Abstract

This specification defines an XHTML document type that is based upon the module framework and modules defined in XHTML Modularization [XHTMLMOD]. The purpose of this document type is to serve as the basis for future extended XHTML ‘family’ document types, and to provide a consistent, forward-looking document type cleanly separated from the deprecated, legacy functionality of HTML 4 [HTML4] that was brought forward into the XHTML 1.0 [XHTML1] document types. This document type is most similar to XHTML 1.0 Strict, built using XHTML Modules. This means that many facilities available in other XHTML Family...
document types (e.g., XHTML Frames) are not available in this document type. These other facilities are available through modules defined in XHTML Modularization, and document authors are free to define document types based upon XHTML 1.1 that use these facilities (see [XHTMLMOD][p.13] for information on creating new document types).

**Status of this document**

*This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the latest revision of this technical report can be found in the W3C technical reports index at http://www.w3.org/TR/*/.

This document has been reviewed by W3C Members, by software developers, and by other W3C groups and interested parties, and is endorsed by the Director as a W3C Recommendation. It is a stable document and may be used as reference material or cited from another document. W3C’s role in making the Recommendation is to draw attention to the specification and to promote its widespread deployment. This enhances the functionality and interoperability of the Web.

This document supersedes the previous edition of XHTML 1.1. It reflects clarifications and corrections as a result of many years of use by the community. It also includes an XML Schema implementation of the language, and integrates the lang attribute to increase compatibility with User Agents and Assistive Technologies. A version that shows the specific changes from the previous Recommendation is available in diff-marked form.

This document has been produced by the W3C XHTML 2 Working Group as part of the HTML Activity. The goals of the XHTML 2 Working Group are discussed in the XHTML 2 Working Group charter.

This document is governed by the 24 January 2002 CPP as amended by the W3C Patent Policy Transition Procedure. W3C maintains a public list of any patent disclosures made in connection with the deliverables of the group; that page also includes instructions for disclosing a patent.

Public discussion of HTML takes place on www-html@w3.org [archive]. To subscribe send an email to www-html-request@w3.org with the word subscribe in the subject line.

Please report errors in this document to www-html-editor@w3.org [archive].

The English version of this specification is the only normative version. Information about translations of this document is available at http://www.w3.org/MarkUp/translations.

A list of current W3C Recommendations and other technical documents can be found at http://www.w3.org/TR/*.
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1. Introduction

This section is normative.

With the introduction of the XHTML family of modules and document types, the W3C has helped move the Internet content-development community from the days of malformed, non-standard markup into the well formed, valid world of XML [XML[p.13]]. In XHTML 1.0, this move was moderated by a goal of providing for easy migration of existing, HTML 4 (or earlier) based content to XHTML and XML. With the advent of the XHTML modules defined in XHTML Modularization, the W3C has removed support for deprecated elements and attributes from the XHTML family. These elements and attributes were largely presentation oriented functionality that is better handled via style sheets or client-specific default behavior.

Going forward, XHTML family document types will be based upon this new, more structural functional collection. In this specification, the W3C’s HTML Working Group has defined an initial document type based solely upon modules. This document type is designed to be portable to a broad collection of client devices, and applicable to the majority of Internet content. Content developers who base their content upon the functionality expressed in this specification can be confident that it will be consistently portable across XHTML family conforming user agents.
2. Conformance Definition

This section is normative.

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119][p.13].

2.1. Document Conformance

This version of XHTML provides a definition of strictly conforming XHTML documents, which are restricted to elements and attributes from the XHTML namespace.

2.1.1. Strictly Conforming Documents

A strictly conforming XHTML 1.1 document is a document that requires only the facilities described as mandatory in this specification. Such a document MUST meet all the following criteria:

1. The document MUST conform to the constraints expressed in the schemas in Appendix D - XHTML 1.1 Schema[p.27] and Appendix C - XHTML 1.1 Document Type Definition[p.15].

2. The local part of the root element of the document MUST be html.

3. The start tag of the root element of the document MUST explicitly contain an xmlns declaration for the XHTML namespace [XMLNAMES][p.13]. The namespace URI for XHTML is defined to be http://www.w3.org/1999/xhtml.

   The start tag MAY also contain the declaration of the XML Schema Instance Namespace and an XML Schema Instance schemaLocation attribute [XMLSCHEMA][p.13]. Such an attribute would associate the XHTML namespace http://www.w3.org/1999/xhtml with the XML Schema at the URI http://www.w3.org/MarkUp/SCHEMA/xhtml11.xsd.

Sample root element

```xml
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en"
     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
     xsi:schemaLocation="http://www.w3.org/1999/xhtml
                        http://www.w3.org/MarkUp/SCHEMA/xhtml11.xsd">
```

4. There MUST be a DOCTYPE declaration in the document prior to the root element. If present, the PUBLIC identifier included in the DOCTYPE declaration MUST reference the DTD found in Appendix A[p.15] using its Formal Public Identifier. The SYSTEM identifier MAY be modified as appropriate.
5. The start tag MAY also contain a version attribute that declares the version of XHTML in use. The version of this version of XHTML is "-//W3C//DTD XHTML 1.1//EN".

