



# NGSI Registration and Discovery

## Approved Version 1.0 – 29 May 2012

---

**Open Mobile Alliance**  
OMA-TS-NGSI\_Registration\_and\_Discovery-V1\_0-20120529-A

Use of this document is subject to all of the terms and conditions of the Use Agreement located at <http://www.openmobilealliance.org/UseAgreement.html>.

Unless this document is clearly designated as an approved specification, this document is a work in process, is not an approved Open Mobile Alliance™ specification, and is subject to revision or removal without notice.

You may use this document or any part of the document for internal or educational purposes only, provided you do not modify, edit or take out of context the information in this document in any manner. Information contained in this document may be used, at your sole risk, for any purposes. You may not use this document in any other manner without the prior written permission of the Open Mobile Alliance. The Open Mobile Alliance authorizes you to copy this document, provided that you retain all copyright and other proprietary notices contained in the original materials on any copies of the materials and that you comply strictly with these terms. This copyright permission does not constitute an endorsement of the products or services. The Open Mobile Alliance assumes no responsibility for errors or omissions in this document.

Each Open Mobile Alliance member has agreed to use reasonable endeavors to inform the Open Mobile Alliance in a timely manner of Essential IPR as it becomes aware that the Essential IPR is related to the prepared or published specification. However, the members do not have an obligation to conduct IPR searches. The declared Essential IPR is publicly available to members and non-members of the Open Mobile Alliance and may be found on the “OMA IPR Declarations” list at <http://www.openmobilealliance.org/ipr.html>. The Open Mobile Alliance has not conducted an independent IPR review of this document and the information contained herein, and makes no representations or warranties regarding third party IPR, including without limitation patents, copyrights or trade secret rights. This document may contain inventions for which you must obtain licenses from third parties before making, using or selling the inventions. Defined terms above are set forth in the schedule to the Open Mobile Alliance Application Form.

**NO REPRESENTATIONS OR WARRANTIES (WHETHER EXPRESS OR IMPLIED) ARE MADE BY THE OPEN MOBILE ALLIANCE OR ANY OPEN MOBILE ALLIANCE MEMBER OR ITS AFFILIATES REGARDING ANY OF THE IPR'S REPRESENTED ON THE “OMA IPR DECLARATIONS” LIST, INCLUDING, BUT NOT LIMITED TO THE ACCURACY, COMPLETENESS, VALIDITY OR RELEVANCE OF THE INFORMATION OR WHETHER OR NOT SUCH RIGHTS ARE ESSENTIAL OR NON-ESSENTIAL.**

**THE OPEN MOBILE ALLIANCE IS NOT LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, INDIRECT, PUNITIVE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF DOCUMENTS AND THE INFORMATION CONTAINED IN THE DOCUMENTS.**

© 2012 Open Mobile Alliance Ltd. All Rights Reserved.

Used with the permission of the Open Mobile Alliance Ltd. under the terms set forth above.

# Contents

- 1. SCOPE.....4
- 2. REFERENCES .....5
  - 2.1 NORMATIVE REFERENCES.....5
  - 2.2 INFORMATIVE REFERENCES.....5
- 3. TERMINOLOGY AND CONVENTIONS.....6
  - 3.1 CONVENTIONS.....6
  - 3.2 DEFINITIONS.....6
  - 3.3 ABBREVIATIONS.....6
- 4. INTRODUCTION .....7
  - 4.1 VERSION 1.0 .....7
    - 4.1.1 Backward Compatibility to the Parlay Specifications.....7
- 5. NGSI-11: SERVICE REGISTRATION INTERFACE.....8
  - 5.1 SERVICE DESCRIPTION .....8
    - 5.1.1 Utilization of UDDI and WSDL as specified in OWSER.....8
    - 5.1.2 Service Recommendation .....9
- 6. NGSI-12: SERVICE DISCOVERY INTERFACE.....11
  - 6.1 SERVICE DESCRIPTION .....11
    - 6.1.1 Utilization of UDDI and WSDL as specified in OWSER.....11
- APPENDIX A. CHANGE HISTORY (INFORMATIVE).....12
  - A.1 APPROVED VERSION HISTORY .....12
- APPENDIX B. STATIC CONFORMANCE REQUIREMENTS (NORMATIVE).....13

# Figures

- Figure 1: NGSI-11 Service usage.....8
- Figure 2: Utilization of various specification by OWSER [OWSERspec].....9
- Figure 3: NGSI-12 Service Usage.....11

# Tables

- Table 1: InvocationType enumeration.....9
- Table 2: PushTrigger enumeration .....10
- Table 3: ServiceRecommendationMetadata structure .....10

# 1. Scope

This document is the Technical Specification for the NGSI-11 and 12 interfaces. It specifies the service registration and discovery functions of the NGSI Enabler by utilizing the OMA Web Service EnableR (OWSER) and its UDDI interfaces and specification of the services through WSDL.

