



# **Enabler Release Definition for Push**

Approved Version 1.0 – 22 Nov 2011

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**Open Mobile Alliance**  
OMA-ERELD-Push-V2\_3-20111122-A

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# 1. Scope

The scope of this document is limited to the Enabler Release Definition of OMA Push V2.3 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

The Push enabler release defines the application level protocols, syntax and behaviours of client and server for the fulfilment of push services. Push service is defined as communication of content toward a client without an explicit request.

## 2. References

### 2.1 Normative References

[CBS]	"Technical realization of Cell Broadcast Service (CBS)", 3rd Generation Partnership Project; Technical Specification Group Terminals; URL: <a href="http://www.3gpp.org/ftp/Specs/archive/23_series/23.041/">http://www.3gpp.org/ftp/Specs/archive/23_series/23.041/</a>
[ERELDDM]	"Enabler Release Definition for Device Management version 1.2". Open Mobile Alliance™.. OMA-ERELD-DM-V1_2-20060208-C., URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[MBMS]	"Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs", 3rd Generation Partnership Project, Technical Specification 3GPP TS 26.346, URL: <a href="http://www.3gpp.org/">http://www.3gpp.org/</a>
[PPGService]	"Push Proxy Gateway Service Specification". Open Mobile Alliance™. OMA-TS-PPGService-V2_2. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushArch]	"Push Architecture ". Open Mobile Alliance™. OMA-AD-Push-V2_3 URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushCAI]	"Push Client - Application Interface Specification". Open Mobile Alliance™. OMA-TS-PushCAI-V1_1. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushCBS]	"Push Over the Air Technical Specification – CBS Adaptation" . Open Mobile Alliance™. OMA-TS-Push_CBS_Adaptation-V1_0. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushCO]	"Cache Operation". WAP Forum™. WAP-175-CacheOp. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushCO-SIN]	"Cache Operaton-Specification Information Note". WAP Forum™. WAP-175_102-CacheOp URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushETR]	"Push 2.3 Enabler Test Requirements". Open Mobile Alliance™. OMA-ETR-Push-V2_3 URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushOTA]	"Push OTA Protocol Specification". Open Mobile Alliance™. OMA-WAP-TS-PushOTA-V2_3. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushPAP]	"Push Access Protocol Specification". Open Mobile Alliance™. OMA-WAP-TS-PAP-V2_3 URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushMsg]	"Push Message Specification". Open Mobile Alliance™. OMA-TS-Push_Message-V2_3. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[Push2.2_RD]	"Push Security Requirements", Open Mobile Alliance™. OMA-RD-PushSecurity-V1_0. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[Push2.3_RD]	"Point-to-Multipoint Push Requirements", Open Mobile Alliance™. OMA-RD-PTM_Push-V1_0. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushSI]	"Service Indication". WAP Forum™. WAP-167-ServiceInd URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushMO]	"Push Management Object". Open Mobile Alliance™. OMA-TS-Push_MO-V1_1. URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushSI-SIN]	"Service Indication-Specification Information Note". WAP Forum™. WAP-167_103-ServiceInd URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushSL]	"Service Load". WAP Forum™. WAP-168-ServiceLoad URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[PushSL-SIN]	"Service Load-Specification Information Note". WAP Forum™. WAP-168_103-ServiceLoad URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>
[SCRRULES]	"SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>