Example of an XHTML 1.1 document

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN" "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
<html version="-//W3C//DTD XHTML 1.1//EN"
 xmlns="http://www.w3.org/1999/xhtml" xml:lang="en"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="http://www.w3.org/1999/xhtml
 http://www.w3.org/MarkUp/SCHHEMA/xhtml11.xsd">
 <head>
  <title>Virtual Library</title>
 </head>
 <body>
  <p>Moved to <a href="http://example.org/">example.org</a>.</p>
 </body>
</html>
```

Note that in this example, the XML declaration is included. An XML declaration like the one above is not required in all XML documents. XHTML document authors SHOULD use XML declarations in all their documents. XHTML document authors MUST use an XML declaration when the character encoding of the document is other than the default UTF-8 or UTF-16 and no encoding is specified by a higher-level protocol.

XHTML 1.1 documents SHOULD be labeled with the Internet Media Type "application/xhtml+xml" as defined in [RFC3236]. For further information on using media types with XHTML, see the informative note [XHTMLMIME].

2.2. User Agent Conformance

A conforming user agent MUST meet all user agent conformance requirements defined in [XHTMLMOD].
3. The XHTML 1.1 Document Type

This section is normative.

The XHTML 1.1 document type is a fully functional document type with rich semantics. It is not, however, as varied in functionality as the XHTML 1.0 Transitional or Frameset document types. These document types defined many presentational components that are better handled through style sheets or other similar mechanisms. Moreover, since the XHTML 1.1 document type is based exclusively upon the facilities defined in the XHTML modules [XHTMLMOD[p.13]], it does not contain any of the deprecated functionality of XHTML 1.0 nor of HTML 4. Despite these exceptions, or perhaps because of them, the XHTML 1.1 document type is a solid basis for future document types that are targeted at varied user agent environments.

The XHTML 1.1 document type is made up of the following XHTML modules. The elements, attributes, and minimal content models associated with these modules are defined in "XHTML Modularization" [XHTMLMOD[p.13]]. The elements are listed here for information purposes, but the definitions in "XHTML Modularization" should be considered definitive. In the on-line version of this document, the module names in the list below link into the definitions of the modules within the current version of "XHTML Modularization".

Structure Module
- body, head, html, title

Text Module
- abbr, acronym, address, blockquote, br, cite, code, dfn, div, em, h1, h2, h3, h4, h5, h6, kbd, p, pre, q, samp, span, strong, var

Hypertext Module
- a

List Module
- dl, dt, dd, ol, ul, li

Object Module
- object, param

Presentation Module
- b, big, hr, i, small, sub, sup, tt

Edit Module
- del, ins

Bidirectional Text Module
- bdo

Forms Module
- button, fieldset, form, input, label, legend, select, optgroup, option, textarea

Tables Module
- caption, col, colgroup, table, tbody, td, tfoot, th, thead, tr

Image Module
- img
3. The XHTML 1.1 Document Type

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Client-side Image Map Module
   area, map
Server-side Image Map Module
   Attribute ismap on img
Intrinsic Events Module
   Events attributes
Metainformation Module
   meta
Scripting Module
   noscript, script
Style Sheet Module
   style element
Style Attribute Module
   Deprecated
   style attribute
Link Module
   link
Base Module
   base

XHTML 1.1 also uses the Ruby Annotation module as defined in [RUBY][p.13]:

Ruby Annotation Module
   ruby, rbc, rtc, rb, rt, rp

This specification also adds the lang attribute to the I18N attribute collection as defined in [XHTMLMOD][p.13]. The lang attribute is defined in [HTML4][p.13]. When this attribute and the xml:lang attribute are specified on the same element, the xml:lang attribute takes precedence. When both lang and xml:lang are specified on the same element, they SHOULD have the same value.

There are no additional definitions required by this document type. An implementation of this document type as an XML Schema is defined in Appendix D[p.27], and as an XML DTD is defined in Appendix C[p.15]. If there is any discrepancy between the language as defined in this section and the implementations in the appendices, the definition in this section MUST take precedence.
A. Changes from XHTML 1.0 Strict

This appendix is informative.

This Appendix describes the differences between XHTML 1.1 and XHTML 1.0 Strict. XHTML 1.1 represents a departure from both HTML 4 and XHTML 1.0. Most significant is the removal of features that were deprecated. In general, the strategy is to define a markup language that is rich in structural functionality, but that relies upon style sheets for presentation.

The differences can be summarized as follows:

1. On the a and map elements, the name attribute has been removed in favor of the id attribute (as defined in [XHTMLMOD][p.13]).
2. The "ruby" collection of elements has been added (as defined in [RUBY][p.13]).
B. References

This appendix is normative.

B.1. Normative References

[HTML4]

See: http://www.w3.org/TR/1999/REC-html401-19991224

[RUBY]

See: http://www.w3.org/TR/2001/REC-ruby-20010531

[XHTMLMOD]

See: http://www.w3.org/TR/2010/REC-xhtml-modularization-20100729

[XML]

[Extensible Markup Language (XML) 1.0 (Fourth Edition)] W3C Recommendation, T. Bray et al., eds., 16 August 2006.
Available at: http://www.w3.org/TR/2006/REC-xml-20060816
The latest version is available at: http://www.w3.org/TR/REC-xml

[XMLNAMES]

Available at: http://www.w3.org/TR/2006/REC-xml-names-20060816

[XMLSCHEMA]

Available at: http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

B.2. Informative References

[CATALOG]

See: http://www.oasis-open.org/html/a401.htm

[RFC2119]

[Key words for use in RFCs to indicate requirement levels], RFC 2119, S. Bradner, March 1997.
Available at: http://www.ietf.org/rfc/rfc2119.txt
[RFC2854]

'The 'text/html' Media Type', D. Connely, L. Masinter, January 2000.
Available at: http://www.ietf.org/rfc/rfc2854.txt

[RFC3236]

Available at: http://www.ietf.org/rfc/rfc3236.txt

[XHTML1]

See: http://www.w3.org/TR/2002/REC-xhtml1-20020801

[XHTMLMIME]

'XHTML Media Types', Shane McCarron, 16 January 2009, or its successors.
Latest version available at: http://www.w3.org/TR/xhtml-media-types
C. XHTML 1.1 Document Type Definition

This appendix is normative.

C.1. SGML Open Catalog Entry for XHTML 1.1

This section contains the SGML Open Catalog-format definition [CATALOG[p.13]] of the public identifiers for XHTML 1.1.

-- .......................................................................... --
-- File catalog ............................................................ --
-- XHTML 1.1 Catalog Data File
Revision: @(#)xhtml11.cat 1.9 2001/04/04 SMI
See "Entity Management", SGML Open Technical Resolution 9401 for detailed information on supplying and using catalog data. This document is available from OASIS at URL:

--
-- .......................................................................... --
-- SGML declaration associated with XHTML .............................................. --
OVERRIDE YES
SGMLDECL "xml1.dcl"
-- ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::: --
-- XHTML 1.1 DTD modular driver file ...................................................... --
PUBLIC "-//W3C//DTD XHTML 1.1//EN" "xhtml11.dtd"
-- XHTML 1.1 framework modules ......................................................... --
PUBLIC "-//W3C//ENTITIES XHTML 1.1 Document Model 1.0//EN" "xhtml11-model-1.mod"
-- End of catalog data ............................................................................. --
-- .......................................................................... --

C.2. XHTML 1.1 Driver

This section contains the driver for the XHTML 1.1 document type implementation as an XML DTD. It relies upon XHTML module implementations defined in [XHTMLMOD[p.13]] and in [RUBY[p.13]].
This is XHTML, a reformulation of HTML as a modular XML application.

The Extensible HyperText Markup Language (XHTML)
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Permission to use, copy, modify and distribute the XHTML DTD and its accompanying documentation for any purpose and without fee is hereby granted in perpetuity, provided that the above copyright notice and this paragraph appear in all copies. The copyright holders make no representation about the suitability of the DTD for any purpose.

It is provided "as is" without expressed or implied warranty.

Author: Murray M. Altheim <altheim@eng.sun.com>

Please use this public identifier to identify it:

"-//W3C//DTD XHTML 1.1//EN"

Use this URI to identify the default namespace:

"http://www.w3.org/1999/xhtml"

See the Qualified Names module for information on the use of namespace prefixes in the DTD.

Note that XHTML namespace elements are not prefixed by default, but the XHTML namespace prefix is defined as "xhtml" so that other markup languages can extend this one and use the XHTML prefixed global attributes if required.

Be sure to include prefixed global attributes - we don’t need them, but languages that extend XHTML 1.1 might.
For example, if you are using XHTML 1.1 directly, use the public identifier in the DOCTYPE declaration, with the namespace declaration on the document element to identify the default namespace:

