XHTML-Print

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Please refer to the **errata** for this document, which may include some normative corrections.

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See also **translations**.

Abstract

XHTML-Print is member of the family of XHTML languages defined by the *Modularization of XHTML* [XHTMLMOD [p.43]]. It is designed to be appropriate for printing from mobile devices to low-cost printers that might not have a full-page buffer and that generally print from top-to-bottom and left-to-right with the paper in a portrait orientation. XHTML-Print is also targeted at printing in environments where it is not feasible or desirable to install a printer-specific driver and where some variability in the formatting of the output is acceptable.

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/.*

All sections of this document are normative unless noted as informative.

This document contains the XHTML™-Print W3C Recommendation of 20 September 2006, which has incorporated the disposition of Proposed Recommendation feedback .

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 incorporates minor suggestions made during the XHTML-Print Proposed Recommendation of 31 January 2006 and also removes any requirement for CSS support; please see the public disposition of comments for details. Evidence of interoperability between two implementations of this specification is documented in the Implementation Report.

This document has been produced by the W3C HTML Working Group (*Members only*) as part of the W3C HTML Activity. The goals of the HTML Working Group are discussed in the HTML Working Group charter.

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1. Introduction

All sections of this document are normative unless noted as informative.

1.1. XHTML for Printing

This section is informative.

This document specifies a simple XHTML based data stream suitable for printing as well as display. It is based on *XHTML Basic* [XHTMLBASIC [p.45]]. Its targeted usage is for printing in environments where it is not feasible or desirable to install a printer-specific driver and where some variability in the formatting of the output is acceptable. Throughout this document this data stream is called "XHTML-Print."

XHTML-Print is designed to be appropriate for low-cost printers that might not have a full-page buffer and that generally print from top-to-bottom and left-to-right with the paper in a portrait orientation. For other printers (i.e., those that print in another direction or orientation) a full-page buffer could be needed.

XHTML-Print is not appropriate when strict layout consistency and repeatability across printers are needed. The design objective of XHTML-Print is to provide a relatively simple, broadly supportable page description format where content preservation and reproduction are the goal, i.e. "Content is King." Traditional printer page description formats such as PostScript or PCL are more suitable when strict layout control is needed. XHTML-Print does not utilize bi-directional communications with the printer either for capabilities or status inquiries.

This document creates a set of conformance criteria for XHTML-Print. It provides a strong basis for consistent printing results without a detailed understanding of each individual printer's characteristics.

The document type definition for XHTML-Print is implemented based on the XHTML modules defined in *Modularization of XHTML* [XHTMLMOD [p.43]].

1.2. Terminology

The keywords "*MUST*", "*SHALL*", "*MUST NOT*", "*SHALL NOT*", "*REQUIRED*", "*SHOULD*", "*SHOULD NOT*", "*RECOMMENDED*", "*MAY*", and "*OPTIONAL*" when used in this document are to be interpreted as described in *RFC 2119* [RFC2119 [p.43]]. However, for readability, these words might not appear in all uppercase letters in this specification.

1.3. Design Rationale

This section explains why certain HTML features are not part of XHTML-Print and any special circumstances concerning a module and printing.

1.3.1. Script and Events

Scripts, as programs that are executed in conjunction with a document, are not relevant to the printed page. However, documents can provide information as an alternative to a script. Therefore, the script module is part of XHTML-Print. Scripts *MUST NOT* be executed and their results *MUST NOT* be printed. If a `noscript` element is present, it contains alternate content that *MUST* be printed in place of the content of the `script` element.

Events are not applicable to static, printed versions of a document. Therefore, the Intrinsic Events module is not part of XHTML-Print.

1.3.2. Presentation

Many simple printers cannot print a wider variety of fonts than generic serif, sans serif and monospace. It is *RECOMMENDED* that style sheets be used to create a presentation that is appropriate for a particular category of printer. How printers are categorized, what those categories are, how a printer identifies itself as a member of a category, and how style sheets are selectively applied based on category, is outside the scope of this document.

The Presentation module ([XHTMLMOD [p.43]], section 5.4.1) is supported to provide simple control over basic font variants and rules.

1.3.3. Forms

Basic XHTML forms ([XHTMLMOD [p.43]], section 5.5.1) are supported. Content developers *SHOULD* keep in mind that users might not be able to input many characters from some devices (e.g. from a mobile phone). Furthermore, developers are cautioned that a printer prints a static version of a form, and the visual appearance of a form depends heavily on the implementation.

1.3.4. Tables

Basic XHTML tables ([XHTMLMOD [p.43]], section 5.6.1) are supported, but tables can be difficult to format on very low resource devices. Furthermore, content developers are cautioned that in the Basic Tables Module, nesting of tables is prohibited.

1.3.5. Frames

Frames are not supported. Frames depend on a screen interface and therefore are not applicable to printers.

1.3.6. Attributes

XHTML-Print is a member of the family of XHTML languages defined by *Modularization of XHTML* [XHTMLMOD [p.43]]. Therefore, the elements and attributes in the modules that make up XHTML-Print are all valid constructs of the language. However, not all the attributes are applicable to a rendering of an XHTML-Print document in printed media, especially those that are integral to a dynamic display of the document in a browser and the submission of a form. Furthermore, special attention is given to simple printers and some attributes are deemed too complex for a such a printer to render. These attributes are treated as discretionary in that a conforming printer is not *REQUIRED* to support them, but if a printer wishes to provide that support, there are requirements stated for consistency in the implementation of extensions.

1.3.7 Character Model

The W3C architectural specification *Character Model for the World Wide Web 1.0* [CHARMOD [p.43]] gives the *RECOMMENDED* representation of characters in XHTML-Print. Authors of XHTML-Print producing applications should be aware that low cost printers might be limited in both processing power and memory and therefore, that normalized utf-8 encoded documents could print more quickly than documents in other forms and encodings.

2. Conformance

2.1. Document Conformance

A conforming XHTML-Print document is a document that requires only the facilities described as mandatory in this specification. Such a document *SHALL* meet all of the following criteria:

1. The document *SHALL* conform to the constraints expressed in the DTD found in Appendix C [p.35] and conform to the constraints expressed in Design Rationale [p.5] .
2. The root element of the document *MUST* be `html`.
3. The name of the default namespace on the root element *SHALL* be the XHTML namespace name, `http://www.w3.org/1999/xhtml`.
4. There *SHALL* be a DOCTYPE declaration in the document prior to the root element. If present, the public identifier included in the DOCTYPE declaration *SHALL* reference the DTD found in Appendix C [p.35] of this specification, using its Formal Public Identifier. The system identifier *MAY* be modified appropriately.
   <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML-Print 1.0//EN"
   "http://www.w3.org/MarkUp/DTD/xhtml-print10.dtd">
5. The DTD subset *MUST NOT* be used to override any parameter entities in the DTD.