- [SIPPush] “Session Initiation Protocol (SIP) Push”, Open Mobile Alliance™. OMA-ERP-SIP\_Push-V1\_0. [URL:http://www.openmobilealliance.org/](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](http://www.ietf.org/rfc/rfc2119.txt)
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- [SUP\_SI\_DTD] “OMA Push Service Indication Document Type Definition”, Open Mobile Alliance™. OMA-SUP-DTD\_si-V1\_0. [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [SUP\_SL\_DTD] “OMA Push Service Load Document Type Definition”, Open Mobile Alliance™. OMA-SUP-DTD\_sl-V1\_0. [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [SUP\_CO\_DTD] “OMA Push Cache Operation Document Type Definition”, Open Mobile Alliance™. OMA-SUP-DTD\_co-V1\_0. [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [SUP\_MO\_DDF] “OMA PUSH MO V1.1 Device Description Framework (PUSHMODDFDTD) Document Type Definition”, Open Mobile Alliance™. OMA-SUP-MO\_Push\_DDF-V1\_0. [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [SUP\_PUSHREG] “OMA Push Service Registration XML Schema”, Open Mobile Alliance™. OMA-SUP-XSD\_PUSH-REGISTRATION-V1\_0. [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

## 2.2 Informative References

- [EMN] "Email Notification" Version 1.0. OMA-Push-EMN-V1\_0, Open Mobile Alliance™.  
[URL: http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [EMNEnabler] "Enabler Release Definition Email Notification" Version 1.0. OMA-ERELED-EMN-V1\_0, Open Mobile Alliance™. [URL: http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMADICT] "Dictionary for OMA Specifications", Open Mobile Alliance™, OMA-ORG-Dictionary, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMNA] "OMA Naming Authority". Open Mobile Alliance™.  
[URL: http://www.openmobilealliance.org/ OMNA.aspx](http://www.openmobilealliance.org/OMNA.aspx)
- [Push2.1] "Enabler Release Definition for Push Version 2.1", Open Mobile Alliance™. OMA-ERELED-Push-V2\_1. [URL: http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [Push2.2] "Enabler Release Definition for Push Version 2.2", Open Mobile Alliance™. OMA-ERELED-Push-V2\_2. [URL: http://www.openmobilealliance.org/](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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

The formal notation convention used in sections 8 and 9 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

### 3.2 Definitions

<b>Enabler Release</b>	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.
<b>Minimum Functionality Description</b>	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release
<b>Multipoint Push</b>	The Point-to-Multipoint Push feature, in which Push Content is exchanged in multipoint delivery mode, i.e. between one entity and multiple other entities.
<b>PTM-Push</b>	The Point-to-Multipoint Push feature.
<b>Push Access Protocol</b>	A protocol used for conveying content that should be pushed to a client, and push related control information, between a Push Initiator and a Push Proxy/Gateway
<b>Push Client – Application Interface</b>	A device-internal interface provided by Push Clients, via which Push applications can register for Push services with application-specified options, and receive notifications of Push events.
<b>Push Framework</b>	The entire push system. The push framework encompasses the protocols, service interfaces, and software entities that provide the means to push data to user agents in the client.
<b>Push Initiator</b>	An entity or service that initiates Push content delivery to Push clients [OMADICT]
<b>Push OTA Protocol</b>	A protocol used for conveying content between a Push Proxy/Gateway and a certain user agent on a client.
<b>Push Proxy Gateway</b>	A gateway acting as a Push proxy for Push Initiators, providing over-the-air Push message delivery services to Push clients [OMADICT]
<b>Push Server</b>	An entity that acts as the server for delivery of Push Content.

### 3.3 Abbreviations

<b>BCAST</b>	OMA Broadcast
<b>CBS</b>	Cell Broadcast Service
<b>CO</b>	Cache Operation
<b>DTD</b>	Document Type Definition
<b>EMN</b>	Email Notification
<b>ERDEF</b>	Enabler Requirement Definition
<b>ERELD</b>	Enabler Release Definition
<b>MBMS</b>	Multimedia Broadcast Multicast Service
<b>OMA</b>	Open Mobile Alliance
<b>OMNA</b>	OMA Naming Authority
<b>OTA</b>	Over The Air
<b>OTA-HTTP</b>	Over the Air Protocol Variant (HTTP)
<b>OTA-WSP</b>	Over the Air Protocol Variant (Wireless Session Protocol)
<b>PAP</b>	Push Access Protocol
<b>PPG</b>	Push Proxy Gateway
<b>PI</b>	Push Initiator
<b>PTM</b>	Point-to-Multipoint
<b>SI</b>	Service Indication
<b>SIP</b>	Session Initiation Protocol
<b>SL</b>	Service Load