```xml
<?xml version="1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
 "http://www.w3.org/MarkUp/DTD/xhtml11.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
 xml:lang="en">
 ...
</html>
```

Revisions:
(none)

<!-- reserved for future use with document profiles -->

<!-- ensure XHTML Notations are disabled -->

<!-- Bidirectional Text features
This feature-test entity is used to declare elements
and attributes used for bidirectional text support. -->

<!-- declare Document Model module instantiated in framework
- 17 -
C.2. XHTML 1.1 DriverXHTML™ 1.1 - Module-based XHTML - Second Edition
<!ENTITY % xhtml-model.mod
PUBLIC "-//W3C//ENTITIES XHTML 1.1 Document Model 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml11-model-1.mod" >

<!-- adding the lang attribute into the I18N collection -->

<!ENTITY % xhtml-datatypes.module "INCLUDE" >
<![%xhtml-datatypes.module;
<!ENTITY % xhtml-datatypes.mod
PUBLIC "-//W3C//ENTITIES XHTML Datatypes 1.0//EN"
"xhtml-datatypes-1.mod" >
%xhtml-datatypes.mod;]]>

<!ENTITY % lang.attrib
"xml:lang     %LanguageCode.datatype;  #IMPLIED
lang         %LanguageCode.datatype;  #IMPLIED"
>

<!-- Modular Framework Module (required) ......................... -->
<!ENTITY % xhtml-framework.module "INCLUDE" >
<![%xhtml-framework.module;
<!ENTITY % xhtml-framework.mod
PUBLIC "-//W3C//ENTITIES XHTML Modular Framework 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml-framework-1.mod" >
%xhtml-framework.mod;]]>

<!-- Post-Framework Redeclaration placeholder ................... -->
<!-- this serves as a location to insert markup declarations -->
<!-- into the DTD following the framework declarations. -->
<!ENTITY % xhtml-postfw-redecl.module "IGNORE" >
<![%xhtml-postfw-redecl.module;
%xhtml-postfw-redecl.mod;
<!-- end of xhtml-postfw-redecl.module -->]

<!-- Text Module (Required) ..................................... -->
<!ENTITY % xhtml-text.module "INCLUDE" >
<![%xhtml-text.module;
<!ENTITY % xhtml-text.mod
PUBLIC "-//W3C//ELEMENTS XHTML Text 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml-text-1.mod" >
%xhtml-text.mod;]]>

<!-- Hypertext Module (required) ................................. -->
<!ENTITY % xhtml-hypertext.module "INCLUDE" >
<![%xhtml-hypertext.module;
<!ENTITY % xhtml-hypertext.mod
PUBLIC "-//W3C//ELEMENTS XHTML Hypertext 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml-hypertext-1.mod" >
%xhtml-hypertext.mod;]]>

<!-- Lists Module (required) .................................... -->
<!ENTITY % xhtml-list.module "INCLUDE" >
<![%xhtml-list.module;
<!ENTITY % xhtml-list.mod
PUBLIC "-//W3C//ELEMENTS XHTML Lists 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml-list-1.mod" >
C.3. XHTML 1.1 Customizations

An XHTML Family Document Type (such as XHTML 1.1) must define the content model that it uses. This is done through a separate content model module that is instantiated by the XHTML Modular Framework. The content model module and the XHTML 1.1 Driver (above) work together to customize the module implementations to the document type’s specific requirements. The content model module for XHTML 1.1 is defined below:

<!-- end of XHTML 1.1 DTD ................................................. -->
<!-- ....................................................................... -->

C.3. XHTML 1.1 Customizations

This is XHTML 1.1, a reformulation of HTML as a modular XML application. Copyright 1998-2008 W3C (MIT, ERCIM, Keio), All Rights Reserved. Revision: $Id: xhtml11-model-1.mod,v 1.18 2009/06/24 17:24:55 ahby Exp $ SMI
This DTD module is identified by the PUBLIC and SYSTEM identifiers:

PUBLIC "-//W3C//ENTITIES XHTML 1.1 Document Model 1.0//EN"
SYSTEM "http://www.w3.org/MarkUp/DTD/xhtml11-model-1.mod"

Revisions:
none

<!-- XHTML 1.1 Document Model

This module describes the groupings of elements that make up
common content models for XHTML elements.

XHTML has three basic content models:

%Inline.mix;  character-level elements
%Block.mix;   block-like elements, eg., paragraphs and lists
%Flow.mix;    any block or inline elements

Any parameter entities declared in this module may be used
to create element content models, but the above three are
considered 'global' (insofar as that term applies here).

The reserved word '#PCDATA' (indicating a text string) is now
included explicitly with each element declaration that is
declared as mixed content, as XML requires that this token
