Enabler Release Definition for Browsing

Approved Version 2.4 – 29 Mar 2011

Open Mobile Alliance

OMA-ERELD-Browsing-V2_4-20110329-A

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Browsing V2.4 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

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[WTP] "Wireless Transaction Protocol Specification", WAP Forum™. WAP-224-WTP. URL:http://www.openmobilealliance.org/

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3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope”, "Release Version Overview" and “Conformance Requirements Notation Details”, are normative, unless they are explicitly indicated to be informative.

The formal notation convention used in sections 7 and 8 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

3.2 Definitions

Client	A device (or application) that initiates a request for connection with a server.
Content	Synonym for data objects.
Content Format (or Format)	Actual representation of content.
Deprecated	A deprecated feature (e.g. specification, element or attribute) is one that has been outdated by a newer feature. Deprecated features are defined in the specification and are clearly marked as deprecated. Deprecated features may become obsolete in a future version.
Device	A network entity that is capable of sending and receiving packets of information and has a unique device address. A device can act as both a client and a server within a given context or across multiple contexts. For example, a device can service a number of clients (as a server) while being a client to another server.
ECMAScript	A scripting language produced and managed by the European Computer Manufacturers Association (ECMA) that provides a common scripting language for the computer industry.
Enabler Release	A collection of specifications that combined together form an enabler for a service area, e.g. a download enabler, a browsing enabler, a messaging enabler, a location enabler, etc. The specifications that are forming an enabler should combined fulfil a number of related market requirements.
Gateway (or WAP Gateway)	A server which acts as an intermediary for some other server. A gateway performs protocol transformation as well as encoding/decoding content.
Host Object	ECMAScript objects provided by the user agent for the purpose of interaction with the loaded document.
Hypermedia Transfer	The hypermedia transfer service provides for the transfer of self-describing hypermedia resources. The combination of WSP (Wireless Session Protocol) [WSP] and WTP (Wireless Transaction Protocol) [WTP] provide the hypermedia transfer service over secure and non-secure datagram transports over datagram-based protocol stack. The W-HTTP (Wireless Profiled Hypertext Transfer Protocol) [W-HTTP], a profile of HTTP/1.1 [HTTP/1.1] provides the hypermedia transfer service over secure and non-secure connection-oriented transports over connection-oriented protocol stack.
MAE Version	The version of the MAE User Agent. The version of the MAE User Agent may be uniquely identifiable by the Browsing version. Before Browsing 2.4, it was called as WAE Version.
Media type	A MIME media type or an identifier for a given data type.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.

Obsolete	The feature is outdated and removed from the specification. For user agent developers, properties that have been designated as obsolete should not be built into new implementations. Older implementations may still support these properties. Note: Content providers are strongly discouraged from using obsolete properties. Note: All implementations must be able to parse, and at a minimum ignore obsoleted syntax.
Resource	A network data object or service that can be identified by a URL. Resources may be available in multiple representations (e.g., multiple languages, data formats, size, and resolutions) or vary in other ways.
Server	A device (or application) that passively waits for connection requests from one or more clients. A server may accept or reject a connection request from a client.
Terminal	A device typically used by a user to request and receive information. Also called a mobile terminal or mobile station.
User	A user is a person who interacts with a User Agent to access a resource.
WAE User Agent (or User Agent)	A User Agent is any software or device that interprets markup and scripting languages or other content. This may include textual browsers, voice browsers, search engines, etc.
WAE version	The version of the WAE User Agent. The version of the WAE User Agent may be uniquely identifiable by the WAP version, e.g. WAP version 1.1 contains WAE version 1.1, or it may be a feature of the WAP version in which case the WAE versioning mechanisms are used to determine the WAE User Agent version.
WAP1	WAP Version 1, nominally the latest point release, e.g. WAP V1.2.1, unless otherwise noted.
WAP2	WAP Version 2. When used as a prefix, it indicates that something is compliant to the WAP Version 2 conformance requirements, e.g., a WAP2 client is a client that fulfils all the requirements for a user agent of WAP Version 2. WAP2 content is content with a media type specified in WAP Version 2.
WAP Proxy	An intermediary program which acts as both a server and a client for the purpose of making requests on behalf of other clients. Requests are serviced internally or by passing them on, with possible translation, to other servers. It may provide functions of protocol enhancement, transcoding or any number of other optimisation or transformation functions and may be associated with any gateways, proxies or servers being used in the deployment architecture. WAP gateway is one of the optional functionalities of WAP proxy.
WML	The Wireless Markup Language is a hypertext markup language used to represent information for delivery to a narrowband device, e.g., a phone.
WMLScript	A scripting language used to program the mobile device. WMLScript is an extended subset of the ECMAScript scripting language.
XHTML	The W3Cs codification of HTML version 4.01 in an XML.
XML	The Extensible Markup Language is a World Wide Web Consortium (W3C) standard for Internet markup languages, of which WML is one such language. XML is a restricted subset of SGML.
vCalendar	Internet Mail Consortium (IMC) electronic calendar record.
vCard	Internet Mail Consortium (IMC) electronic business card.