NGSI v1.0 defines abstract interfaces. This technical specification builds the basis for the definition of binding technologies based on the abstract interface definitions given in the TS.

The TS is not basis for testing without a respective binding.

## 2. References

### 2.1 Normative References

- [NGSI-AD] “NGSI Architecture”, Open Mobile Alliance™, OMA-AD-NGSI-V1\_0, URL:<http://www.openmobilealliance.org/>
- [NGSI-RD] “NGSI Requirements”, Open Mobile Alliance™, OMA-RD-NGSI-V1\_0, URL:<http://www.openmobilealliance.org/>
- [OWSERspec] “OMA Web Services EnableR (OWSER): Core Specifications, Version 1.1”, Open Mobile Alliance, 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>
- [RFC4234] “Augmented BNF for Syntax Specifications: ABNF”. D. Crocker, Ed., P. Overell. October 2005, URL:<http://www.ietf.org/rfc/rfc4234.txt>
- [SCRRULES] “SCR Rules and Procedures”, Open Mobile Alliance™, OMA-ORG-SCR\_Rules\_and\_Procedures, URL:<http://www.openmobilealliance.org/>
- [UDDI] “UDDI Version 2.04 API Specification,” UDDI Committee Specification, 19 July 2002, URL:<http://uddi.org/pubs/ProgrammersAPI-V2.04-Published-20020719.htm>
- [WSDL] “Web Services Description Language (WSDL) 1.1”, Erik Christensen, Francisco Cabrera, Greg Meredith, Sanjiva Weeravarana, W3C NOTE, March 15, 2001, URL:<http://www.w3.org/TR/wsdl.html>
- [WSI] “Basic Profile Version 1.0”, Web Services Interoperability Organization, Final Material, 2004/04/16, URL: <http://www.ws-i.org/Profiles/BasicProfile-1.0-2004-04-16.html>

### 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/>
- [OWSERovw] “OMA Web Services EnableR (OWSER): Overview”, Version 1.1, Open Mobile Alliance™, OMA-OWSER-Overview-V1\_1, URL:<http://www.openmobilealliance.org/>
- [OWSERBP] “OMA Web Services EnableR (OWSER) Best Practices: WSDL Style Guide”, Version 1.1, Open Mobile Alliance™, OMA-OWSER-Best\_Practice-WSDL\_Style\_Guide-V1\_1, 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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

### 3.2 Definitions

The definitions of the OMA Dictionary [OMADICT] are valid for this document unless otherwise stated below.

**Service Description**            see [NGSI-RD]

### 3.3 Abbreviations

<b>NGSI</b>	Next Generation Service Interfaces
<b>OMA</b>	Open Mobile Alliance
<b>OWSER</b>	OMA Web Services EnableR
<b>UDDI</b>	Universal Description, Discovery, and Integration
<b>WSDL</b>	Web Services Description Language
<b>WS-I</b>	Web Services Interoperability
<b>TS</b>	Technical Specification

## 4. Introduction

The Registration and Discovery APIs provides interfaces in order to support functionalities for

- Registration of resources
- Searching for resources

This TS specification is part of the TS specifications for the NGSI Enabler. The functionality is provided as specified by the OMA Web Service Enabler (OWSER) [OWSERspec]. An overview on the utilization of OWSER is given in [OWSEROvw] a style guide to describe webservice for OMA in WSDL is provided in [OWSERBP].

### 4.1 Version 1.0

The NGSI TS Registration and Discovery document specifies the NGSI-11 Interface with the following functions:

- registration of the Service Description of a service (including functionalities and Policies).
- modification of the Service Description (including functionalities and Policies) of a service.
- deregistration of a Service Description of a service

and the NGSI-12 interface with the following function:

- Retrieval of the Service Description of all services matching some given information in the description (e.g. providing a specific functionality, requirements in Policies).

#### 4.1.1 Backward Compatibility to the Parlay Specifications

None.