The MIME type used to refer to a conforming XHTML-Print document *SHALL* be "application/xhtml+xml" with an *OPTIONAL* "profile" parameter of 'http://www.w3.org/Markup/Profile/Print'. An *OPTIONAL* "charset" parameter *MAY* be provided with the MIME type. Invalid values *MUST* be ignored and the result be as if the value were "utf-8". Usage of the *OPTIONAL* "charset" parameter is as described in Section 3.2 of *RFC3023 - XML Media Types* [RFC3023 [p.44]]. Usage of the *OPTIONAL* "profile" parameter is as described in Section 8 of *RFC3236 - The 'application/xhtml+xml' Media Type* RFC3236 [p.44]].

2.2. Client Conformance

1. Clients *SHALL* produce a well-formed XHTML-Print document as defined in XHTML 1.0 [XHTML1 [p.43]] and in Document Conformance [p.9] .
2. Beyond number 1 above, clients are not *REQUIRED* to use more of the XHTML-Print elements or style sheet attributes than necessary to get the desired output.

2.3 Printer Conformance

2.3.1 Formatting/Rendering Rules

A printer user agent *MUST* conform to the XHTML Family User Agent Conformance section of the *Modularization of XHTML* specification ([XHTMLMOD [p.43]], section 3.5) with the following exceptions and additions:

1. Images:
   - If a printer encounters an image in a format it does not support, it *SHALL* render any alternate content provided, and *SHOULD* reserve the space specified by the `height` and `width` attributes and *MAY* optionally draw a box around this space of the size specified for the image.
   - If the image format is not supported and no alternate content is provided, the image is omitted and space *SHOULD NOT* be reserved.
   - If the image format is supported and the `height` and `width` attributes are not provided, the printer *MUST* attempt to print the image at its intrinsic size. If the image data contain no size information, this specification does not define the size at which the image will be rendered.
   - A printer *MUST* support images referenced by a URI [RFC3986] [p.44] utilizing an http [RFC2616] [p.44] scheme. Support for other schemes is *OPTIONAL*.
2. Printers that do not support the `xml:lang` attribute are not *REQUIRED* to adhere to the rules for language specific white space handling.

2.3.2 XHTML Requirements

1. A conforming printer *SHALL* support all XHTML Modules listed in The XHTML-Print Document Type [p.11] .
2. A conforming printer *SHALL* print a static version of a form using default and selected values as specified in the form.
3. A conforming printer *SHALL* identify this datastream by the exact string: "XHTML-Print" (without the quotation marks) in all service discovery records and protocols, device identification records and protocols, and in other cases where a list of supported datastreams is to be presented by the printer. Where such datastreams are identified by a MIME media type, the identifier "application/xhtml+xml" *SHALL* be used in combination with a "profile" parameter of "http://www.w3.org/Markup/Profile/Print"; *e.g.,* application/xhtml+xml; profile="http://www.w3.org/Markup/Profile/Print"

3. The XHTML-Print Document Type

The XHTML-Print document type is defined as a set of XHTML modules. All XHTML modules are defined in the *Modularization of XHTML* specification [XHTMLMOD [p.43]].

XHTML-Print consists of the following XHTML modules:

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`
Text Extension Module - Presentation**
  `b, big, hr, i, small, sub, sup, tt`
Basic Forms Module
  `form, input, label, select, option, textarea`
Basic Tables Module
  `caption, table, td, th, tr`
Image Module
  `img`
Object Module
  `object, param`
Metainformation Module
  `meta`
Scripting Module**
  `noscript, script`
Style Sheet Module**
  `style`
Style Attribute Module**
  `style` attribute
Link Module
  `link`
Base Module
  `base`

(*) = This module is a REQUIRED *XHTML Host Language module.*
(**) = These modules are not a part of XHTML Basic but are REQUIRED *for XHTML-Print.*

An XML 1.0 DTD is available in Appendix C. [p.35]

3.1 Attributes and Attribute Collections

Some of the attributes defined in the *Modularization of XHTML* [XHTMLMOD [p.43]] are not applicable to the printed page or are not relevant due to the exclusion of their module from XHTML-Print. Other attributes are not *REQUIRED* but if supported by a printer, support *SHOULD* be provided in the *RECOMMENDED* manner.

Each attribute in the following sections is annotated with one of the following keywords indicating support options for a conforming printer:

Key	Description
MUST	Support is mandatory; a conforming printer *MUST* implement this attribute. (However, the inability of a printer to implement part of this specification due to the limitations of a particular device does not imply non-conformance. *E.g.,* the fact that a monochrome printer user agent cannot render colors does not preclude its conformance to this specification.)
SHOULD	Support for the attribute is *RECOMMENDED,* but not *REQUIRED*.
MAY	The attribute's functionality is entirely *OPTIONAL*.
N/A	The attribute does Not Apply to the printed page; a conforming printer *MAY* ignore this attribute for one of the following reasons, but *MUST NOT* treat it as an error: • The attribute applies to a user interface which is not represented on a printed page. For example, the `accesskey` attribute is irrelevant. • The attribute applies to form submission which is not performed by the printer, the `method` attribute of the form element for example. • The attribute, such as `title`, describes data which is not represented on a printed page • The attribute applies to objects other than JPEG images, such as Java applets. • The attribute does not apply since links specified by the anchor element are not followed.

The *Modularization of XHTML* ([XHTMLMOD [p.43]], section 5.1) contains a set of attribute collections for ease of presentation. This specification continues this practice with the same conditions, that is, that the collections below are informative and their contents normative.

Collection Name	Attributes in Collection	*REQUIRED* Processing
Core	class (NMTOKENS† [p.13])	*MUST* [p.12]
Core	id (ID† [p.13])	*MUST* [p.12]
Core	title (CDATA† [p.13])	N/A [p.12]
I18N	xml:lang (NMTOKEN† [p.13])	*MAY* [p.12]
Style	style (CDATA† [p.13])	*MUST* [p.12]
Common	Core [p.13] + I18N [p.13] + Style [p.13]	See Collections

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

Note that the `title` attribute of the Core collection is not applicable to the printed page since there is no place to display such supplementary information.

A printer *MAY* support special processing based on the natural language of the document, such as the use of guillemets for quotation marks in French text. If a printer implements processing based on the natural language of the document, that processing *SHALL* be controlled by the `xml:lang` attribute.

A printer *SHOULD* support CSS style sheets, as noted in section 1.3.2 Presentation [p.6] , within the limits of its capabilities.