3.3 Abbreviations

CSS	Cascading Style Sheets
ECMA	European Computer Manufacturer Association
EFI	External Functionality Interface
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition

ESMP	ECMAScript Mobile Profile
HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol [HTTP/1.1]
MAE	Mobile Application Environment
OMA	Open Mobile Alliance
UAProf	User Agent Profile
W3C	World Wide Web Consortium
WAE	Wireless Application Environment. Unless otherwise stated it refers to this version.
WAP	Wireless Application Protocol
WBMP	Wireless BitMaP
WCSS	Wireless Cascading Style Sheets (also previously known as WAP CSS)
WML	Wireless Markup Language (WML1 or WML2)
WML1	Wireless Markup Language Version 1.3
WML2	Wireless Markup Language Version 2.0
WSP	Wireless Session Protocol
WTA	Wireless Telephony Application
WTAI	Wireless Telephony Application Interface (an API defined in WTA
WWW	World Wide Web
XHTML	Extensible HyperText Markup Language

4. Release Version Overview

This document outlines the Enabler Release Definition for Browsing V2.4 and the respective conformance requirements for clients and servers implementing claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

Browsing V2.4 provides OMA browsing capability for mobile and wireless handheld devices and the any necessary or optional supporting network services which may be provided on a gateway or proxy. Browsing V2.4 uses much of the internet technology used in today's PC Browsers to access content on the WorldWide Web (WWW) but limits the specified profiles of this technology to that appropriate to the constrained resources and user interface of mobile and wireless handheld devices, e.g. reduced memory, processing power, communications bandwidth, display and user input capabilities, including some extensions to improve the user experience.

Browsing V2.4 builds on the browsing feature defined in Browsing V2.3 [Browsing23] by providing an updated version of XHTML Mobile Profile [XHTMLMP13]. The updates provide: convergence to W3C XHTML Basic 1.1[XHTMLBasic11].

DTD of XHTML Mobile Profile 1.3 is identical to W3C XHTML Basic 1.1.

WCSS V1.2[WCSS12] is identicaql to W3C CSS Mobile Profile 2.0[CSSMP20] except the marquee feature on ongoing W3C work on CSS marquee.

ESMP V1.1[ESMP11] incorporates XMLHttpRequest to enable advanced Internet applications.

As with the Browsing V2.3 particular attention has been placed on enabling backwards compatibility, thereby allowing new devices conforming to the Browser enabler V2.4 to access legacy content and services where the specified set of features to facilitate such access are provided by the devices or supporting network based features.

The suite of specifications defining Browsing V2.4 defines the application-level protocols, semantics, syntax, content formats, user agent behaviour, and the use of hypermedia transfer protocols required to achieve consistent function and interoperability of services.

The Browsing V2.4 enabler maintains the approach of using the Mobile Application Environment Specification V2.4 [MAEspec24] specification to define which markup languages, and script languages, content types and formats and other features of the browser are supported, the use of the hypermedia feature in the WAP 2.0 architecture [WAPArch], and whether they are mandatory or optional. Further it enables extensibility to a number of other features.

