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# XPath Syntax

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XPath uses path expressions to select nodes or node-sets in an XML document. The node is selected by following a path or steps.

## The XML Example Document

We will use the following XML document in the examples below.

```
<?xml version="1.0" encoding="UTF-8"?>

<bookstore>

  <book>
    <title lang="en">Harry Potter</title>
    <price>29.99</price>
  </book>
```

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```
<book>
  <title lang="en">Learning XML</title>
  <price>39.95</price>
</book>
```

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## Selecting Nodes

XPath uses path expressions to select nodes in an XML document. The node is selected by following a path or steps. The most useful path expressions are listed below:

| Expression      | Description   |
|-----------------|---|
| <i>nodename</i> | Selects all nodes with the name " <i>nodename</i> "   |
| /               | Selects from the root node  |
| //              | Selects nodes in the document from the current node that match the selection no matter where they are |
| .               | Selects the current node  |
| ..              | Selects the parent of the current node  |
| @               | Selects attributes  |





In the table below we have listed some path expressions and the result of the expressions:

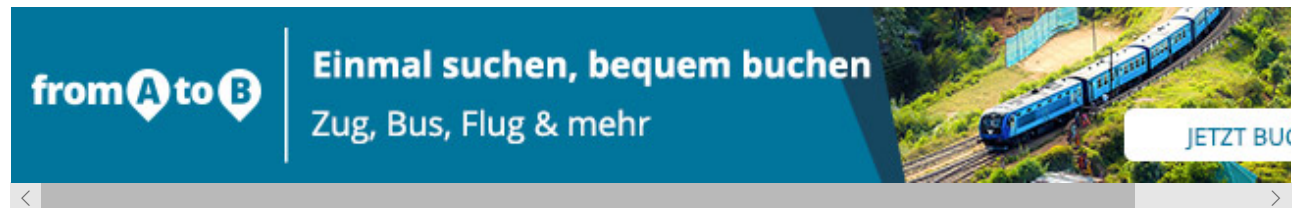
| Path Expression   | Result   |
|---|--|
| bookstore   | Selects all nodes with the name "bookstore"              |
| /bookstore  | Selects the root element bookstore                       |
| <b>Note:</b> If the path starts with a slash ( / ) it always represents an absolute path to an element. |  |
| bookstore/book  | Selects all book elements that are children of bookstore |

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|   |      |  |     |            |        |   |
|---|------|--|-----|------------|--------|---|
|   <code>//book</code> | HTML | Selects all book elements no matter where they are in the document   | CSS | JAVASCRIPT | MORE ▼ |   |
| <code>bookstore//book</code>  |      | Selects all book elements that are descendant of the bookstore element, no matter where they are under the bookstore element |     |            |        |   |
| <code>//@lang</code>  |      | Selects all attributes that are named lang   |     |            |        |   |



## Predicates

Predicates are used to find a specific node or a node that contains a specific value.

Predicates are always embedded in square brackets.

In the table below we have listed some path expressions with predicates and the result of the expressions:

| Path Expression                        | Result   |
|--|--|
| <code>/bookstore/book[1]</code>        | <p>Selects the first book element that is the child of the bookstore element.</p> <p><b>Note:</b> In IE 5,6,7,8,9 first node is [0], but according to W3C, it is [1]. To solve this problem in IE, set the SelectionLanguage to XPath:</p> <p><i>In JavaScript:</i></p> <pre>xml.setProperty("SelectionLanguage","XPath");</pre> |
| <code>/bookstore/book[last()]</code>   | <p>Selects the last book element that is the child of the bookstore element</p>  |
| <code>/bookstore/book[last()-1]</code> |  |

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|                                    |  |
|------------------------------------|--|
| /bookstore/book[position()<3]      | Selects the first two book elements that are children of the bookstore element   |
| //title[@lang]                     | Selects all the title elements that have an attribute named lang   |
| //title[@lang='en']                | Selects all the title elements that have a "lang" attribute with a value of "en"   |
| /bookstore/book[price>35.00]       | Selects all the book elements of the bookstore element that have a price element with a value greater than 35.00                       |
| /bookstore/book[price>35.00]/title | Selects all the title elements of the book elements of the bookstore element that have a price element with a value greater than 35.00 |

## Selecting Unknown Nodes

XPath wildcards can be used to select unknown XML nodes.

| Wildcard | Description                  |
|----------|------------------------------|
| *        | Matches any element node     |
| @*       | Matches any attribute node   |
| node()   | Matches any node of any kind |

In the table below we have listed some path expressions and the result of the expressions:

| Path Expression  | Result   |
|--|--|
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| /bookstore/  | Selects all the child element nodes of the bookstore element |
| //*  | Selects all elements in the document                         |

# Selecting Several Paths

By using the | operator in an XPath expression you can select several paths.

In the table below we have listed some path expressions and the result of the expressions:

| Path Expression                 | Result   |
|---------------------------------|--|
| //book/title   //book/price     | Selects all the title AND price elements of all book elements  |
| //title   //price               | Selects all the title AND price elements in the document   |
| /bookstore/book/title   //price | Selects all the title elements of the book element of the bookstore element AND all the price elements in the document |

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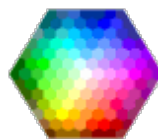
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