3.2 Structure Module

Elements	Attributes	*REQUIRED* Processing
body	Common [p.13]	See Collection
head	I18N [p.13] ,	See Collection
head	profile (URI† [p.14])	*MAY* [p.12]
html	I18N [p.13] ,	See Collection
html	version (CDATA† [p.14]),	N/A [p.12]
html	xmlns (URI† [p.14] = "http://www.w3.org/1999/xhtml")	*MUST* [p.12]
title	I18N [p.13]	See Collection

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

If a printer implements support for meta data then it *MUST* support the `profile` attribute of the `head` element.

The `version` attribute is not applicable for printing since it was deprecated in the *HTML 4.01 Specification* [HTML4 [p.43]] in favor of version information within the DTD.

A printer *MAY* ignore the content of the `title` element since it is not part of the document's body.

3.3 Text Module

Elements	Attributes	***REQUIRED*** **Processing**
abbr, acronym, address	Common [p.13]	See Collection
blockquote	Common [p.13] ,	See Collection
blockquote	cite (URI† [p.14])	N/A [p.12]
br	Core [p.13]	See Collection
cite, code, dfn, div, em, h1, h2, h3, h4, h5, h6, kbd, p	Common [p.13]	See Collection
pre	Common [p.13] ,	See Collection
pre	xml:space="preserve"	*MUST* [p.12]
q	Common [p.13] ,	See Collection
q	cite (URI† [p.14])	N/A [p.12]
samp, span, strong, var	Common [p.13]	See Collection

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

3.4 Hypertext Module

Element	Attributes	*REQUIRED* Processing
a	Common [p.13] ,	See Collection
a	accesskey (Character† [p.15]),	N/A [p.12]
a	charset (Charset† [p.15]),	N/A [p.12]
a	href (URI† [p.15]),	N/A [p.12]
a	hreflang (LanguageCode† [p.15]),	N/A [p.12]
a	rel (LinkTypes† [p.15]),	N/A [p.12]
a	rev (LinkTypes† [p.15]),	N/A [p.12]
a	tabindex (Number† [p.15]),	N/A [p.12]
a	type (ContentType† [p.15])	N/A [p.12]

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

3.5 List Module

Elements	Attributes	*REQUIRED* Processing
dl, dt, dd, ol, ul, li	Common [p.13]	See Collection

3.6 Presentation Module

Elements	Attributes	*REQUIRED* Processing
b, big, hr, i, small, sub, sup, tt	Common [p.13]	See Collection

3.7 Basic Forms Module

Elements	Attributes	*REQUIRED* Processing
form	Common [p.13] ,	See Collection
form	action* [p.17] (URI† [p.17]),	N/A [p.12]
form	method ("get"** [p.17] | "post"),	N/A [p.12]
form	enctype (ContentType† [p.17])	N/A [p.12]

Elements	Attributes	*REQUIRED* Processing
input	Common [p.13] ,	See Collection
input	accesskey (Character† [p.17]),	N/A [p.12]
input	checked ("checked"),	*MUST* [p.12]
input	maxlength (Number† [p.17]),	N/A [p.12]
input	name (CDATA† [p.17]),	N/A [p.12]
input	size (Number† [p.17]),	*MUST* [p.12]
input	src (URI† [p.17]),	N/A [p.12]
input	tabindex (Number† [p.17]),	N/A [p.12]
input	type("text"** [p.17])	*MUST* [p.12]
input	type("password")	*MUST* [p.12]
input	type("checkbox")	*MUST* [p.12]
input	type("radio")	*MUST* [p.12]
input	type("submit")	*MUST* [p.12]
input	type("reset")	*MUST* [p.12]
input	type("hidden")	*MUST* [p.12]
input	value (CDATA† [p.17])	*MUST* [p.12]
label	Common [p.13] ,	See Collection
label	accesskey (Character† [p.17]),	N/A [p.12]
label	for (IDREF† [p.17])	N/A [p.12]
select	Common [p.13] ,	See Collection
select	multiple ("multiple"),	N/A [p.12]
select	name (CDATA† [p.17]),	N/A [p.12]
select	size (Number† [p.17]),	*MUST* [p.12]
select	tabindex (Number† [p.17])	N/A [p.12]
option	Common [p.13] ,	See Collection
option	selected ("selected"),	*MUST* [p.12]
option	value (CDATA† [p.17])	N/A [p.12]

Elements	Attributes	*REQUIRED* Processing
textarea	Common [p.13] ,	See Collection
textarea	accesskey (Character† [p.17]),	N/A [p.12]
textarea	cols* [p.17] (Number† [p.17]),	*MUST* [p.12]
textarea	name (CDATA† [p.17]),	N/A [p.12]
textarea	rows* [p.17] (Number† [p.17]),	*MUST* [p.12]
textarea	tabindex (Number† [p.17])	N/A [p.12]

Table Notes:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

* The attribute *MUST* be present.

** The value is the default.

The `src` attribute of the `input` element is not supported since the `image` type is not part of basic forms.

The `hidden` type for the `input` element *MUST* be supported even though nothing is printed, so that a printer can correctly recognize and ignore the element.

3.8 Basic Tables Module

Elements	Attributes	***REQUIRED*** **Processing**
caption	Common [p.13]	See Collection
table	Common, [p.13]	See Collection
table	summary (Text† [p.18])	N/A [p.12]
td, th	Common [p.13] ,	See Collection
td, th	abbr (Text† [p.18]),	*MAY* [p.12]
td, th	align ("left" | "center" | "right"),	*MUST* [p.12]
td, th	axis (CDATA† [p.18]),	N/A [p.12]
td, th	colspan (Number† [p.18]),	*MUST* [p.12]
td, th	headers (IDREFS† [p.18]),	N/A [p.12]
td, th	rowspan (Number† [p.18]),	*MUST* [p.12]
td, th	scope ("row" | "col"),	N/A [p.12]
td, th	valign ("top" | "middle" | "bottom")	*MUST* [p.12]
tr	Common [p.13] ,	See Collection
tr	align ("left" | "center" | "right"),	*MUST* [p.12]
tr	valign ("top" | "middle" | "bottom")	*MUST* [p.12]

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

If a printer implements a feature to truncate the contents of a cell because of space constraints, it *MUST* support the `abbr` attribute and print the value of the `abbr` attribute (if present) instead of the cell's content.

A printer *MUST* support the values `left`, `right`, and `center` for the `align` attribute of the `td`, `th`, and `tr` elements; other values are *OPTIONAL*. If the `align` attribute is missing or has an unsupported value, a printer *MUST* act as if the `align` attribute has the value `left` for the `td` and `tr` elements, and as if the `align` attribute has the value `center` for the `th` element.

A printer *MUST* support the values `top`, `middle`, and `bottom` for the `valign` attribute of the `td`, `th`, and `tr` elements, other values are *OPTIONAL*. If the `valign` attribute is missing or has unrecognized value, a printer *SHOULD* act as if the `valign` attribute has the value `middle`. Vertical alignment is undefined across page boundaries.