occur first in a content model specification.

--> Extending the Model

While in some cases this module may need to be rewritten to
accommodate changes to the document model, minor extensions
may be accomplished by redeclaring any of the three *.extra;
parameter entities to contain extension element types as follows:

%Misc.extra;  whose parent may be any block or
            inline element.
%Inline.extra; whose parent may be any inline element.
%Block.extra;  whose parent may be any block element.

If used, these parameter entities must be an OR-separated
list beginning with an OR separator ("|"), eg., " | a | b | c"

All block and inline *.class parameter entities not part
of the *struct.class classes begin with "| " to allow for
exclusion from mixes.

--> Optional Elements in head

<!ENTITY % HeadOpts.mix
    "(%script.qname; | %style.qname; | %meta.qname;
        | %link.qname; | %object.qname; )*"
M.3. XHTML 1.1 Customizations

-- Miscellaneous Elements --

ins and del are used to denote editing changes

--

script and noscript are used to contain scripts
and alternative content

--

These elements are neither block nor inline, and can
essentially be used anywhere in the document body.

--

 Inline Elements --

% InlStruct.class "% br.qname; | % span.qname; " >

% InlPhras.class
"| % em.qname; | % strong.qname; | % dfn.qname; | % code.qname;
| % samp.qname; | % kbd.qname; | % var.qname; | % cite.qname;
| % abbr.qname; | % acronym.qname; | % q.qname; " >

% InlPres.class
"| % tt.qname; | % i.qname; | % b.qname; | % big.qname;
| % small.qname; | % sub.qname; | % sup.qname; " >

% I18n.class "| % bdo.qname; " >

% Anchor.class "| % a.qname; " >

% InlSpecial.class
"| % img.qname; | % map.qname;
| % object.qname; " >

% In1Form.class
"| % input.qname; | % select.qname; | % textarea.qname;
| % label.qname; | % button.qname; " >

% Inline.extra "" >

% Ruby.class "| % ruby.qname; " >

% Inline.class; includes all inline elements,
used as a component in mixes

-->
%Misc.class;"

<!-- ...................... Block Elements ...................... -->

<!-- In the HTML 4.0 DTD, heading and list elements were included
in the %block; parameter entity. The %Heading.class; and
%List.class; parameter entities must now be included explicitly
on element declarations where desired. -->

<!ENTITY % Heading.class
"%h1.qname; | %h2.qname; | %h3.qname;
| %h4.qname; | %h5.qname; | %h6.qname;" >

<!ENTITY % List.class "%ul.qname; | %ol.qname; | %dl.qname;" >

<!ENTITY % Table.class "| %table.qname;" >

<!ENTITY % Form.class "| %form.qname;" >

<!ENTITY % Fieldset.class "| %fieldset.qname;" >

<!ENTITY % BlkStruct.class "%p.qname; | %div.qname;" >

<!ENTITY % BlkPhras.class
"| %pre.qname; | %blockquote.qname; | %address.qname;" >

<!ENTITY % BlkPres.class "| %hr.qname;" >

<!ENTITY % BlkSpecial.class
"%Table.class;
%Form.class;
%Fieldset.class;"

<!ENTITY % Block.extra "" >

<!-- %Block.class; includes all block elements,
used as an component in mixes -->

<!ENTITY % Block.class
"%BlkStruct.class;
%BlkPhras.class;
%BlkPres.class;
%BlkSpecial.class;
%Block.extra;" >

<!-- %Block.mix; includes all block elements plus %Misc.class; -->

<!ENTITY % Block.mix
"%Heading.class;
| %List.class;
| %Block.class;
%Misc.class;" >
<!-- ................. All Content Elements ................. -->

<!-- %Flow.mix; includes all text content, block and inline -->
<!ENTITY % Flow.mix
 "%Heading.class;
 | %List.class;
 | %Block.class;
 | %Inline.class;
 %Misc.class;">

<!-- end of xhtml1l1-model-l.mod -->
D. XHTML 1.1 XML Schema Definition

This appendix is normative.

D.1. XHTML 1.1 Schema Driver

This section contains the driver for the XHTML 1.1 document type implementation as an XML Schema. It relies upon XHTML module implementations defined in [XHTMLMOD][p.13] and in [RUBY][p.13].

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
   xmlns:xs="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://www.w3.org/1999/xhtml"
   xmlns:xhtml="http://www.w3.org/1999/xhtml/datatypes/"
   xmlns="http://www.w3.org/1999/xhtml"
   elementFormDefault="qualified" >
   <xs:annotation>
     <xs:documentation>
     This is the XML Schema driver for XHTML 1.1.
     Please use this namespace for XHTML elements:

     "http://www.w3.org/1999/xhtml"
     
     $Id: xhtml11.xsd,v 1.7 2009/02/03 15:14:49 ahby Exp $
     </xs:documentation>
   </xs:annotation>
</xs:schema>
```

