Enabler Release Definition for Web Runtime API (WRAPI)

Approved Version 1.0 – 23 Sep 2014

Open Mobile Alliance

OMA-ERELD-WRAPI-V1_0-20140923-A

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Web Runtime API (WRAPI) 1.0 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

[Push-CAI] "Push Client - Application Interface", Open Mobile Alliance™, OMA-TS-PushCAI-V1_1, URL:http://www.openmobilealliance.org/

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL:http://www.openmobilealliance.org/

[W3C-EventSource] "Server-Sent Events", W3C, URL: http://www.w3.org/TR/EventSource/

[WRAPI-API-Patterns] "Web Runtime API (WRAPI) – Design Patterns", Open Mobile Alliance™, OMA-TS-WRAPI_Design_Patterns-V1_0, URL:http://www.openmobilealliance.org/

[WRAPI-Push] "Web Runtime API (WRAPI) – Push", Open Mobile Alliance™, OMA-TS-WRAPI_Push-V1_0, URL: http:// www.openmobilealliance.org /

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_7, URL:http://www.openmobilealliance.org/

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 8 and 10 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

3.2 Definitions

API Patterns	Design guidelines and requirements for definition of APIs
Enabler Release	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.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
Uniform Resource Name	Use definition from [OMADICT].
User Agent	Use definition from [OMADICT].
Web	The World Wide Web, a content and application framework based upon hypertext and related technologies, e.g. XML, JavaScript/ECMAScript, CSS, etc.
Web Application	An application designed using Web technologies.
Web Runtime	Client software that supports the execution of Web Applications

3.3 Abbreviations

API	Application Programming Interface
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
HTML5	Hypertext Markup Language version 5
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
Push-OTA	Push Over-the-Air
SCR	Static Conformance Requirements
SIP	Session Initiation Protocol
SMS	Short Message Service
TS	Technical Specification
UA	User Agent
URN	Uniform Resource Name
W3C	World Wide Web Consortium
Web IDL	Web Interface Definition Language
WRAPI	The OMA Web Runtime API enabler

WRT	Widget Runtime Environment

4. Release Version Overview

This enabler release defines:

- an API exposing the event notification enabler services provided by OMA Push, GSM SMS, SIP MESSAGE, and other such text messaging services to applications executing in Web Runtime environments. This API is referred to as the Push API
- common design guidelines and requirements ("API Patterns") intended for Web runtime APIs to be defined by the OMA. These API Patterns are intended to be a normative dependency for the specification of OMA-defined APIs exposed to applications executing under Web runtime environments. The intent of specifying these patterns is to promote consistency in the technical approach to definition of APIs exposing OMA enabler-based services.

4.1 Version 1.0 Functionality

WRAPI V1.0 includes technical specifications for a Push API, and API Design Patterns for use in all OMA APIs exposed through Web Runtime environments.

Version 1.0 of the WRAPI Design Patterns specification addresses the following aspects:

- Use of Web IDL for API specification
- Asynchronous methods
- Error handling
- Arguments
- Accessing APIs

Version 1.0 of the Push API specification addresses the following aspects:

- Basis of the Push API design in the W3C API "Server-Sent Events" [W3C-EventSource]
- Support for a subset of the features of the OMA "Push Client - Application Interface" specification [Push-CAI]:
    - Push-OTA bearer binding, at minimum supporting SMS-based connectionless Push
    - To reduce the complexity of the Push API for this release, the ability to select specific OMA Push bearers to activate is deferred to a future release.

This limited scope of supported OMA Push features enables the API to use the existing W3C-EventSource API definition, while opening up (at minimum) the most widely deployed OMA Push bearer (SMS) to a new class of client applications. If the underlying platform supports other Push-OTA bearers (e.g. OTA-HTTP, OTA-SIP, etc), SMS, and SIP MESSAGE, events from these sources can also be delivered through the Push API.

Web applications can support both online and offline use cases with access to the OMA Push enabler, and can use the OMA-standardized content types or application-specific content.

OMA Push enables the direct delivery of content in network contexts (point-to-point IP, SMS, SIP/IMS, and broadcast/multicast) and via methods (e.g. connectionless Push) that are typically unsupported by W3C-standard implementations. OMA Push can complement HTML5 Web APIs such as Server-Sent Events [W3C-EventSource] and Web Sockets, with these additional capabilities that are unsupported by the HTML5 APIs.

4.1.1 Informative Overview

The Push API provides a bridge between Web applications executing in Web browsers or widget runtime environments (WRT), and the enabler services provided by OMA Push or SMS text messaging. The relationship of the Push API to the overall architectural elements in devices and the OMA Push architecture is illustrated below.