3.9 Image Module

Elements	Attributes	***REQUIRED* Processing**
img	Common [p.13] ,	See Collection
img	alt* [p.19] (Text† [p.19]),	*MUST* [p.12]
img	height (Length† [p.19]),	*MUST* [p.12]
img	longdesc (URI† [p.19]),	N/A [p.12]
img	src* [p.19] (URI† [p.19]),	*MUST* [p.12]
img	width (Length† [p.19])	*MUST* [p.12]

Table Notes:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

* The attribute *MUST* be present.

Printers *MUST* support the http [RFC2616] [p.44] URI scheme [RFC3986] [p.44] . Support for other schemes is *OPTIONAL*. Printers *MUST* support the JPEG image format as defined in Appendix A [p.33] .

Conforming documents *SHOULD* specify the width and height of the image using the `width` and `height` attributes or equivalent styling instructions. (See 2.3.1 Formatting/Rendering Rules [p.9]).

3.10 Object Module

Elements	Attributes	***REQUIRED*** **Processing**
object	Common [p.13] ,	See Collections
object	archive (URIs† [p.20]),	N/A [p.12]
object	classid (URI† [p.20]),	N/A [p.12]
object	codebase (URI† [p.20]),	*MUST* [p.12]
object	codetype (ContentType† [p.20]),	N/A [p.12]
object	data (URI† [p.20]),	*MUST* [p.12]
object	declare ("declare"),	*MAY* [p.12]
object	height (Length† [p.20]),	*MUST* [p.12]
object	name (CDATA† [p.20]),	N/A [p.12]
object	standby (Text† [p.20]),	N/A [p.12]
object	tabindex (Number† [p.20]),	N/A [p.12]
object	type ("image/jpeg"),	*MUST* [p.12]
object	width (Length† [p.20])	*MUST* [p.12]
param	id (ID† [p.20]),	N/A [p.12]
param	name* [p.20] (CDATA† [p.20]),	N/A [p.12]
param	type (ContentType† [p.20]),	N/A [p.12]
param	value (CDATA† [p.20]),	N/A [p.12]
param	valuetype ("data"** [p.20] | "ref" | "object")	N/A [p.12]

Table Notes:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

* The attribute *MUST* be present.

** The value is the default.

Printers *MUST* support the http [RFC2616] [p.44] URI scheme [RFC3986] [p.44] . Support for other schemes is *OPTIONAL*.

A printer *MUST* support resources of type "image/jpeg." A printer *MAY* support other types of image formats and therefore other values of the `type` attribute. A printer *MUST* process the content of the `object` element when it does not recognize or support the object type referenced by the value of the `type` attribute.

Conforming documents *SHOULD* specify the width and height of the image using the `width` and `height` attributes or equivalent styling instructions. (See 2.3.1 Formatting/Rendering Rules [p.9]).

The `param` element's purpose is to pass data to an application specified in the enclosing `object` element. The `param` element *MAY* be completely ignored.

3.11 Metainformation Module

Elements	Attributes	***REQUIRED* Processing**
meta	I18N [p.13] ,	See Collection
meta	content* [p.21] (CDATA† [p.21]),	N/A [p.12]
meta	http-equiv (NMTOKEN† [p.21]),	N/A [p.12]
meta	name (NMTOKEN† [p.21]),	N/A [p.12]
meta	scheme (CDATA† [p.21])	N/A [p.12]

Table Notes:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

* The attribute *MUST* be present.

A printer *MAY* implement support for this element and provide implementation specific processing of the meta-information. However, guidelines and/or recommendations for processing a document's meta-information are beyond the scope of this document.

3.12 Scripting Module

Elements	Attributes	***REQUIRED* Processing**
noscript	Common [p.13] ,	See Collections
script	charset (Charset),	N/A [p.12]
script	defer ("defer"),	N/A [p.12]
script	src(URI),	N/A [p.12]
script	type (ContentType),	N/A [p.12]
script	scheme (CDATA)	N/A [p.12]

Scripts, as programs that are executed in conjunction with a document, are not relevant to the printed page and *MUST NOT* be executed or printed. The `noscript` element contains alternate content that *MUST* be printed in place of the content of the `script` element when present.

3.13 Style Sheet Module

Elements	Attributes	***REQUIRED*** **Processing**
style	I18N [p.13] ,	See Collection
style	media (MediaDesc† [p.22]),	*SHOULD* [p.12]
style	title (Text† [p.22]),	N/A [p.12]
style	type* [p.22] ,	*MUST* [p.12]
style	xml:space="preserve"	*SHOULD* [p.12]

Table Notes:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

* The attribute *MUST* be present.

A printer *MUST* read and process the content of `style` elements where the `media` attribute has the value `print` or `all`. A printer *MAY* read and process the content of `style` elements where the `media` attribute has the value `projection`. A printer *SHOULD* ignore the content of `style` elements where the `media` attribute has any other value. The absence of the `media` attribute *MUST* be treated as if the `media` attribute had the value `all`.

A printer *SHOULD* read and process the content of `style` elements where the value of the `type` attribute is "text/css"; a printer *MAY* read and process the content of `style` elements where the value of the `type` attribute is other than "text/css"; all unsupported values for `type` *MUST* cause the content to be ignored. Style elements without a `type` attribute will be treated in an implementation-dependent manner.

3.14 Style Sheet Attribute Module

This module adds the style attribute to the Common [p.13] attribute collection (section 3.1).

3.15 Link Module

Elements	Attributes	***REQUIRED* Processing**
link	Common [p.13] ,	See Collection
link	charset (Charset† [p.23]),	*MUST* [p.12]
link	href (URI† [p.23]),	*MUST* [p.12]
link	hreflang (LanguageCode† [p.23]),	*MAY* [p.12]
link	media (MediaDesc† [p.23]),	*MUST* [p.12]
link	rel ("stylesheet"),	*MUST* [p.12]
link	rev (LinkTypes† [p.23]),	N/A [p.12]
link	type	*MUST* [p.12]

Table Note:

† See *Modularization of XHTML* ([XHTMLMOD [p.43]], section 4.3)

Printers *MUST* support the http [RFC2616] [p.44] URI scheme [RFC3986] [p.44] . Support for other schemes is *OPTIONAL*.

If the printer implements processing based on the natural language of the document, then the `hreflang` attribute *MUST* be supported.

A printer *SHOULD* read and process the content of external style sheets where the `media` attribute has the value `print` or `all`. A printer *MAY* read and process the content of external style sheets where the `media` attribute has the value `projection`. A printer *SHOULD* ignore the content of external style sheets where the `media` attribute has any other value. The absence of the `media` attribute *MUST* be treated as if the `media` attribute had the value `all`.

A printer *SHOULD* support the value `stylesheet` for the `rel` attribute along with the value "text/css" for the `type` attribute; all other values are *OPTIONAL*.