## 5. NGSI-11: Service Registration Interface

### 5.1 Service Description

The Web Service provider SHALL register or publish its service at a dedicated Web Service Registry which realizes the NGSI-11 interface. In Figure 1 a simple deployment is shown.

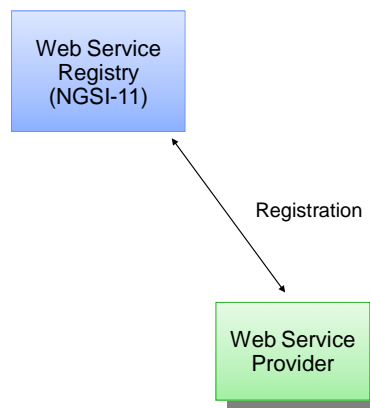


Figure 1: NGSI-11 Service usage

#### 5.1.1 Utilization of UDDI and WSDL as specified in OWSER

The above functionality has been discussed as part of the OMA Web Service EnableR (OWSER). The core specification of OWSER [OWSERspec] is build upon several existing standards utilizing among others WSDL for the description of the service on the one hand and UDDI for registration/management of service. In Figure 2 an overview of the so called web services stack described by OWSER is shown [OWSERspec].



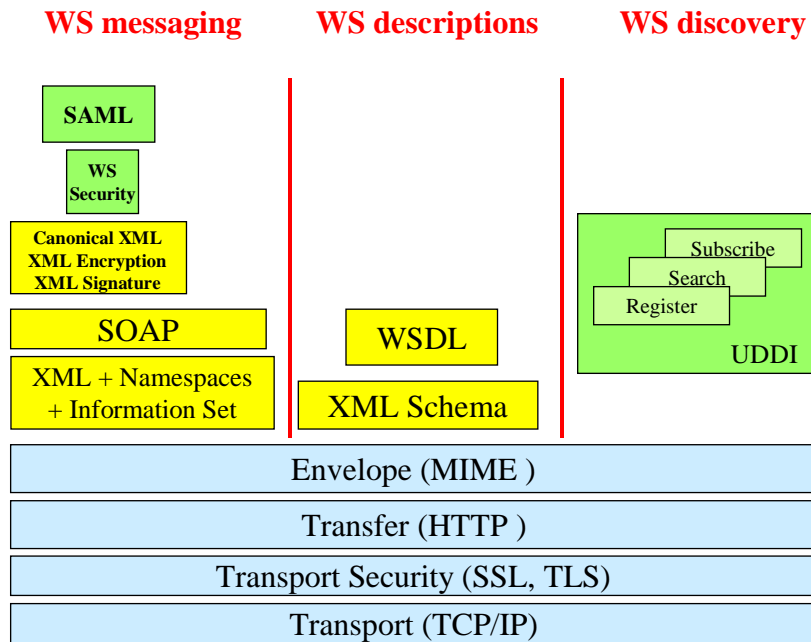


Figure 2: Utilization of various specification by OWSER [OWSERspec]

The NGSI-11 Service Registration interface is realized as a combination of existing standards as specified by the OMA Webservice EnableR - Core Specification [OWSERspec]. The NGSI-11 Service Registration interface SHALL implement the interfaces according to section 4.3 and 4.4. of the UDDI 2.0.4 Publishing API [UDDI] taking into account the WS-I Basic Profile 1.0 [WSI1.0] which utilizes WSDL 1.1[WSDL] to for the description of the Web Service.

## 5.1.2 Service Recommendation

The NGSI-11 and NGSI-12 allow an application to configure how to recommend content or services in order to enhance the user experience of multimedia communications. The following section describes the data type definition.

### 5.1.2.1 Data Type Definition

#### 5.1.2.1.1 InvocationType enumeration

This is a list of InvocationType that is used in the *ServiceRecommendation* metadata.

Enumeration	Description	New Parameters
InvokeAutomatically	Start automatically	NGSI-11, NGSI-12
InvokeManually	Start with manual confirmation	NGSI-11, NGSI-12

Table 1: InvocationType enumeration

#### 5.1.2.1.2 PushTrigger enumeration

This is a list of *PushTrigger* enumeration that is used in the *ServiceRecommendation* metadata.

