# What do namespaces represent in an XML document? What are they used for?

XML Namespaces provide a method to avoid element name conflicts.

In XML, element names are defined by the developer. This often results in a conflict when trying to mix XML documents from different XML applications. Name conflicts in XML can easily be avoided using a name prefix. When using prefixes in XML, a namespace for the prefix must be defined.

The namespace can be defined by an xmlns attribute in the start tag of an element. The namespace declaration has the following syntax: *xmlns:prefix="URI"*. When a namespace is defined for an element, all child elements with the same prefix are associated with the same namespace.

Example:

<root>  
  
<h:table xmlns:h="http://www.w3.org/TR/html4/">  
  <h:tr>  
    <h:td>Apples</h:td>  
    <h:td>Bananas</h:td>  
  </h:tr>  
</h:table>  
  
<f:table xmlns:f="http://www.w3schools.com/furniture">  
  <f:name>African Coffee Table</f:name>  
  <f:width>80</f:width>  
  <f:length>120</f:length>  
</f:table>  
  
</root>

Namespaces can also be declared the XML root element:

<root   
xmlns:h="http://www.w3.org/TR/html4/"  
xmlns:f="http://www.w3schools.com/furniture">  
  
<h:table>  
  <h:tr>  
    <h:td>Apples</h:td>  
    <h:td>Bananas</h:td>  
  </h:tr>  
</h:table>  
  
<f:table>  
  <f:name>African Coffee Table</f:name>  
  <f:width>80</f:width>  
  <f:length>120</f:length>  
</f:table>  
  
</root>

## Uniform Resource Identifier (URI)

A Uniform Resource Identifier (URI) is a string of characters which identifies an Internet Resource.

The most common URI is the Uniform Resource Locator (URL) which identifies an Internet domain address. Another, not so common type of URI is the Universal Resource Name (URN).

## Default Namespaces

Defining a default namespace for an element saves us from using prefixes in all the child elements. It has the following syntax:

*xmlns="namespaceURI"*

This XML carries HTML table information:

<table xmlns="http://www.w3.org/TR/html4/">  
  <tr>  
    <td>Apples</td>  
    <td>Bananas</td>  
  </tr>  
</table>

This XML carries information about a piece of furniture:

<table xmlns="http://www.w3schools.com/furniture">  
  <name>African Coffee Table</name>  
  <width>80</width>  
  <length>120</length>  
</table>

# Namespaces in Real Use

XSLT is a language that can be used to transform XML documents into other formats.

The XML document below, is a document used to transform XML into HTML.

The namespace "http://www.w3.org/1999/XSL/Transform" identifies XSLT elements inside an HTML document:

<?xml version="1.0" encoding="UTF-8**"**?>  
  
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">  
  
<xsl:template match="/">  
<html>  
<body>  
  <h2>My CD Collection</h2>  
  <table border="1">  
    <tr>  
      <th style="text-align:left">Title</th>  
      <th style="text-align:left">Artist</th>  
    </tr>  
    <xsl:for-each select="catalog/cd">  
    <tr>  
      <td><xsl:value-of select="title"/></td>  
      <td><xsl:value-of select="artist"/></td>  
    </tr>  
    </xsl:for-each>  
  </table>  
</body>  
</html>  
</xsl:template>  
  
</xsl:stylesheet>