This is XHTML, a reformulation of HTML as a modular XML application
The Extensible HyperText Markup Language (XHTML)
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(Massachusetts Institute of Technology, European Research Consortium
for Informatics and Mathematics, Keio University).
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Permission to use, copy, modify and distribute the XHTML Schema
modules and their accompanying xs:documentation for any purpose
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copyright notice and this paragraph appear in all copies.
The copyright holders make no representation about the suitability of
these XML Schema modules for any purpose.

They are provided "as is" without expressed or implied warranty.

This schema
+ imports external schemas (xml.xsd)
XHTML 1.1 Document Type includes the following Modules

**XHTML Core modules** (Required for XHTML Family Conformance)
- text
- hypertext
- lists
- structure

**Other XHTML modules**
- Edit
- Bdo
- Presentational
- Link
- Meta
- Base
- Scripting
- Style
- Image
- Applet
- Object
- Param (Applet/Object modules require Param Module)
- Tables
- Forms
- Client side image maps
- Server side image maps
- Ruby

---

XHTML™ 1.1 - Module-based XHTML - Second Edition

D.1. XHTML 1.1 Schema Driver

XHTML™ 1.1 - Module-based XHTML - Second Edition

---

...
D.2. XHTML 1.1 Schema Modules

XHTML Family implementations using XML Schema are required to provide their own schema module that imports the required modules from XHTML Modularization.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified"
  xmlns:xh11d="http://www.w3.org/1999/xhtml/datatypes/"
  xmlns="http://www.w3.org/1999/xhtml"
  schemaLocation="http://www.w3.org/MarkUp/SCHEMA/xhtml-1.xsd" />
<xs:annotation>
  <xs:documentation>
  This schema includes all modules for XHTML1.1 Document Type.
  $Id: xhtml11-modules-1.xsd,v 1.10 2009/02/03 15:14:49 ahby Exp $
  </xs:documentation>
</xs:annotation>
<xs:include schemaLocation="http://www.w3.org/MarkUp/SCHEMA/xhtml-framework-1.xsd"/>
<xs:include schemaLocation="http://www.w3.org/MarkUp/SCHEMA/xhtml-text-1.xsd"/>
<xs:annotation>
  <xs:documentation>
  Text module
  The Text module includes declarations for all core text container elements and their attributes.
  + block phrasal
  + block structural
  + inline phrasal
  + inline structural
  Elements defined here:
  * address, blockquote, pre, h1, h2, h3, h4, h5, h6
  * div, p
  * abbr, acronym, cite, code, dfn, em, kbd, q, samp, strong, var
  </xs:documentation>
</xs:annotation>
```
Bidirectional element module

Elements defined here:
* bdo

Presentational module

Elements defined here:
* hr, b, big, i, small, sub, sup, tt

Link module

Elements defined here:
* link

Meta module

Elements defined here:
* meta

Base module

Elements defined here:
* base
Target Module - Area Attribute Additions

Server-side image maps module

Attributes defined here:
* ismap on img

Object module

Elements defined here:
* object

Param module

Elements defined here:
* param

Tables module

Elements defined here:
* table, caption, thead, tbody, tfoot, colgroup, col, tr, th, td

Forms module

Elements defined here:
* form, label, input, select, optgroup, option,
  * textarea, fieldset, legend, button

Changes to XHTML Form Attlist

Original Form Attributes (declared in Forms Module)

XHTML Events Module - Attribute additions
D.2. XHTML 1.1 Schema Modules  

**XML Target Module - Attribute additions**

Changes to XHTML Form Input Element

Redefinition by Client Side Image Map Module

Redefinition by Server Side Image Map Module

Redefinition by Event Attribute Module

**Original Input Attributes (in Forms Module)**

Redefinition by Client Side Image Map Module

Redefinition by Server Side Image Map Module

Redefinition by Event Attribute Module

**Original Label Attributes (in Forms Module)**

Redefinition by Event Attribute Module

**Original Select Attributes (in Forms Module)**

Redefinition by Event Attribute Module

**Original TextArea Attributes (in Forms Module)**

Redefinition by Event Attribute Module

**Original Button Attributes (in Forms Module)**

Redefinition by Event Attribute Module
D.3. XHTML 1.1 Customizations

An XHTML Family Document Type (such as XHTML 1.1) must define the content model that it uses. This is done through a separate content model module that is instantiated by the XHTML Modular Framework. The content model module and the XHTML 1.1 Driver (above) work together to customize the module implementations to the document type’s specific requirements. The content model module for XHTML 1.1 is defined below:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