## 4. Release Version 2.3 Overview

This document outlines the Enabler Release Definition for OMA Push V2.3 and the respective conformance requirements for clients and servers implementing claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

OMA Push allows Push Initiators and Application Servers to initiate service-related transactions and content delivery to user devices. OMA Push has evolved over several releases, beginning as WAP Push 1.x releases which supported the WAP1 bearers, and releases from WAP Push 2.0 up to OMA Push 2.2 which extended support to WAP2 (HTTP) and SIP bearers. The service environment enabled by OMA Push is illustrated in Figure 1, which shows the two main options for Push service deployment:

- A service/content provider, acting as Push Initiator, requests the OMA Push-based delivery of content to a user through a Push Proxy Gateway (PPG)
- An Application Server directly uses OMA Push to deliver content to a user.

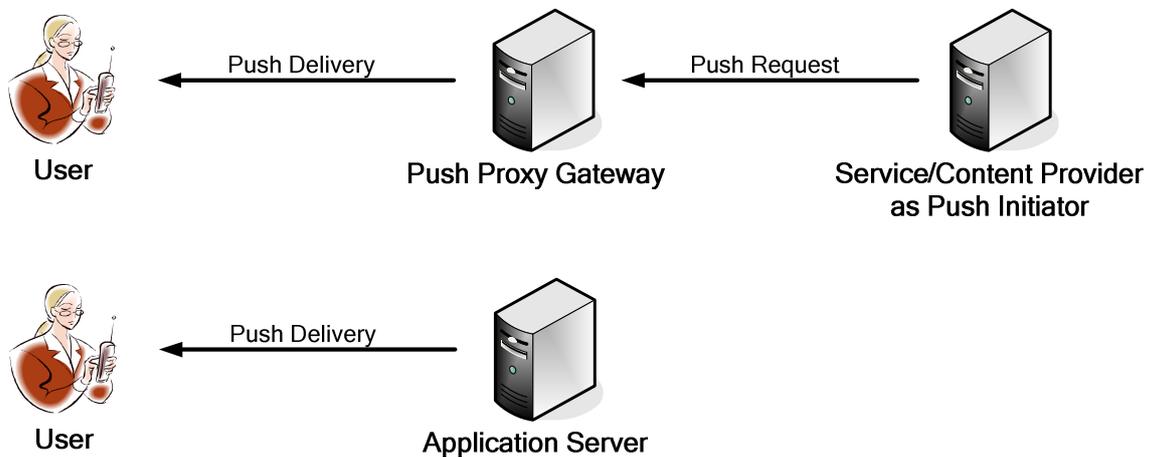
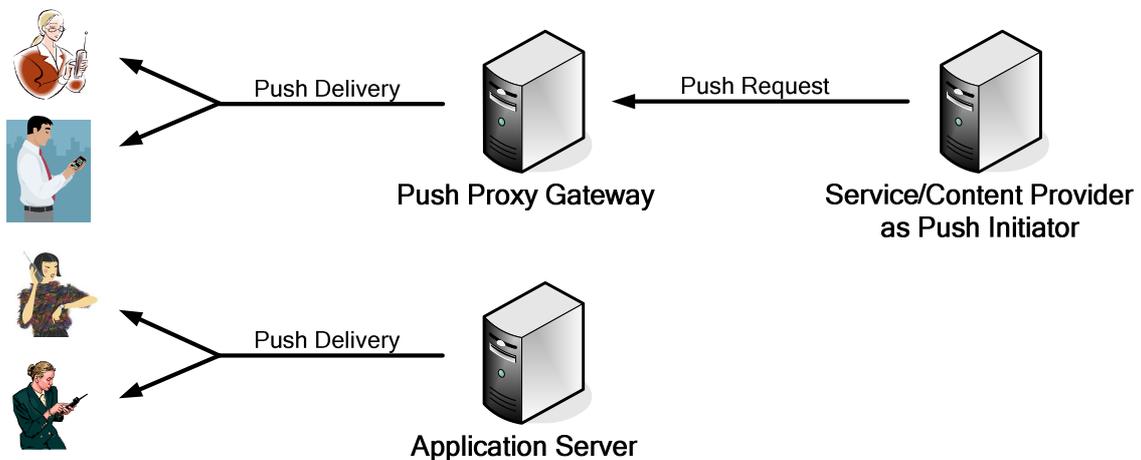