MAE Specification V2.4 [MAEspec24] also provides a set of reusable components for OMA Enablers, especially for content rendering. It is a successor of WAE Specification V2.3[WAE]. It also describes obsolete features.

4.1 Version 2.4 Functionality

Browsing 2.4, or the MAE User Agent, supports the following features directly through the MAE Specification [MAEspec24], which is updated in this enabler release:

- Markup language based content to be rendered to the user of the device;
    - WML V1.3 [WML1], WML V2.0 [WML2] and XHTMLMP V1.3[XHTMLMP13] are specified. Content using XHTMLMP V1.2 [XHTMLMP12] or prior versions is supported through XHTMLMP 1.3 compatibility.
- Scripting language augmentation of the markup content to allow extended functionality and user experience;
    - WMLScript [WMLScript], with its associated WMLScript Library [WMLStdLib], and
    - ECMAScript Mobile Profile V1.1 [ESMP11] along with a well-known set of host objects and an XMLHttpRequest feature.

- Style capabilities to enhance the presentation of markup on devices supporting it.
    - The style is provided by the Wireless Cascading Style Sheets [WCSS12] V1.2 specification.. [WCSS12] is a profile of the W3C's CSS2 [CSS2] and being inspired by the CSS2 mobile profile V2.0 [CSSMP20] extended with some backward compatibility feature (wap-marquee).
- Image and other content support;
    - WBMP is a unique, efficient, monochrome format for Browsing V2.4 devices and predecessor devices but other types are supported, the types dependent on the device. WBMP is defined in the WAE Media Types specification [WAEMedia].
    - vObject[vObject] defines supported formats for the exchange of electronic business cards, calendar information, and bookmark information
- Local caching of content to improve user experience and reduce network usage.[CacheMod];
- HTTP State Management [HTTPSM], or cookies in common terminology, to provide the means to convey state and state information between user and application server, e.g. session identifiers, time and date information of last access, recent enquiries to that application, to aid the user's access to that application;
- Pictograms [PICT] to provide an enhanced user experience through the use of small images to augment or even replace textural information, e.g. the use of common weather symbols to illustrate the current weather;
- URIschme [URIScheme] to provide interoperable user experience in interactions with client-side user agents.

and in which combinations and whether they are mandatory or optional.

The Browsing V2.4 enabler also supports optional extensions to this basic browsing environment, namely

- External Functionality Interface ERELD [EFI-ERELD]
    - EFI extends the browser to include other hardware or software elements through the use of markup and script interfaces. The discovery of these elements is enabled thereby allowing them to be used, e.g. start or stop another application, retrieve a digital photograph from a camera, etc. EFI support is updated to version 1.1 in this enabler release.
- Application level signing of content
    - This is provided through the use of scripting extensions of the basic scripting environment by the ECMA Script Cypto Object [ESMPCrypto] and WMLScript Crypto Library [CryptoLib] features
- WBXML [WBXML]
    - WBXML is a compact format used for WAP Version 1.x browsers and still supported for other features though not required for the Browser per se.
- Wireless Telephony Application Interface [WTAI]
    - The Public Wireless Telephony Application Interface (WTAI) [WTAI] support allows applications to utilise a basic set of telephony features, e.g. make a call.
- Persistent Storage [PSTOR]
    - This provides a means to store data objects locally, personal details, applications, etc., within a device for use by applications and allows improved user experience

Additionally, Browsing 2.4 addresses some market requirements on multimedia integration in mobile domain. These requirements are identified in [SMIL-RD].