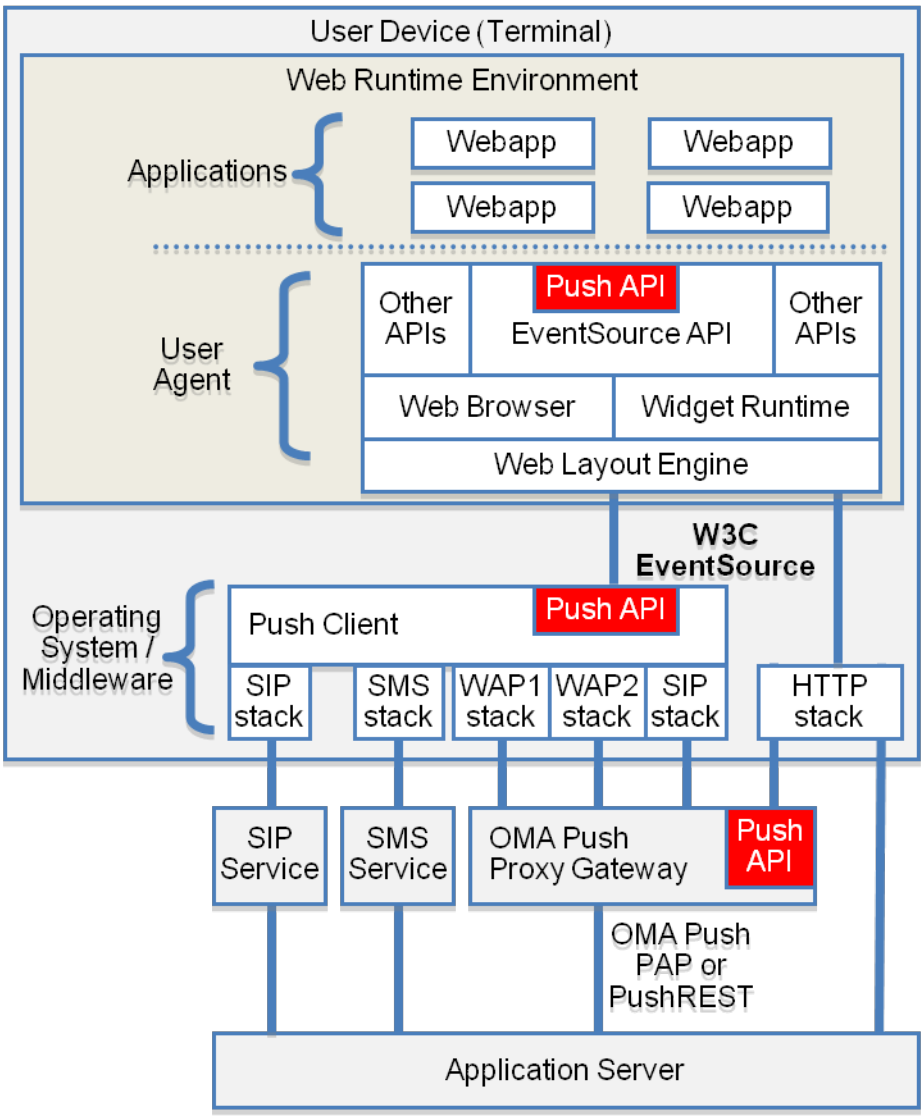

Figure 1: Relationship of Push API in the OMA Push Architecture

Three options are shown in the figure above for deployment of the Push API:

- As functionality of the Web User Agent (e.g. browser or Widget runtime): in this case the User Agent may be configured to locally serve EventSource connections to specific URLs, and take the necessary actions to deliver the requested events through the virtual EventSource connection.
- As functionality of an OMA Push Client in the device: in this case the Push Client acts as an EventSource server and provides the Push API extensions to the EventSource API, bridging the supported OMA Push protocols and text messaging enablers (e.g. GSM SMS and SIP MESSAGE) to an EventSource connection established between the User Agent and the Push Client.
- As functionality of a remote (network-based) Push Gateway: in this case the Push Gateway acts as an EventSource server and provides the Push API extensions to the EventSource API, bridging the supported OMA Push protocols

and optionally SMS to an EventSource connection established between the User Agent and the Push Gateway. The Push Gateway may be implemented as functionality of an OMA Push Proxy Gateway, exposing OMA Push Access Protocol (PAP) or PushREST APIs to Application Servers, and optionally additional unspecified interfaces for plain text message delivery.

For definition of their requirements in support of the Push API, these implementation are referred to as the Push API Server.

5. Document Listing for WRAPI 1.0

This section is normative.

Doc Ref	Permanent Document Reference	Description
Technical Specifications		
[WRAPI-Push]	OMA-TS-WRAPI_Push-V1_0-20140923-A	Specification that defines the Push API.
[WRAPI-API-Patterns]	OMA-TS-WRAPI_Design_Patterns-V1_0-20140923-A	Specification that defines the API design patterns for Web Runtime APIs.

Table 1: Listing of Documents in WRAPI 1.0 Enabler

6. OMNA Considerations

WRAPI 1.0 includes the following OMNA items:

1. OMNA Schema-based Namespace Registry SchemaDomain
    a. urn:oma:xml:push (*new in WRAPI 1.0*)

7. 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.

8. ERDEF for WRAPI 1.0 – Push Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-WRAPI-C-001-M	WRAPI Push Client	[WRAPI-Push]:MCF

Table 2: ERDEF for WRAPI 1.0 Push Client Requirements

9. ERDEF for WRAPI 1.0 – User Agent Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-WRAPI-UA-001-M	WRAPI User Agent	[WRAPI-Push]:MCF AND [WRAPI-API-Patterns]:MCF

Table 3: ERDEF for WRAPI 1.0 User Agent Requirements

10.ERDEF for WRAPI 1.0 – Push Gateway Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-WRAPI-S-001-M	Push Gateway as WRAPI API Server	[WRAPI-Push]:MCF

Table 4: ERDEF for WRAPI 1.0 Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ERELD-WRAPI-V1_0-20140923-A	23 Sep 2014	Status changed to Approved by TP TP Ref # OMA-TP-2014-0216-INP_WRAPI_V1_0_ERP_for_final_Approval