 xmlns:xs="http://www.w3.org/2001/XMLSchema"
 xmlns:xh11d="http://www.w3.org/1999/xhtml/datatypes/"
 elementFormDefault="qualified">

<xs:import
 namespace="http://www.w3.org/1999/xhtml/datatypes/"
 schemaLocation="http://www.w3.org/MarkUp/SCHEMA/xhtml-datatypes-1.xsd"/>

<xs:annotation>
<xs:documentation>
This is the XML Schema module of common content models for XHTML1
</xs:documentation>
</xs:annotation>

<xs:documentation source="xhtml-copyright-1.xsd"/>
</xs:schema>
```
XHTML Document Model

This module describes the groupings of elements/attributes that make up common content models for XHTML elements. XHTML has following basic content models:

- xhtml.Inline.mix: character-level elements
- xhtml.Block.mix: block-like elements, e.g., paragraphs and lists
- xhtml.Flow.mix: any block or inline elements
- xhtml.HeadOpts.mix: Head Elements
- xhtml.InlinePre.mix: Special class for pre content model
- xhtml.InlineNoAnchor.mix: Content model for Anchor

Any groups declared in this module may be used to create element content models, but the above are considered ‘global’ (insofar as that term applies here). XHTML has the following Attribute Groups:

- xhtml.Core.extra.attrib
- xhtml.I18n.extra.attrib
- xhtml.Common.extra

The above attribute Groups are considered Global.
<xs:element name="del"
    type="xhtml.edit.type"/>
</xs:choice>
</xs:group>

<!--
script and noscript are used to contain scripts
and alternative content
-->  
<xs:group
    name="xhtml.Script.class">
<xs:choice>
    <xs:element
        name="script"
        type="xhtml.script.type"/>
    <xs:element
        name="noscript"
        type="xhtml.noscript.type"/>
</xs:choice>
</xs:group>

<xs:group
    name="xhtml.Misc.extra">
<xs:sequence/>
</xs:group>

<!--
These elements are neither block nor inline, and can
essentially be used anywhere in the document body.
-->  
<xs:group
    name="xhtml.Misc.class">
<xs:choice>
    <xs:group
        ref="xhtml.Edit.class"/>
    <xs:group
        ref="xhtml.Script.class"/>
    <xs:group
        ref="xhtml.Misc.extra"/>
</xs:choice>
</xs:group>

<!-- Inline Elements -->
<xs:group
    name="xhtml.InlStruct.class">
<xs:choice>
    <xs:element
        name="br"
        type="xhtml.br.type"/>
    <xs:element
        name="span"
        type="xhtml.span.type"/>
</xs:choice>
</xs:group>

<xs:group
    name="xhtml.InlPhras.class">
<xs:choice>
    <xs:element
        name="em"
        type="xhtml.em.type"/>
</xs:choice>
</xs:group>
<xs:element
  name="strong"
  type="xhtml.strong.type"/>
<xs:element
  name="dfn"
  type="xhtml.dfn.type"/>
<xs:element
  name="code"
  type="xhtml.code.type"/>
<xs:element
  name="samp"
  type="xhtml.samp.type"/>
<xs:element
  name="kbd"
  type="xhtml.kbd.type"/>
<xs:element
  name="var"
  type="xhtml.var.type"/>
<xs:element
  name="cite"
  type="xhtml.cite.type"/>
<xs:element
  name="abbr"
  type="xhtml.abbr.type"/>
<xs:element
  name="acronym"
  type="xhtml.acronym.type"/>
<xs:element
  name="q"
  type="xhtml.q.type"/>
</xs:choice>
</xs:group>
<xs:group
  name="xhtml.InlPres.class">
<xs:choice>
  <xs:element
    name="tt"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="i"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="b"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="big"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="small"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="sub"
    type="xhtml.InlPres.type"/>
  <xs:element
    name="sup"
    type="xhtml.InlPres.type"/>
</xs:choice>
</xs:group>
<xs:group
  name="xhtml.I18n.class">
  <xs:sequence>
    <xs:element
      name="bdo"
      type="xhtml.bdo.type"/>
  </xs:sequence>
</xs:group>
<xs:group
  name="xhtml.Anchor.class">
  <xs:sequence>
    <xs:element
      name="a"
      type="xhtml.a.type"/>
  </xs:sequence>
</xs:group>
<xs:group
  name="xhtml.InlSpecial.class">
  <xs:choice>
    <xs:element
      name="img"
      type="xhtml.img.type"/>
    <xs:element
      name="map"
      type="xhtml.map.type"/>
    <xs:element
      name="object"
      type="xhtml.object.type"/>
  </xs:choice>
</xs:group>
<xs:group
  name="xhtml.InlForm.class">
  <xs:choice>
    <xs:element
      name="input"
      type="xhtml.input.type"/>
    <xs:element
      name="select"
      type="xhtml.select.type"/>
    <xs:element
      name="textarea"
      type="xhtml.textarea.type"/>
    <xs:element
      name="label"
      type="xhtml.label.type"/>
    <xs:element
      name="button"
      type="xhtml.button.type"/>
  </xs:choice>
</xs:group>
<xs:group
  name="xhtml.Inline.extra">
  <xs:sequence/>
</xs:group>
<xs:group
  name="xhtml.Ruby.class"
Inline.class includes all inline elements, used as a component in mixes