3.16 Base Module

Elements	Attributes	***REQUIRED* Processing**
base	href* [p.24] (URI† [p.23])	*MUST* [p.12]

Table Notes:

† See *Modularization of XHTML*([XHTMLMOD [p.43]], section 4. 3

* The attribute *MUST* be present.

Printers *MUST* support the http [RFC2616] [p.44] URI scheme [RFC3986] [p.44] . Support for other schemes is *OPTIONAL*.

3.17 Character Entities

XHTML-Print is in the family of XHTML document types, since it is created by combining XHTML modules. The character entities that are part of XHTML-Print are, therefore, defined in XHTML Character Entities ([XHTMLMOD [p.43]], Section F.1).

4. How to Use XHTML-Print

XHTML-Print inherits all the structure, encoding and other basic infrastructure specified by *XHTML 1.0* [XHTML1 [p.43]]. The following sections describe and clarify the application and usage restrictions of XHTML-Print.

4.1 Images

This document specifies only one mandatory image format: baseline JPEG as defined in *JPEG File Interchange Format* [JPEG [p.43]]. See Appendix A [p.33] for a description of JPEG decoder requirements. Printers are not *REQUIRED* to support:

- Embedded thumbnails
- Rotation
- Progressive rendering

within the JFIF (JPEG File Interchange Format) and EXIF (Exchangeable Image File Format) files.

4.1.1 Recommended Attributes on the `img` and `object` Elements

Because many printers create the page in a serial manner from top to bottom, it is important for the printer to know the size of images before retrieving the image data itself. This information is then used to create portions of the page layout.

Therefore, the document *SHOULD* include the `height` and `width` attributes within the `img` or the `object` element (or equivalent styling instructions). These attributes *MAY* be expressed as pixels or percentages within the `img` or the `object` element. Percentages are relative to the parent element and not the page width or printable area.

4.1.2 Image Data

[Informative]

In traditional Web-based applications of XHTML, image data is contained in a separate file on a Web server that the user agent retrieves.

However, there are circumstances where it is desirable to include the image data along with the rest of the print data. For example, some low cost, resource constrained clients might want to include images in their print output but cannot afford to include an HTTP server. Furthermore, circumstances could require that all the print data be encapsulated in a single file for transportability, avoiding firewall issues, etc. Therefore, conforming XHTML-Print printers *MAY* optionally support a format that contains both a document and its referenced image data as well as the *REQUIRED* traditional format that contains only the document.

The format recommended for including image data along with xhtml-print markup is defined by *RFC3391 - The MIME Application/Vnd.pwg-multiplexed Content-type*. [MIMEMPX [p.44]].

Including image data as defined in *RFC2397 - The data URL scheme* [RFC2397 [p.44]] may be appropriate for printers capable of buffering large amounts of data, but will not achieve the intended results for most cost- and memory-constrained printer UA's. Because this method normally encodes the binary image data using base64 encoding, a significant increase in the size of the data transmitted will be experienced. This should be avoided over low speed connections. Printers supporting included data can support base64 encoding using the `img` or `object` element.

```
<object height="20 mm" width="20 mm" type="image/jpeg"
  data="data:image/jpeg;base64,aGh67Fghsapa0Hji7dfGSweTa . . .">
  Example Image </object>
or
<img height="20 mm" width="20 mm" alt="Example Image"
  src="data:image/jpeg;base64,aGh67Fghsapa0Hji7dfGSweTa . . . " />
```

Mechanisms for determining whether or not a printer supports either of the above *OPTIONAL* document formats is outside the scope of this specification.

4.1.3 Side-by-Side Images

Low-cost printers today often have very little memory into which page data can be stored before being printed. As such, they may build and print the page in swaths on the fly from the top of the page to the bottom. To enable the use of XHTML-Print in these low cost printers, some restrictions on the order of images contained in the XHTML-Print data stream must be added.

1. If two or more images will be even partially side-by-side on the printed page (*i.e.,* a line across the short axis of the page will intersect more than one image), they *SHOULD* be included by reference; for example <img src="http://example.com/example.jpg">. This allows the printer to get chunks of the image, as it needs it, as it prints down the page. Interleaved or included image data, as discussed in Section 4.1.2 [p.25] , is discouraged.
2. An XHTML-Print conforming printer lacking sufficient buffer space to hold multiple side-by-side images *MAY* choose to reformat the layout of the page to preserve content. Printers *SHALL* attempt to preserve content when encountering side-by-side images that *MAY* be impossible to print as specified within the XHTML-Print. Discarding the second and subsequent of the side-by-side images *SHOULD* be avoided unless preservation of content is best achieved by doing so. Other than attempting to best preserve content, this specification does not mandate any specific behavior when encountering this situation. Clients providing images *SHOULD* order them from left-to-right top-to-bottom unless the print direction is known to be otherwise.