Enumeration	Description	New Parameters
OnRegistration	Push at registration time	NGSI-11, NGSI-12
OnCallSetup	Push at call setup time	NGSI-11, NGSI-12
OnUserAvailability	Push at user's availability	NGSI-11, NGSI-12
WithOngoingCommunication	Push during ongoing communication	NGSI-11, NGSI-12
OnMetaData	Push on meta data conditions	NGSI-11, NGSI-12

Table 2: PushTrigger enumeration

### 5.1.2.1.3 ServiceRecommendationMetadata structure

This structure contains the *ServiceRecommendation* metadata.

Part name	Part type	Optional	Description	New parameters
PushTrigger	PushTrigger	No	Identifier used to indicate when to push service recommendation to the UEs: <ul style="list-style-type: none"> <li>on Call setup or on registration,</li> <li>on availability of the user,</li> <li>on basis of ongoing communication only,</li> <li>on basis of meta data</li> </ul>	NGSI-11, NGSI-12
MetadataCriteria	xsd:string	Yes	SHALL be included if PushTrigger is set to onMetaData. Indicates criteria which needs to be met on PushTrigger condition	NGSI-11, NGSI-12
ServiceType	xsd:string	No	Indicates the type of content/services that is being recommended (e.g. content links or plug-in),	NGSI-11, NGSI-12
Receiver	xsd:string	No	Indicates to whom the service recommendations are issued (e.g. same for all users, personalized, group-specific, on user basis)	NGSI-11, NGSI-12
PushConditions	xsd:string	Yes	Identifies particular conditions under which the service recommendations are issued (e.g. specific context) Default setting: void	NGSI-11, NGSI-12
InvocationMethod	InvocationType	No	Indicates how to invoke the service recommendations (e.g. presented on the user's choice to use (manually), or to be invoked automatically (e.g. dynamic advertisement driven by service provider's policies))	NGSI-11, NGSI-12
UserChoice	InvocationType	Yes	Indicates how to involve a user choice to seek user's consent, when invoking automatically; Default setting is on user's consent.	NGSI-11, NGSI-12

Table 3: ServiceRecommendationMetadata structure

## 6. NGSI-12: Service Discovery Interface

### 6.1 Service Description

The Web Service Registry contains a set of known web services. A Web Service Requestor SHALL utilize the discovery functionality of the Web Service Registry to get detailed information on a Web Service fulfilling its specification. A sample deployment is shown in Figure 3.

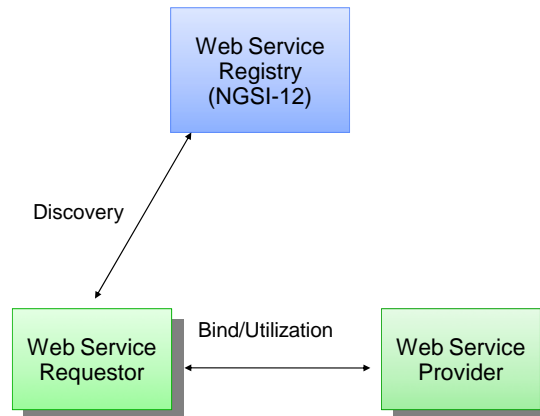


Figure 3: NGSI-12 Service Usage

#### 6.1.1 Utilization of UDDI and WSDL as specified in OWSER

The above functionality has been discussed as part of the OMA Web Service EnableR (OWSER). As discussed in section 5.1.1 OWSER utilizes existing standards. The NGSI-12 Service Discovery is realized as a combination of existing standards as specified by the OMA Webservice EnableR - Core Specification [OWSERspec]. The NGSI-11 Service Discovery interface SHALL implement the interfaces according to section 4.1 and 4.2 of the UDDI 2.0.4 Inquiry API [UDDI] taking into account the WS-I Basic Profile 1.0 [WSI1.0] which utilizes WSDL 1.1 [WSDL] to for the description of the Web Service.

## Appendix A. Change History

(Informative)

### A.1 Approved Version History

Reference	Date	Description
OMA-TS-NGSI_Registration_and_Discovery-V1_0-20120529-A	29 May 2012	Status changed to Approved by TP Ref TP Doc # OMA-TP-2012-0203-INP_NGSI_V1_0_ERP_for_final_Approval

## Appendix B. Static Conformance Requirements (Normative)

As NGSI v1.0 specifies the level of abstract interfaces, no testing of those is applicable. Therefore, the Static Conformance Requirements (SCR) tables are not defined. Those are subject for definitions in the related technical specification defining the bindings.