InlNoRuby.class includes all inline elements except ruby
<xs:group>
<!--
InlinePre.mix
Used as a component in pre model
-->
<xs:group
    name="xhtml.InlinePre.mix">
<xs:choice>
    <xs:group
        ref="xhtml.InlStruct.class"/>
    <xs:group
        ref="xhtml.InlPhras.class"/>
    <xs:element
        name="tt"
        type="xhtml.InlPres.type"/>
    <xs:element
        name="i"
        type="xhtml.InlPres.type"/>
    <xs:element
        name="b"
        type="xhtml.InlPres.type"/>
    <xs:group
        ref="xhtml.I18n.class"/>
    <xs:group
        ref="xhtml.Anchor.class"/>
    <xs:group
        ref="xhtml.Misc.class"/>
    <xs:element
        name="map"
        type="xhtml.map.type"/>
    <xs:group
        ref="xhtml.Inline.extra"/>
</xs:choice>
</xs:group>
<!--
InlNoAnchor.class includes all non-anchor inlines,
used as a component in mixes
-->
<xs:group
    name="xhtml.InlNoAnchor.class">
<xs:choice>
    <xs:group
        ref="xhtml.InlStruct.class"/>
    <xs:group
        ref="xhtml.InlPhras.class"/>
    <xs:group
        ref="xhtml.InlPres.class"/>
    <xs:group
        ref="xhtml.I18n.class"/>
    <xs:group
        ref="xhtml.InlSpecial.class"/>
    <xs:group
        ref="xhtml.InlForm.class"/>
    <xs:group
        ref="xhtml.Ruby.class"/>
    <xs:group
        ref="xhtml.Inline.extra"/>
</xs:choice>
</xs:group>
<xs:choice>
</xs:group>
<!--
InlNoAnchor.mix includes all non-anchor inlines
--> 
<xs:group
    name="xhtml.InlNoAnchor.mix">
    <xs:choice>
        <xs:group
            ref="xhtml.InlNoAnchor.class"/>
        <xs:group
            ref="xhtml.Misc.class"/>
    </xs:choice>
</xs:group>
<!--
Inline.mix includes all inline elements, including Misc.class
--> 
<xs:group
    name="xhtml.Inline.mix">
    <xs:choice>
        <xs:group
            ref="xhtml.Inline.class"/>
        <xs:group
            ref="xhtml.Misc.class"/>
    </xs:choice>
</xs:group>
<!--
InlNoRuby.mix includes all of inline.mix elements except ruby
--> 
<xs:group
    name="xhtml.InlNoRuby.mix">
    <xs:choice>
        <xs:group
            ref="xhtml.InlNoRuby.class"/>
        <xs:group
            ref="xhtml.Misc.class"/>
    </xs:choice>
</xs:group>
<!--
In the HTML 4 DTD, heading and list elements were included in the block group. The Heading.class and List.class groups must now be included explicitly on element declarations where desired.
--> 
<xs:group
    name="xhtml.Heading.class">
    <xs:choice>
        <xs:element
            name="h1"
            type="xhtml.h1.type"/>
        <xs:element
            name="h2"
            type="xhtml.h2.type"/>
        <xs:element
            name="h3"
            type="xhtml.h3.type"/>
<xs:element
    name="h4"
    type="xhtml.h4.type"/>
<xs:element
    name="h5"
    type="xhtml.h5.type"/>
<xs:element
    name="h6"
    type="xhtml.h6.type"/>
</xs:choice>
</xs:group>
<xs:group
    name="xhtml.List.class">
    <xs:choice>
        <xs:element
            name="ul"
            type="xhtml.ul.type"/>
        <xs:element
            name="ol"
            type="xhtml.ol.type"/>
        <xs:element
            name="dl"
            type="xhtml.dl.type"/>
    </xs:choice>
</xs:group>
<xs:group
    name="xhtml.Table.class">
    <xs:choice>
        <xs:element
            name="table"
            type="xhtml.table.type"/>
    </xs:choice>
</xs:group>
<xs:group
    name="xhtml.Form.class">
    <xs:choice>
        <xs:element
            name="form"
            type="xhtml.form.type"/>
    </xs:choice>
</xs:group>
<xs:group
    name="xhtml.Fieldset.class">
    <xs:choice>
        <xs:element
            name="fieldset"
            type="xhtml.fieldset.type"/>
    </xs:choice>
</xs:group>
<xs:group
    name="xhtml.BlkStruct.class">
    <xs:choice>
        <xs:element
            name="p"
            type="xhtml.p.type"/>
        <xs:element
            name="div"
Block.mix includes all block elements plus %Misc.class;