4.2 Style Sheets

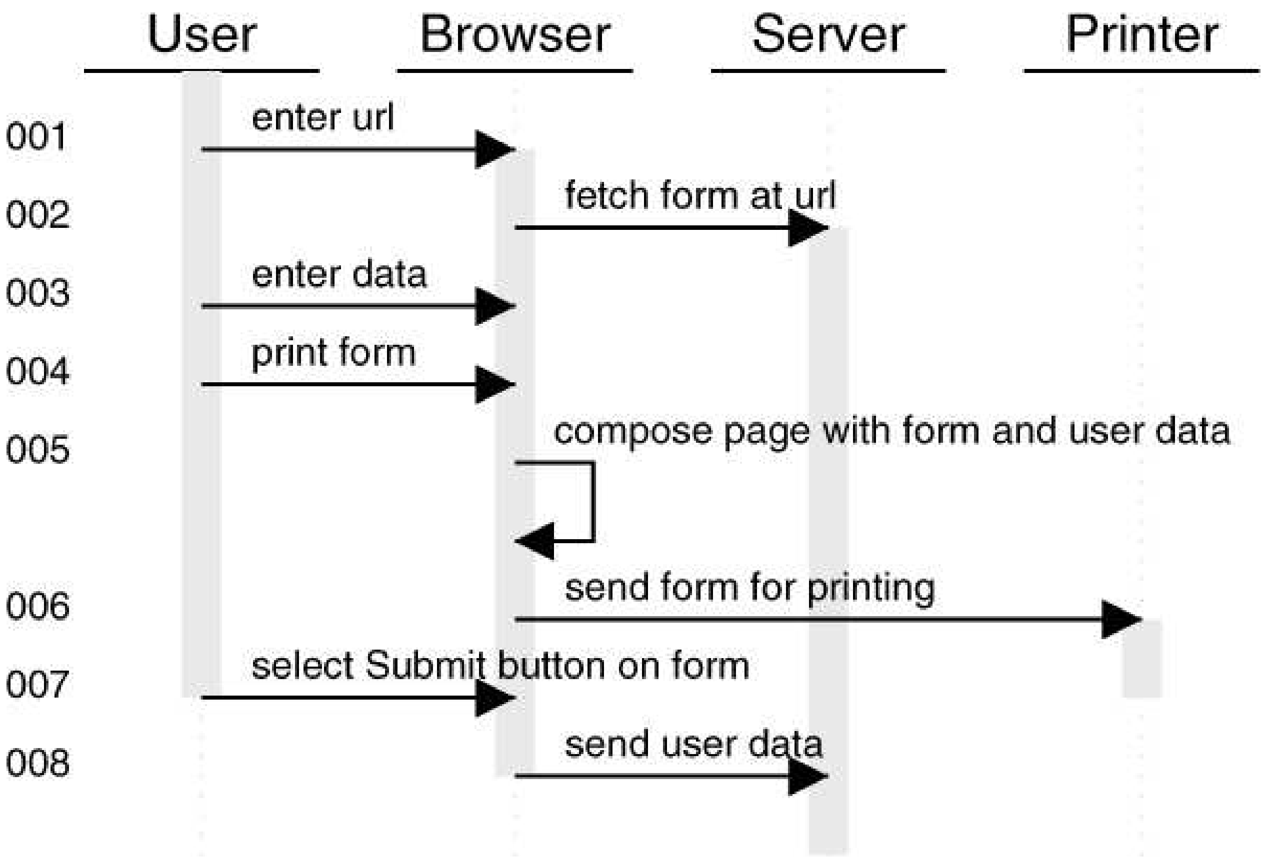
Conforming XHTML-Print printers *SHALL* support both in-line and referenced style sheets within the `style` element or `link` element in the `head` element of a document. Conforming XHTML-Print printers *SHALL* also support the `style` attribute (i.e. in-line style) when used within other elements as defined by *XHTML 1.1*[XHTML1.1 [p.43]]. Normal cascading rules apply.

4.3 Forms Usage

This section is informative.

An HTML form is a dynamic entity when the document is displayed in a browser: data can be entered into text fields, buttons can be pushed, selections made, and options checked. None of this dynamic activity can be rendered on a printed page. However, a printed page can permanently record a particular state of the form. For example, users might wish to print forms that record products ordered or payments made.

The following discussion illustrates the activity involved when interacting with and printing forms. Please refer to Sequence Diagram 1 [p.27]



Sequence Diagram 1. Forms Usage

Steps:

1. The User enters a URL into the Browser
2. The Browser fetches the form from the Server and displays it
3. The User enters data into the form
4. The User asks the Browser to print the form
5. The Browser composes a page with the form and the user data
6. The Browser sends the newly composed form to the printer
7. The User selects the Submit button on the form
8. The Browser sends the user data to the Server

Detailed discussion of Steps:

1. The user interacts with a browser on a mobile device to access a form presented by a server on the network (steps 1 and 2 of Sequence Diagram 1 [p.27]). The following fragment of an XHTML-Print document shows what the server sends to the browser to present to the user. Please note, that the form is blank when first presented to the user.
```
<form action="http://example.com/prog/adduser" method="post">
<label for="firstname">First name: </label>
<input type="text" id="firstname" /><br />
<label for="lastname">Last name: </label>
<input type="text" id="lastname" /><br />
<label for="email">email: </label>
<input type="text" id="email" size="40" /><br />
<input type="checkbox" name="member" value="IEEE" /> IEEE <br />
<input type="checkbox" name="member" value="ACM" /> ACM <br />
<input type="submit" value="Send" /> <input type="reset" />
</form>
```

   Here is an example presentation of the above form as the user would see it:

   First name: ☐

   Last name: ☐

   email: ☐

   ☐ IEEE
   ☐ ACM

2. The user enters data (step 3 of Sequence Diagram 1 [p.27]) into the text fields and checks the IEEE check box so that the form now looks like the following:

   First name: ☐

   Last name: ☐

email:

☐ IEEE
☐ ACM

3. The user then clicks on the browser’s print button (step 4 of Sequence Diagram 1 [p.27]), to print the form as it currently appears.
4. The browser then creates a, possibly new, document (step 5 of Sequence Diagram 1 [p.27]) containing the original form and the users data. Note in the XHTML-Print document below, created by the browser, that the user’s data is included either by a value attribute or a checked attribute.

```
<form action="http://example.com/prog/adduser" method="post">
<label for="firstname">First name: </label>
<input type="text" id="firstname" value="John"/><br />
<label for="lastname">Last name: </label>
<input type="text" id="lastname" value="Doe"/><br />
<label for="email">email: </label>
<input type="text" id="email" value="johnd@example.org" /><br />
<input type="checkbox" name="member" checked="checked" value="IEEE" /> IEEE <br />
<input type="checkbox" name="member" value="ACM" /> ACM <br />
<input type="submit" value="Send" /> <input type="reset" /><br />
</form>
```

5. The browser sends (step 6 of Sequence Diagram 1 [p.27]) the document created in step 5 to the printer.
6. Sometime later the user clicks on the submit form button (step 7 of Sequence Diagram 1 [p.27]) and the browser submits the form (step 8 of Sequence Diagram 1 [p.27]) using the procedures given in the *HTML 4.01 Specification* ([HTML4 [p.43]], Forms Submission).

5. Acknowledgements

This section is informative.

This specification was prepared by the W3C HTML Working Group. The participants at the time of publication were:

- Mark Birbeck
- Beth Epperson
- Melinda Grant
- Luca Mascaro
- Shinichi Matsui
- Shane McCarron
- Steven Pemberton
- Brad Petit
- Richard Schwerdtfeger

This specification is based in large part on the specification of the same name, *XHTML™-Print* [XHTMLPRINT [p.45]], from the Printer Working Group, a program of and through the IEEE Industry Standards and Technology Organization, Inc.; and which was in turn based in large part upon an earlier work with the same name by Fujisawa, Grant, Wright, and Zehler [XHP [p.45]]. The editors wish to express their gratitude to all who contributed to this and earlier versions.

A. JPEG Decoder Requirements

A.1 Introduction

A.1.1 Intent

This appendix describes *REQUIRED* behaviors for JPEG decoders in XHTML-Print devices. Many of the behaviors described in this document follow directly from language already present in the relevant JPEG standards, but are repeated here to emphasize their importance.

A.1.2 Objectives

The decoder behaviors described in this document are intended to minimize implementation complexity, while retaining maximum compatibility with existing JPEG files. In particular, these recommendations seek to ensure compatibility with both EXIF (Exchangeable Image File Format) and baseline JFIF (JPEG File Interchange Format); i.e., the subset of JFIF files that use only baseline JPEG processes. Support for JPEG streams using non-baseline processes, such as arithmetic coding or progressive coding, is not mandated for XHTML-Print compliance.