Figure 1: OMA Push service environment

In contrast, the service environment enabled by OMA Push with the enhancement of PTM-Push is illustrated in Figure 2:



**Figure 2: OMA Push service environment with PTM-Push support**

OMA Push defines interfaces allowing a *Push Initiator* (PI) to transmit *push content* and *delivery instructions* to a *Push Proxy Gateway* (PPG), and delivery of the push content to the Push Client according to the delivery instructions. The Push Client subsequently delivers the push content to an OMA enabler user-agent or application in the device (hereafter referred to as the “client application”). The PPG and Push Client are the two architectural entities specified by the OMA Push enabler.

The PI may be an application that runs on an ordinary web server, an OMA enabler entity (e.g. multimedia messaging server, device management server,...), or any other application designed to deliver content to users via OMA Push. It communicates with the PPG using the *Push Access Protocol* (PAP). The PPG uses the *Push Over-The-Air* (OTA) *Protocol* to deliver the push content to the Push Client. Note the name Push-OTA is based upon the historical focus of OMA Push on mobile data services, but the protocol is also usable over wired connections. Push-OTA is also directly usable by OMA enabler entities or application servers acting directly as a Push Server.

Client applications may be OMA enabler user agents (e.g. browsers, multimedia messaging clients, instant messaging clients, etc) or other device-resident applications that are supported by the Push Client.

## 4.1 Version 2.2 Functionality

This enabler release continues on the work of the OMA in the area of Push and is an extension of the Push 2.1 Enabler release [Push2.1], defining push security mechanisms and OTA-SIP as a new Push-OTA protocol variant. An aspect of the defined push security mechanisms depend on device management object extension defined in [PushOTA] which depends on the OMA Device Management Enabler [ERELDDM].

In addition this enabler release definition defines a minimum level of conformance for segmentation and re-assembly for SMS based Push, as well as push initiator guidelines on the most efficient way to use this form of push delivery mechanism.

## 4.2 Version 2.3 Functionality

This enabler release is an extension of the Push 2.2 Enabler release [Push2.2], and is referred to as Push 2.3 Point-to-Multipoint Push (PTM-Push). PTM-Push adds multipoint distribution methods to complement the existing point-to-point methods, enabling Push content delivery to a large number of clients simultaneously via network bearers supporting multicast and broadcast operation, e.g. MBMS, Cell Broadcast Service (CBS), and OMA BCAST.

PTM-Push defines push security mechanisms for use multipoint service contexts, and OTA-PTM as a new Push-OTA protocol variant. Aspects of the defined push security mechanisms and Push Client configuration depend on a device management object extension defined in [PushOTA] which depends on the OMA Device Management Enabler [ERELDDM].

## 5. Document Listing for Push V2.3

This section is normative.

