XHTML Meta Data Profiles

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ABSTRACT
In this paper, we describe XHTML Meta Data Profiles (XMDP) which use XHTML to define a simple profile format which is both human and machine readable. XMDP can be used to extend XHTML by defining new link relationships, meta data properties/values, and class name semantics. XMDP has already been used to extend semantic XHTML to represent social networks, document licensing, voting, and tagging.

Categories and Subject Descriptors
H.5.4 [**Information Systems**]: Hypertext/Hypermedia – *Architectures, user issues.*

E.1 [**Data**]: Data Structures – *Distributed data structures, records.*

General Terms
Design, Experimentation, Reuse

Keywords
Meta data, Microformats, Profiles, Schema, Link relationships, Class names, HTML, XHTML, XFN, XMDP, World Wide Web, WWW, lowercase semantic web.

1. INTRODUCTION
As more people adopt XHTML+CSS for authoring documents, web logs etc, they push the limits of XHTML[1]. Simultaneously web developers are rediscovering the potential of the extensible "rel" attribute from HTML4[2] and are looking for ways to formalize those extensions in a manner that is readable by both humans and machines.

XHTML provides numerous semantic elements for marking up documents, several extensible meta data mechanisms, and hints for how to formalize such extensions using a profile. XMDP [3] is such a profile format, built from semantic XHTML elements and designed in accordance with those hints.

An XMDP profile is a dictionary of property names and values, designed for both automatic reading/processing and easy human authoring/viewing with text editors and web browsers.

2. PROFILE FORMAT
XMDP uses XHTML definition list elements <dl>, <dt>, and <dd> to define a dictionary of property names, each of which can optionally similarly define a dictionary of values. XMDP profiles can be embedded into any (X)HTML/XML document, or published standalone as an XHTML document. For ease of recognition, an XMDP profile begins with a <dl> element with a class name of "profile". This example profile defines two properties, the first with two possible values, and the second with a more open ended set of values:

```
<dl class="profile">
 <dt id='property1'>property1</dt>
 <dd><dl>
   <dt id='value1'>value1</dt>
    <dd>definition of value1</dd>
   <dt id='value2'>value2</dt>
    <dd>definition of value2</dd>
 </dl></dd>
 <dt id='property2'>property2</dt>
 <dd>space separated set of ISO8601
dates</dd>
</dl>
```

Each unique property and value is also has an 'id' attribute to enable precision referencing within a profile using a hyperlink fragment identifier, e.g http://example.org/profile#property1.

3. SAMPLE PROFILE FOR HTML4
The various <meta> properties used informatively in HTML4 could be normatively defined with the an XMDP document:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
xml:lang="en" lang="en">
<head><title>sample HTML
profile</title></head>
<body>
 <dl class="profile">
  <dt id='author'>author</dt>
   <dd>Person who wrote (at least part of)
the document.</dd>
  <dt id='keywords'>keywords</dt>
   <dd>Comma and/or space separated list of
the keywords or keyphrases of the
document.</dd>
  <dt id='copyright'>copyright</dt>
   <dd>Name (or names) of the copyright
holder(s) for this document, and/or a
complete statement of copyright.</dd>
  <dt id='date'>date</dt>
   <dd>Last updated date of the document, in
ISO8601 date format.</dd>
  <dt id='identifier'>identifier</dt>
   <dd>Normative URI for the document.</dd>
  <dt id='rel'>rel</dt>
   <dd><dl>
     <dt id='script'>script</dt>
```


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```
     <dd>A reference to a client-side
script. When used with the LINK element, the
script is evaluated as the document loads
and may modify the contents of the document
dynamically.</dd>
   </dl></dd>
 </dl>
</body></html>
```

4. EXTENDING CURRENT PROPERTIES

XMDP can both define new meta properties, and extend current properties and attributes, such as the 'class' attribute, or the 'rel' attribute for hyperlinks. The above example demonstrates how to define a new 'rel' value by listing the attribute as a property in the profile, along with new values, e.g. 'script'.

5. REFERENCING AND USING PROFILES

5.1 Referencing an XMDP profile

XHTML documents all have a <head> element which has an optional 'profile' attribute. Documents which use properties and values from an XMDP profile should refer to that profile using that 'profile' attribute:

```
<head profile= "http://example.org/profile">
```

5.2 Multiple XMDP profiles

The 'profile' attribute "specifies the location of one or more meta data profiles, separated by white space" according to HTML4. Thus a document which uses properties and values from multiple XMDP profiles should list those profile URLs, separated by whitespace, in the 'profile' attribute:

```
<head profile="http://example.org/profile
http://more.example.com/profile2 ">
```

If the same property or value is defined in multiple profiles, the first of those profiles listed in the 'profile' attribute is used for the definition of such a property or value.

6. CURRENT XMDP USES

Here are a few examples of XMDP used to extend XHTML:

- Social networks. The XHTML Friends Network (XFN) [4] is a set of 'rel' values which enable social tagging of hyperlinks, enabling a decentralized social network to be represented using the Web. See the XFN 1.1 profile [5] written using XMDP and the recent poster on XFN[10].
- Licenses. More and more documents on the Web are made available under one or more specific licenses. Hyperlinking to licenses using rel="license" [6], makes them obvious to both human and machine readers.
- Votes. Many search engines interpret a hyperlink to a resource as at least a mild endorsement of that resource. By defining 'rel' values analogous to the parliamentary for/against/abstain, VoteLinks [7] enables authors to explicitly indicate their endorsement of lack thereof.
- Tags. Recent web sites have enabled their users to collectively annotate or "tag" the uploaded content with arbitrary user-selected keywords. Technorati has recently enabled[8] any user to "tag" web pages, blog posts, and other media simply by hyperlinking to the author's tagspace of choice with rel="tag"[9].

7. POTENTIAL ENHANCEMENTS

There are many future possibilities for XMDP. In particular, two potential enhancements should be considered.

First, modular XMDP profile documents could include one another to provide a union of properties and values. One could add hyperlinks to the XMDP format, specifically within the <dt> elements for properties. If a <dt> contained nothing but an <a href> with 'rel' value of "profile", then the linked profile would be incorporated into the current profile as if its property definitions had been in place of that <dt> element.

```
<dl class="profile">
 <dt><a rel="profile"
href="http://example.org/include">include</a
>
 </dt>
 ...
</dl>
```

Second, it is possible (however unlikely) that an author may want to use properties or values with the same name but from two different XMDP profiles. XMDP could add a lightweight namespacing mechanism, e.g use the <link> element to link to the profile document with rel="profile", and use the 'title' attribute to specify an attribute value Qname prefix.

```
<link rel="profile" title="n"
href="http://example.org/include" />
```

Where attribute values might then look like n.property1.

8. CONCLUSIONS

Thanks to its author-centric ease of use, and construction from semantic XHTML, XMDP offers a valuable mechanism by which XHTML meta data can be formally extended and defined. It is our hope that tools will evolve to explore the potential.

9. REFERENCES

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