strong>
              <span> ▼</span>
        </a>
    </li>
    ⊞ <li id="plans_and_pricing">
```

css=div.rebill-continue a[href='/']

```
⊟ <center>
    ⊟ <div class="rebill-continue">
          <a href="/" style="background-color: transparent;">Continue ></a>
    </div>
</center>
```

•Partial match of attribute in css locators

css=a[href*='/auto_rebill_status']

```
☐ <p style="margin-left: 30px">
       <a href="/change_rebill_card.mhtml?subscription_id=2922406"> Change Payment Information > </a>
       <br>
       <a href="/auto_rebill_status.mhtml?subscription_id=2922406&action=confirm" style="background-color: transparent;">
       Suspend Auto Renewal > </a>
   </p>
```

Sibling in CSS Locators:

Css=input[class='button button_small green_button mrm']+span

```
☐ <div>
       <input class="button button_small green_button mrm" type="submit" value="Submit">
       <span class="feedback-close" style="background-color: transparent;">No thanks, I'm done.</span>
   </div>
```

•Css selector using pseudo element

Css= div.msg div:nth-child(2)

Locate Element using 'Link'

•link=Enter VAT to remove charge

```
-- -----  --------- ------  -----  -
☐ <div id="no-vat" style="display: block">
      <a class="edit-vat-link" href="#">Enter VAT to remove charge</a>
  </div>
```

•**Locate Element using ' Partial Link'**

driver.findElement(By.partialLinkText("**Create a Free Browse**"));

```
  <a href="http://video.qa.shutterstock.com/register.html?r=%2F" class="firefinder-match">Create a Free Browse Account »</a>
☐ <p>
      <a href="http://video.qa.shutterstock.com/register.html?r=%2F" class="firefinder-match">Create a Free Browse Account »</a>
  </p>
```

Locate Element using 'Dom ' on selenium RC.

In Web driver ,You can execute arbitrary JavaScript to find an element and as long as you return a DOM Element, it will be automatically converted to a WebElement object.

dom=document.forms['subscribeForm'].elements[11]