Doc Ref	Permanent Document Reference	Description
<b>Requirement Document</b>		
[Push2.3_RD]	OMA-RD-PushSecurity-V1_0-20110809-A	Requirements for Push 2.2
[Push2.3_RD]	OMA-RD-PTM_Push-V1_0-20111122-A	Requirements for Push 2.3
<b>Architecture Document</b>		
[PushArch]	OMA-AD-Push-V2_3-20111122-A	Push Architecture
<b>Technical Specifications</b>		
[PPGService]	OMA-TS-PPGService-V2_3-20111122-A	Push Proxy Gateway Service Specification
[PushCAI]	OMA-TS-PushCAI-V1_1-20111122-A	Push Client – Application Interface Specification
[PushCBS]	OMA-TS-Push_CBS_Adaptation-V1_0-20111122-A	Push Over the Air (OTA) Specification – CBS Adaptation
[PushPAP]	OMA-TS-PAP-V2_3-20111122-A	Push Application Protocol (PAP) Specification
[PushOTA]	OMA-TS-PushOTA-V2_3-20111122-A	Push Over the Air (OTA) Specification
[PushMsg]	OMA-TS-Push_Message-V2_3-20111122-A	Push Message Specification Specification
[PushMO]	OMA-TS-Push_MO-V1_1-20111122-A	Push Management Object Specification
[PushSI]	WAP-167-ServiceInd-20010731-a	Push Service Indication Specification
	WAP-167_103-ServiceInd-20010926-a	Specification Information Note
[PushSL]	WAP-168-ServiceLoad-20010731-a	Push Service Load Specification
[PushSL-SIN]	WAP-168_103-ServiceLoad-20010816-a	Specification Information Note
[PushCO]	WAP-175-CacheOp-20010731-a	Push Cache Operation Specification
[PushCO-SIN]	WAP-175_102-CacheOp-20010816-a	Specification Information Note
<b>Supporting Files</b>		
[Push_pap]	OMA-SUP-DTD_pap-V2_3-20111122-A	Push Access Protocol DTD Working file in DTD directory: file: pap_2.31.dtd path: <a href="http://www.openmobilealliance.org/Tech/DTD/">http://www.openmobilealliance.org/Tech/DTD/</a>
[Push_si]	OMA-SUP-DTD_si-V1_0-20110405-A	Service Indication DTD: Working file in DTD directory: file: si_1.0.dtd path: <a href="http://www.openmobilealliance.org/Tech/DTD/">http://www.openmobilealliance.org/Tech/DTD/</a>
[Push_sl]	OMA-SUP-DTD_sl-V1_0-20110405-A	Service Load DTD Working file in DTD directory: file: sl_1.0.dtd path: <a href="http://www.openmobilealliance.org/Tech/DTD/">http://www.openmobilealliance.org/Tech/DTD/</a>
[Push_co]	OMA-SUP-DTD_co-V1_0-20110405-A	Cache Operation DTD Working file in DTD directory: file: co_1.0.dtd path: <a href="http://www.openmobilealliance.org/Tech/DTD/">http://www.openmobilealliance.org/Tech/DTD/</a>

[Push_MO_push_DDF]	OMA-SUP-MO_Push_DDF-V1_1-20111122-A	Push Device Management Object Description DTD Working file in DTD directory: file: push_ddf-v1_3.dtd path: <a href="http://www.openmobilealliance.org/Tech/DTD/">http://www.openmobilealliance.org/Tech/DTD/</a>
[PUSHREG_XSD]	OMA-SUP-XSD_PUSH_REGISTRATION-V1_0-20111122-A	XML schema based definition of messages and included elements of the Push Service Registration feature. Working file in DTD directory: file: push-registration-v1_0.xsd path: <a href="http://www.openmobilealliance.org/Tech/profiles">http://www.openmobilealliance.org/Tech/profiles</a>

**Email Notification [EMN]** is managed under a separate enabler release, OMA Email Notification [**EMNEnabler**].

## 6. OMNA Considerations

Push 2.3 includes the following OMNA items:

