

OSA Consulting Tech

XPath

Introduction:

XPath can be used to navigate through elements and attributes in an XML document. XPath stands for XML Path Language. XPath uses "path like" syntax to identify and navigate nodes in an XML document. XPath is a W3C recommendation (World Wide Web Consortium). This organization controls the behavior of many languages, including HTML. Today XPath expressions can also be used in JavaScript, Java, XML Schema, PHP, Python, C and C++, and lots of other languages.

*** **As an automation engineer, we mainly use XPath to locate a specific element from a HTML page.** XPath follows the fundamental rules by W3C, following are the examples:

Parent: Each element and attribute has one parent.

In the following example; the book element is the parent of the title, author, year, and price:

```
<book>
  <title>Harry Potter</title>
  <author>J K. Rowling</author>
  <year>2005</year>
  <price>29.99</price>
</book>
```

Children: Element nodes may have zero, one or more children.

In the following example; the title, author, year, and price elements are all children of the book element:

```
<book>
  <title>Harry Potter</title>
  <author>J K. Rowling</author>
  <year>2005</year>
  <price>29.99</price>
</book>
```

Siblings: Nodes that have the same parent.

In the following example; the title, author, year, and price elements are all siblings:

```
<book>
  <title>Harry Potter</title>
  <author>J K. Rowling</author>
  <year>2005</year>
  <price>29.99</price>
</book>
```

Ancestors: A node's parent, parent's parent, etc.

In the following example; the ancestors of the title element are the book element and the bookstore element:

```
<bookstore>
  <book>
    <title>Harry Potter</title>
```

```
<author>J K. Rowling</author>
<year>2005</year>
<price>29.99</price>
</book>
</bookstore>
```

Descendants: A node's children, children's children, etc.

In the following example; descendants of the bookstore element are the book, title, author, year, and price elements:

```
<bookstore>
<book>
  <title>Harry Potter</title>
  <author>J K. Rowling</author>
  <year>2005</year>
  <price>29.99</price>
</book>
</bookstore>
```

There are 8 different locators to find an element from a HTML page such as:

Id, Name, XPath, CssSelector, TagName, LinkText, Partial LinkText, Class Name.

There are two ways we can use XPath

- **Absolute**
- **Relative**

XPath Expression:

Expression	Description
/	Selects from the root node (Absolute)
//	Selects nodes in the document from the current node that match the selection no matter where no matter where they are (Relative)
.	Selects the current node
..	Selects the parent of the current node
@	Selects attributes

XPath Formulas:

Syntax: Example:	To find an element by using 1 property from tag //TagName[@PropertyName = 'Property Value'] //input[@type='text']
Syntax: Example:	To find an element by using more than 1 property from same tag //TagName[@P Name = 'P Value' and @P Name = 'P Value'] //input[@type='text' and @id='OSA']
Syntax: Example:	To find an element by using partial value of property from tag //TagName[contains(@P Name, 'part of P Value')] //input[contains(@id, 'OS')]
Syntax: Example:	To find an element by using text between opening and closing tag //TagName[text()='Text'] //span[text()='OSA Consulting Tech']
Syntax: Example:	To find an element by using partial text between opening and closing tag //TagName[contains(text(), 'part of Text')] //span[contains(text(), 'Consulting Tech')]
Syntax: Example:	To find an element by indexing of any tag //TagName[@PropertyName = 'Property Value']/div[number of index] //input[@type='text']/div[1]
Syntax: Example:	To find an element by using more than 1 tag and absolute to relative from HTML Page //TagName[@P Name = 'P Value']/TagName[@P Name = 'P Value' and @P Name = 'P Value']/TagName[@P Name = 'P Value'] //div[@class='text']/span[@P Name = 'P Value']/input[@id='OSA']

FAQ:

1. What is XPath?
2. What is XML?
3. What is Markup Language (Hyper, Extensive)?
4. What are the locators do you use?
5. Which locator is faster?
6. Difference between absolute and relative XPath?
7. How to find dynamic element?
8. What is expression in XPath?