All Content Elements
Flow.mix includes all text content, block and inline
Note that the "any" element included here allows us
to add data from any other namespace, a necessity
for compound document creation.
Note however that it is not possible to add
to any head level element without further
modification. To add RDF metadata to the head
of a document, modify the structure module.

BlkNoForm.mix includes all non-form block elements,
plus Misc.class

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D.4. XML Schema Ruby Implementation

The RUBY specification does not currently define an XHTML Module using XML Schema. One is defined here:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified"
  xmlns:xh11d="http://www.w3.org/1999/xhtml/datatypes/"
  xmlns:xhtml="http://www.w3.org/1999/xhtml"
  xmlns="http://www.w3.org/1999/xhtml"
  targetNamespace="http://www.w3.org/1999/xhtml"
  schemaLocation="xhtml-datatypes-1.xsd" />
<xs:annotation>
  <xs:documentation>
    This is the Ruby module for XHTML
    $Id: xhtml-ruby-1.xsd,v 1.3 2009/01/06 15:38:11 ahby Exp $
  </xs:documentation>
</xs:annotation>
<xs:annotation>
  <xs:documentation>
    "Ruby" are short runs of text alongside the base text, typically used in East Asian documents to indicate pronunciation or to provide a short annotation. The full specification for Ruby is here:
    http://www.w3.org/TR/2001/REC-ruby-20010531/
    This module defines "Ruby " or "complex Ruby" as described in the specification:
    http://www.w3.org/TR/2001/REC-ruby-20010531/#complex
  </xs:documentation>
</xs:annotation>
```

This module defines the elements and their attributes used to support complex ruby annotation markup. Elements defined here
This module expects the document model to define the following content models:

+ InlNoRuby.mix

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
<xs:element name="rt" type="xhtml.rt.type"/>
<xs:element name="rp" type="xhtml.rp.type"/>
</xs:choice>
</xs:group>
</xs:complexType>

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
<xs:element name="rt" type="xhtml.rt.type"/>
<xs:element name="rp" type="xhtml.rp.type"/>
</xs:choice>
</xs:group>
</xs:complexType>

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
<xs:element name="rt" type="xhtml.rt.type"/>
<xs:element name="rp" type="xhtml.rp.type"/>
</xs:choice>
</xs:group>
</xs:complexType>

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
<xs:element name="rt" type="xhtml.rt.type"/>
<xs:element name="rp" type="xhtml.rp.type"/>
</xs:choice>
</xs:group>
</xs:complexType>

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
<xs:element name="rt" type="xhtml.rt.type"/>
<xs:element name="rp" type="xhtml.rp.type"/>
</xs:choice>
</xs:group>
</xs:complexType>

<!DOCTYPE html PUBLIC "+//DTD XHTML+RUBY 1.0//EN" "/www.w3.org/2001/DTD/xhtml-ruby.dtd">

This module expects the document model to define the following content models:

+ InlNoRuby.mix

<xs:element name="ruby" type="xhtml.ruby.type"/>
<xs:element name="rbc" type="xhtml.rbc.type" maxOccurs="2"/>
<xs:element name="rtc" type="xhtml.rtc.type" maxOccurs="2"/>
<xs:element name="rb" type="xhtml.rb.type"/>
</xs:group>

<xs:complexType name="xhtml.rt.type" mixed="true">
  <xs:group ref="xhtml.rt.content"/>
  <xs:attributeGroup ref="xhtml.rt.attlist"/>
</xs:complexType>

<!-- rp (ruby parenthesis) element -->
<xs:attributeGroup name="xhtml.rp.attlist">
  <xs:attributeGroup ref="xhtml.ruby.common.attrib"/>
</xs:attributeGroup>

<xs:group name="xhtml.rp.content">
  <xs:sequence/>
</xs:group>

<xs:complexType name="xhtml.rp.type" mixed="true">
  <xs:group ref="xhtml.rp.content"/>
  <xs:attributeGroup ref="xhtml.rp.attlist"/>
</xs:complexType>

</xs:schema>
E. Acknowledgements

This appendix is *informative*.

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- Daniel Austin, Mozquito Technologies
- Jonny Axelsson, Opera Software
- Mark Baker, Sun Microsystems
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- Doug Dominiak, Openwave Systems
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- Roland Merrick, IBM (XHTML 2 Working Group Co-Chair)
- Steven Pemberton, CWI (XHTML 2 Working Group Co-Chair)
- Mark Birbeck, webBackplane (Invited Expert)
- Susan Borgrink, Progeny Systems
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- Alessio Cartocci, International Webmasters Association / HTML Writers Guild (IWA-HWG)
- Alexander Graf, University of Innsbruck
- Markus Gylling, [DAISY Consortium](#)
- Tina Holmboe, Greytower Technologies (Invited Expert)
- John Kugelman, Progeny Systems
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