A.2 Printer Behaviors

This section describes behaviors of JPEG decoders for XHTML-Print conformant implementations.

A.2.1 JPEG Processes

A JPEG decoder for an XHTML-Print printer *SHALL* support all baseline JPEG processes as defined in [CCITT [p.44]], except for 2- and 4-component images. These processes include grayscale and 3-component images, 8-bit/component sample depth, Huffman entropy coding, 444, 422, 411, and 400 subsampling modes, and sequential (i.e. non-progressive) scan.

A.2.2 Handling of APPx Markers

Baseline decoders *MAY* ignore application-specific markers, such as the JFIF APP0 marker and the EXIF APP1/APP2 markers; rotation fields within these markers *SHOULD* be ignored. (Specifically, conforming printers *SHOULD NOT* decode the TIFF IFDs embedded in the EXIF APP1 and APP2 markers, as described in Section 2.6.4 of [JEIDA [p.44]].) This implies images will print in the orientation in which they are stored, unless style markup indicates otherwise. The image size *SHOULD* be rendered as specified in the JPEG SOF marker, if not overridden by style mark-up. A JPEG decoder for a conforming printer *SHALL NOT* fail as a consequence of encountering an unsupported APPx marker (i.e. all such markers *SHALL* be correctly parsed, even if they are ignored).

A.2.3 Color Management

This section describes a *RECOMMENDED* color management approach for XHTML-Print printers.

Grayscale Images

Sample values in a grayscale (single-component) JPEG image *MAY* be converted to the sRGB color space by setting

$$R_{out} = G_{out} = B_{out} = Gray_{in}$$

or by other suitable algorithm specific to the XHTML-Print device.

Color Images

Sample values in 3-component JPEG images *SHALL* be interpreted as YCbCr samples, as would be obtained by applying the matrices described in ITU BT.601 **[BT601.5 [p.44]]** to sRGB input data.

B. XHTML-Print DTD and Modules

This section contains the pieces of the XHTML-Print DTD that are unique to XHTML-Print. The remaining entities and modules are as specified in reference [XHTMLMOD [p.43]].

The following *SHOULD* be used from Modularization of XHTML [XHTMLMOD [p.43]]:

1. xhtml-attribs-1.mod
2. xhtml-base-1.mod
3. xhtml-basic-form-1.mod
4. xhtml-basic-table-1.mod
5. xhtml-blkphras-1.mod
6. xhtml-blkpres-1.mod
7. xhtml-blkstruct-1.mod
8. xhtml-charent-1.mod
9. xhtml-datatypes-1.mod
10. xhtml-framework-1.mod
11. xhtml-hypertext-1.mod
12. xhtml-image-1.mod
13. xhtml-inlphras-1.mod
14. xhtml-inlpres-1.mod
15. xhtml-inlstruct-1.mod
16. xhtml-inlstyle-1.mod
17. xhtml-lat1.ent
18. xhtml-link-1.mod
19. xhtml-list-1.mod
20. xhtml-meta-1.mod
21. xhtml-notations-1.mod
22. xhtml-object-1.mod
23. xhtml-param-1.mod
24. xhtml-pres-1.mod
25. xhtml-qname-1.mod
26. xhtml-script-1.mod
27. xhtml-special.ent
28. xhtml-struct-1.mod
29. xhtml-style-1.mod
30. xhtml-symbol.ent
31. xhtml-text-1.mod