5. Document Listing for Browsing V2.4

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[Browsing24RD]	OMA-RD-Browsing-V2_4-20110329-A	Requirement Document for Browsing V2.4 Enabler
Architecture Document		
[WAPArch]	OMA-AD-WAP_210_WAPArch-V1_0-20010712-A	Wireless Application Protocol Architecture Specification
Technical Specifications		
[CacheMod]	OMA-TS-UACACHE-V1_1-20080331-A	User Agent Caching Model V1.1
[CryptoLib]	WAP-161-WMLScriptCrypto-20010620-a	WMLScript Crypto Library
[ESMP11]	OMA-TS-ESMP-V1_1_0-20110329-A	ECMA Script Mobile Profile V1.1
[HTTPSM]	OMA-TS-HTTPSM-V1_1-20080331-A	HTTP State Management Specification 1.1
[MAEspec24]	OMA-TS-MAEspec-V2_4-20110329-A	Mobile Application Environment Specification V2.4
[PICT]	OMA-WAP_TS-Pictogram-V1_1-20061620-A	WAP Pictogram Specification, Version 1.1
[WAEMedia]	WAP-237-WAEMT-20010515-a	WIreless Application Environment Defined Media Type Specification
[WBXML]	WAP-192-WBXML-20010725-a	Wireless Binary eXtended Markup Language
[WCSS12]	OMA-TS-WCSS-V1_2-20110329-A	CSS Specification V1.2
[WML1]	WAP-191-WML-20000219-a	WAP Wireless Markup Language Version 1.3
	WAP-191_102-WML-20001213-a	WML Specification Information Note 102
	WAP-191_104-WML-20010718-a	WAP Specification Information Note 104
	WAP-191_105-WML-20020212-a	WML Specification Information Note 105
[WML2]	WAP-238-WML-20010911-a	Wireless Mark up Language version 2.0
[WMLScript]	WAP-193-WMLScript-20001025-a	Wireless Markup Language Script Specification
	WAP-193_101-WMLScript-20010928-a	WML Specification Information Note 101
[WMLStdLib]	WAP-194-WMLScriptLibraries-20000925-a	Wireless Markup Language Script Standard Libraries Specification
	WAP-194_103-WMLScriptLibraries-20020318-a	Wireless Markup Language Script Standard Libraries SpecificationSpecification Information Note 103
[XHTMLMP13]	OMA-TS-XHTMLMP-V1_3-20110329-A	HTTP State Management Specification V1.3
Supporting Files		
	OMA-SUP-MOD_wml-deprecated-1-V2_0-20061020-A	MOD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml-deprecated-1.mod path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/

	OMA-SUP-MOD_wml-framework-1-V2_0-20061020-A	MOD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml-framework-1.mod path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/
	OMA-SUP-MOD_wml-special-1-V2_0-20061020-A	MOD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml-special-1.mod path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/
	OMA-SUP-MOD_wml-qname-1-V2_0-20061020-A	MOD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml-qname-1.mod path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/
	OMA-SUP-DTD_wml13-V1_3-20061020-A	DTD for WAP Wireless Markup Language Version 1.3 Working file in DTD directory: file: wml13.dtd path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/
	OMA-SUP-DTD_wml20-V2_0-20061020-A	DTD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml20.dtd path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/
	OMA-SUP-DTD_wml20_flat-V2_0-20061020-A	DTD for Wireless Markup Language version 2.0 Working file in DTD directory: file: wml20-flat.dtd path: http://www.wapforum.org/DTD/ and path: http://www.openmobilealliance.org/tech/dtd/

Table 1: Listing of Documents in Browsing V2.4 Enabler

6. Conformance Requirements Notation Details

This section is informative

The tables in following chapters use the following notation:

Item: Entry in this column MUST be a valid ScrItem according to [SCRRULES].

Feature/Application: Entry in this column SHOULD be a short descriptive label to the **Item** in question.

Requirement: Expression in the column MUST be a valid TerminalExpression according to [SCRRULES] and it MUST accurately reflect the architectural requirement of the **Item** in question.

7. ERDEF for Browsing V2.4 - Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF- BROWSING24-C-001-M	Browsing V2.4 Client	MAESpec24:MCF AND HTTPSM:MCF

Table 2: ERDEF for Browsing V2.4 Client-side Requirements

8. ERDEF for Browsing V2.4 - Server Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF- BROWSING24-S-001-M	Browsing V2.4 Server	MAESpec24:MCF AND HTTPSM:MCF

Table 3: ERDEF for Browsing V2.4 Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ERELD-Browsing-V2_4-20110329-A	29 Mar 2011	Status changed to Approved by TP: OMA-TP-2011-0097-INP_Browsing_V2_4_ERP_for_Final_Approval