Chapter 3: XML Namespaces

Chapter 3 Objectives

- Why you need namespaces
- What namespaces are, conceptually and how they solve the problem of naming clashes
- The syntax for using namespaces in XML documents
- What is a URI, URL, and URN

Why Do We Need Namespaces?

```
<?xml version="1.0"?>
<person>
  <name>
    <title>Sir</title>
    <first>John</first>
    <middle>Fitzgerald Johansen</middle>
    <last>Doe</last>
  </name>
  <position>Vice President of Marketing</position>
  <résumé>
    <html>
    <head><title>Resume of John Doe</title></head>
    <body>
      <h1>John Doe</h1>
      <p>John's a great guy, you know?</p>
    </body>
    </html>
  </résumé>
</person>
```


Why Do We Need Namespaces?

- Prevent name conflicts
- Enable certain elements to be processed by specific software application

Using Prefixes

```
<?xml version="1.0"?>
<pers:person>
  <pers:name>
    <pers:title>Sir</pers:title>
    <pers:first>John</pers:first>
    <pers:middle>Fitzgerald Johansen</pers:middle>
    <pers:last>Doe</pers:last>
  </pers:name>
  <pers:position>Vice President of
   Marketing</pers:position>
  <pers:résumé>
    <xhtml:html>
    <xhtml:head>
      <xhtml:title>Resume of John Doe </xhtml:title>
    </xhtml:head>
    <xhtml:body>
    <xhtml:h1>John Doe</xhtml:h1>
    <xhtml:p>John's a great guy, you know?</xhtml:p>
    </xhtml:body>
    </xhtml:html>
  </pers:résumé>
</pers:person>
```

So, Why Doesn't XML Just Use These Prefixes?

How XML Namespaces Work

- Namespace declaration: xmlns:*prefix*="*URI*"
- Qualified name (QName): namespace_prefix:local_part
- Prefix is needed for both star- and end-tags.

```
<pers:person xmlns:pers="http://www.wiley.com/pers">
  <pers:name>
    <pers:title>Sir</pers:title>
  </pers:name>
</pers:person>
```

URI's are used for uniqueness

What Exactly Are URIs?

- **Uniform Resource Identifier** (URI): a string of characters that identifies an Internet Resource
  - Can be a locator, a name, or both
- **Universal Resource Name (URN)**
- **Uniform Resource Locator** (URL): the most common URI that represent a resource available on the Internet.

The URL in the namespace declaration serves as an "ID" not for accessing data from the Internet.

URNs

urn:foo:a123,456

Syntax:
urn:Namespace Identifier:Namespace Specific String

Examples

- **Social security numbers**
- **Serial numbers: urn:issn:0167-6423**
- **Book number: urn:isbn:0451450523**

Why Does XML Use URLs for Namespaces, Not URNs?

Default Namespaces

Default: no prefix is defined

```
<person xmlns="http://www.wiley.com/pers">
  <name>
    <title>Sir</title>
  </name>
</person>
```

Default except for the <p> tag

```
<person xmlns="http://www.wiley.com/pers"
        xmlns:xhtml="http://www.w3.org/1999/xhtml">
  <name/>
  <xhtml:p>This is XHTML</xhtml:p>
</person>
```

Why Default Namespace?

Declaring Namespaces on Descendants

Example 1

```
<person xmlns="http://www.wiley.com/pers">
  <name/>
  <xhtml:p xmlns:xhtml="http://www.w3.org/1999/xhtml">
   This is XHTML
  </xhtml:p>
</person>
```

Note: Scope Issue

Example 2

```
<person xmlns="http://www.wiley.com/pers">
  <name/>
  <p xmlns="http://www.w3.org/1999/xhtml">
      This is XHTML
  </p>
</person>
```

Canceling Default Namespaces

```
<employee>
  <name>Jane Doe</name>
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">I've worked
    with <name xmlns="">Jane Doe</name> for over a
    <em>year</em>
    now.</p>
  </notes>
</employee>
```


Do Different Notations Make Any Difference?

You can fully qualify every name, like this:

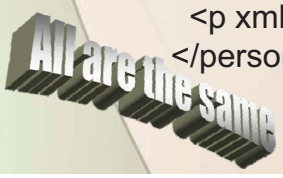
```
<pers:person xmlns:pers="http://www.wiley.com/pers"
             xmlns:xhtml="http://www.w3.org/1999/xhtml">
  <pers:name/>
  <xhtml:p>This is XHTML</xhtml:p>
</pers:person>
```

Or, you can use one namespace as the default, and just qualify any names from other namespaces, like this:

```
<person xmlns="http://www.wiley.com/pers"
        xmlns:xhtml="http://www.w3.org/1999/xhtml">
  <name/>
  <xhtml:p>This is XHTML</xhtml:p>
</person>
```

Or, you can just use defaults everywhere, like this:

```
<person xmlns="http://www.wiley.com/pers">
  <name/>
  <p xmlns="http://www.w3.org/1999/xhtml">This is XHTML</p>
</person>
```



Namespaces and Attributes

Do namespaces work the same for attributes as they do for elements?

Example 1

```
<a:person xmlns:a="http://www.wiley.com/pers">
  <a:name id="25">
    <a:title>Sir</a:title>
  </a:name>
</a:person>
```

id is attached to name in namespace a

Example 2

```
<a:person xmlns:a="http://www.wiley.com/pers">
  <a:name a:id="25">
    <a:title>Sir</a:title>
  </a:name>
</a:person>
```

id is a *global* attribute of namespace a

When Should You Use Namespaces?

Remember that a namespace is just a "bag of names"—that is, it's a group of element names that belong together, and that are distinct from element names in other namespaces. The key is the phrase *belong together*.

Try It Out

- Adding XML Namespaces to Your Document
- Default Namespaces in Action
- Default Namespaces for Children
- Adding Attributes