B.1. XHTML-Print 1.0 DTD

Available for download at xhtml-print10.dtd.

```
<!-- ...................................................................... -->
<!-- XHTML-Print 1.0 DTD .................................................. -->
<!-- file: xhtml-print10.dtd
-->

<!-- XHTML-Print 1.0 DTD

     This is XHTML-Print 1.0, a variant of XHTML Basic for printing.

     Copyright 1998-2003 World Wide Web Consortium
        (Massachusetts Institute of Technology, European Research
         Consortium for Informatics and Mathematics, Keio University).
         All Rights Reserved.

     Permission to use, copy, modify and distribute the XHTML-Print 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.

        Primary Author: Jun Fujisawa <fujisawa.jun@canon.co.jp>
        Editors: Jim Bigelow <jim.bigelow@hp.com>,
                 Shane McCarron <shane@aptest.com>,
                 Masayasu Ishikawa <mimasa@w3.org>
        Revision: $Id: xhtml-print.ps,v 1.1 2006/09/25 14:44:04 jean-gui Exp $

-->
<!-- This is the driver file for version 1.0 of the XHTML-Print DTD.

     This DTD is identified by the PUBLIC and SYSTEM identifiers:

        PUBLIC "-//W3C//DTD XHTML-Print 1.0//EN"
        SYSTEM "http://www.w3c.org/MarkUp/DTD/xhtml-print10.dtd"
-->
<!ENTITY % XHTML.version "-//W3C//DTD XHTML-Print 1.0//EN" >

<!-- Use this URI to identify the default namespace:

         "http://www.w3.org/1999/xhtml"
-->
<!ENTITY % NS.prefixed "IGNORE" >
<!ENTITY % XHTML.prefix "" >

<!-- Reserved for use with the XLink namespace:
-->
<!ENTITY % XLINK.xmlns "" >
<!ENTITY % XLINK.xmlns.attrib "" >

<!-- reserved for future use with document profiles -->
<!ENTITY % XHTML.profile "" >
```

```
<!-- Bidirectional Text features
     This feature-test entity is used to declare elements
     and attributes used for bidirectional text support.
-->
<!ENTITY % XHTML.bidi "IGNORE" >

<!-- :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::: -->

<!ENTITY % xhtml-events.module "IGNORE" >
<!ENTITY % xhtml-bdo.module "%XHTML.bidi;" >

<!-- Style Attribute Module ........................... -->
<!ENTITY % xhtml-inlstyle.module "INCLUDE" >
<![%xhtml-inlstyle.module;[
<!ENTITY % xhtml-inlstyle.mod
     PUBLIC "-//W3C//ENTITIES XHTML Inline Style 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-inlstyle-1.mod" >
%xhtml-inlstyle.mod;]]>

<!-- Document Model Module ............................ -->
<!ENTITY % xhtml-model.mod
     PUBLIC "-//W3C//ENTITIES XHTML-Print 1.0 Document Model 1.0//EN"
            "xhtml-print10-model-1.mod" >

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

<!-- Text Module (required) ........................... -->
<!ENTITY % xhtml-text.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Text 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-text-1.mod" >
%xhtml-text.mod;

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

<!-- Lists Module (required) .......................... -->
<!ENTITY % xhtml-list.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Lists 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-list-1.mod" >
%xhtml-list.mod;

<!-- :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::: -->

<!-- Presentation Module .............................. -->
<!ENTITY % xhtml-pres.module "INCLUDE" >
<![%xhtml-pres.module;[
<!ENTITY % xhtml-pres.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Presentation 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-pres-1.mod" >
%xhtml-pres.mod;]]>
```

```
<!-- Image Module ....................................... -->
<!ENTITY % xhtml-image.module "INCLUDE" >
<![%xhtml-image.module;[
<!ENTITY % xhtml-image.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Images 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-image-1.mod" >
%xhtml-image.mod;]]>

<!-- Tables Module ...................................... -->
<!ENTITY % xhtml-table.module "INCLUDE" >
<![%xhtml-table.module;[
<!ENTITY % xhtml-table.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Basic Tables 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-basic-table-1.mod" >
%xhtml-table.mod;]]>

<!-- Forms Module ....................................... -->
<!ENTITY % xhtml-form.module "INCLUDE" >
<![%xhtml-form.module;[
<!ENTITY % xhtml-form.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Basic Forms 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-basic-form-1.mod" >
%xhtml-form.mod;]]>

<!-- Scripting Module  .................................. -->
<!ENTITY % xhtml-script.module "INCLUDE" >
<![%xhtml-script.module;[
<!ENTITY % xhtml-script.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Scripting 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-script-1.mod" >
%xhtml-script.mod;]]>

<!-- Style Sheet Module ................................. -->
<!ENTITY % xhtml-style.module "INCLUDE" >
<![%xhtml-style.module;[
<!ENTITY % xhtml-style.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Style Sheets 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-style-1.mod" >
%xhtml-style.mod;]]>

<!-- Link Module ........................................ -->
<!ENTITY % xhtml-link.module "INCLUDE" >
<![%xhtml-link.module;[
<!ENTITY % xhtml-link.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Link Element 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-link-1.mod" >
%xhtml-link.mod;]]>

<!-- Metainformation Module ............................. -->
<!ENTITY % xhtml-meta.module "INCLUDE" >
<![%xhtml-meta.module;[
<!ENTITY % xhtml-meta.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Metainformation 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-meta-1.mod" >
%xhtml-meta.mod;]]>

<!-- Base Module ........................................ -->
<!ENTITY % xhtml-base.module "INCLUDE" >
```

```
<![%xhtml-base.module;[
<!ENTITY % xhtml-base.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Base Element 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-base-1.mod" >
%xhtml-base.mod;]]>

<!-- Param Module ...................................... -->
<!ENTITY % xhtml-param.module "INCLUDE" >
<![%xhtml-param.module;[
<!ENTITY % xhtml-param.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Param Element 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-param-1.mod" >
%xhtml-param.mod;]]>

<!-- Object Module ..................................... -->
<!ENTITY % xhtml-object.module "INCLUDE" >
<![%xhtml-object.module;[
<!ENTITY % xhtml-object.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Embedded Object 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-object-1.mod" >
%xhtml-object.mod;]]>

<!-- Structure Module (required) ....................... -->
<!ENTITY % xhtml-struct.mod
     PUBLIC "-//W3C//ELEMENTS XHTML Document Structure 1.0//EN"
            "http://www.w3.org/TR/xhtml-modularization/DTD/xhtml-struct-1.mod" >
%xhtml-struct.mod;

<!-- end of XHTML-Print 1.0 DTD ............................................ -->
<!-- ....................................................................... -->
```

B.2. XHTML-Print 1.0 Document Model Module

Available for download at xhtml-print10-model-1.mod.

```
<!-- ...................................................................... -->
<!-- XHTML-Print 1.0 Document Model Module ................................ -->
<!-- file: xhtml-print10-model-1.mod

     This is XHTML-Print 1.0, a variant of XHTML Basic for printing.
     Copyright 1998-2003 W3C (MIT, ERCIM, Keio), All Rights Reserved.
     Revision: $Id: xhtml-print.ps,v 1.1 2006/09/25 14:44:04 jean-gui Exp $

     This DTD module is identified by the PUBLIC and SYSTEM identifiers:

        PUBLIC "-//W3C//ENTITIES XHTML-Print 1.0 Document Model 1.0//EN"
        SYSTEM "http://www.w3c.org/MarkUp/DTD/xhtml-print10-model-1.mod

     ...................................................................... -->

<!-- XHTML-Print 1.0 Document Model

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

<!-- Optional Elements in head ......................... -->
```

```
<!ENTITY % HeadOpts.mix
     "( %script.qname; | %style.qname; | %meta.qname; | %link.qname;
      | %object.qname; )*" >

<!-- Miscellaneous Elements ............................ -->

<!ENTITY % Script.class "| %script.qname; | %noscript.qname;" >

<!ENTITY % Misc.extra "" >

<!ENTITY % Misc.class
     "%Script.class;
      %Misc.extra;"
>

<!-- Inline Elements .................................. -->

<!ENTITY % InlStruct.class "%br.qname; | %span.qname;" >

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

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

<!ENTITY % I18n.class "" >

<!ENTITY % Anchor.class "| %a.qname;" >

<!ENTITY % InlSpecial.class "| %img.qname; | %object.qname;" >

<!ENTITY % InlForm.class
     "| %input.qname; | %select.qname; | %textarea.qname;
      | %label.qname;"
>

<!ENTITY % Inline.extra "" >

<!ENTITY % Inline.class
     "%InlStruct.class;
      %InlPhras.class;
      %InlPres.class;
      %Anchor.class;
      %InlSpecial.class;
      %InlForm.class;
      %Inline.extra;"
>

<!ENTITY % InlNoAnchor.class
     "%InlStruct.class;
      %InlPhras.class;
      %InlPres.class;
      %InlSpecial.class;
      %InlForm.class;
```

```
      %Inline.extra;"
>

<!ENTITY % InlNoAnchor.mix
     "%InlNoAnchor.class;
      %Misc.class;"
>

<!ENTITY % Inline.mix
     "%Inline.class;
      %Misc.class;"
>

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

<!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 % 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;"
>

<!ENTITY % Block.extra "" >

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

<!ENTITY % Block.mix
     "%Heading.class;
      | %List.class;
      | %Block.class;
      %Misc.class;"
>

<!-- All Content Elements ............................. -->

<!ENTITY % FlowNoTable.mix
```

```
     "%Heading.class;
      | %List.class;
      | %BlkStruct.class;
      %BlkPhras.class;
      %BlkPres.class;
      %Form.class;
      %Block.extra;
      | %Inline.class;
      %Misc.class;"
>

<!ENTITY % Flow.mix
     "%Heading.class;
      | %List.class;
      | %Block.class;
      | %Inline.class;
      %Misc.class;"
>

<!-- end of xhtml-print10-model-1.mod -->
```

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