1. URN-based Management Object Identifiers
  - a. urn:oma:mo:oma-push:1.1 (*new in Push 2.3*)
2. PUSH Application Ids
  - a. WAP Push Session Initiation Application (SIA)
    - i. x-wap-application:push.sia
  - b. WML User Agent (browser)
    - i. x-wap-application:wml.ua
3. Media (MIME) Types
  - a. Service Indication
    - i. text/vnd.wap.si
    - ii. application/vnd.wap.sic
  - b. Service Loading
    - i. text/vnd.wap.sl
    - ii. application/vnd.wap.slc
  - c. Cache Operation
    - i. text/vnd.wap.co
    - ii. application/vnd.wap.coc
  - d. Session Initiation Application
    - i. application/vnd.wap.sia
  - e. Push message encapsulation
    - i. application/vnd.oma.push
4. URN-based namespace identifiers
  - a. urn:oma:xml:push:registration:1.0 (*new in Push 2.3*)
5. DOCTYPE Declarations
  - a. Service Indication
    - i. -//WAPFORUM//DTD SI 1.0//EN
  - b. Service Loading
    - i. -//WAPFORUM//DTD SL 1.0//EN
  - c. Cache Operation
    - i. -//WAPFORUM//DTD CO 1.0//EN

- d. Push Access Protocol
  - i. -//OMA//DTD PAP 2.3//EN
- 6. Document Type Definitions
  - a. Push Management Object
    - i. [http://www.openmobilealliance.org/Tech/DTD/push\\_ddf-v1\\_3.dtd](http://www.openmobilealliance.org/Tech/DTD/push_ddf-v1_3.dtd)
  - b. Service Indication
    - i. [http://www.openmobilealliance.org/Tech/DTD/si\\_1.0.dtd](http://www.openmobilealliance.org/Tech/DTD/si_1.0.dtd)
  - c. Service Loading
    - i. [http://www.openmobilealliance.org/Tech/DTD/sl\\_1.0.dtd](http://www.openmobilealliance.org/Tech/DTD/sl_1.0.dtd)
  - d. Cache Operation
    - i. [http://www.openmobilealliance.org/Tech/DTD/co\\_1.0.dtd](http://www.openmobilealliance.org/Tech/DTD/co_1.0.dtd)
  - e. Push Access Protocol
    - i. [http://www.openmobilealliance.org/Tech/DTD/pap\\_2.3.dtd](http://www.openmobilealliance.org/Tech/DTD/pap_2.3.dtd)
- 7. IMS Communication Resource Identifier (ICSI)
  - a. urn:urn-xxx:3gpp-service.ims.icsi.omapush (*this URN value is not yet registered with 3GPP, per <http://www.3gpp.org/Uniform-Resource-Name-URN-list>*)

## 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.
- Status:** Entry in this column **MUST** accurately reflect the architectural status of the **Item** in question.
- M means the **Item** is mandatory for the class
  - O means the **Item** is optional for the class
  - NA means the **Item** is not applicable for the class
- 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.

### 7.1 Minimum Functionality Description for Push

This section is informative.

The minimum functionality required for push service is divided into client and server requirements.

On the server side it is a minimum that the following is supported:

- Push Access Protocol, mandatory elements
- Push proxy gateway service mandatory service
- Service Indication content type
- at least one method of connectionless Push service, including OTA-WSP, OTA-SIP, or OTA-PTM

On the client side it is a minimum that the following is supported:

- Service Indication content type
- at least one method of connectionless Push service, including OTA-WSP, OTA-SIP, or OTA-PTM

## 8. ERDEF for Push - Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-Push-C-001	Push Client	M	[PushOTA]: MCF AND [PushMsg]: MCF AND [PushSI]: MCF

**Table 1 ERDEF for Push Client-side Requirements**

## 9. ERDEF for Push - Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-Push-S-001	Push Server	M	[PAP]:MCF AND [PPGService]:MCF AND [PushOTA]: MCF AND [PushMsg]: MCF AND [PushSI]: MCF AND

**Table 2 ERDEF for Push Server-side Requirements**

## Appendix A. Change History

(Informative)

### A.1 Approved Version History

Reference	Date	Description
OMA-ERELED-Push-2_3	22 Nov 2011	Status changed to Approved by TP: OMA-TP-2011-0406-INP_Push_V2_3_ERP_for_Final_Approval