Enabler Release Definition for SyncML Common Specifications

Approved Version 1.2.2 – 24 Jul 2009

Open Mobile Alliance

OMA-ERELD-SyncML_Common-V1_2_2-20090724-A

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1. Scope

The scope of this document is limited to the Enabler Release Definition of the SyncML Common Specifications which provide support for both OMA Data Synchronization (DS) and OMA Device Management (DM) according to OMA Release process and the Enabler Release specification baseline listed in section 6. The Open Mobile Alliance SyncML Common v1.2 specifications are based on the OMA SyncML Common v1.1.2 specifications with the addition of previous requirements and change requests identified in the SyncML Initiative, Ltd.

The SyncML Initiative, Ltd. was a not-for-profit corporation formed by a group of companies who co-operated to produce an open specification for data synchronization and device management. Prior to SyncML, data synchronization and device management had been based on a set of different, proprietary protocols, each functioning only with a very limited number of devices, systems and data types. These non-interoperable technologies have complicated the tasks of users, manufacturers, service providers, and developers. Further, a proliferation of different, proprietary data synchronization and device management protocols has placed barriers to the extended use of mobile devices, has restricted data access and delivery and limited the mobility of the users.

SyncML is a specification that contains the following main components:

- An XML-based representation protocol
- A synchronization protocol and a device management protocol
- Transport bindings for the protocol

The data representation specifies an XML DTD that allows the representation of all the information required to perform synchronization or device management, including data, metadata and commands. The synchronization and device management protocols specify how SyncML messages conforming to the DTD are exchanged in order to allow a SyncML client and server to exchange additions, deletes, updates and other status information.

There are also DTDs that define the representation of information about the device such as memory capacity, and the representation of various types of Meta information such as security credentials.

Although the SyncML specification defines transport bindings that specify how to use a particular transport to exchange messages and responses, the SyncML representation, synchronization and device management protocols are transport-independent. Each SyncML package is completely self-contained, and could in principle be carried by any transport. The initial bindings specified are HTTP, WSP and OBEX, but there is no reason why SyncML could not be implemented using email or message queues, to list only two alternatives. Because SyncML messages are self-contained, multiple transports may be used without either the server or client devices having to be aware of the network topology. Thus, a short-range OBEX connection could be used for local connectivity, with the messages being passed on via HTTP to an Internet-hosted synchronization server.

To reduce the data size, a binary coding of SyncML based on the WAP Forum's WBXML is defined. Messages may also be passed in clear text if required. In this and other ways SyncML addresses the bandwidth and resource limitations imposed by mobile devices.

SyncML is both data type and data store independent. SyncML can carry any data type that can be represented as a MIME object. To promote interoperability between different implementations of SyncML, the specification includes the representation formats used for common PIM data.

The OMA SyncML Common Specifications v1.2 Enabler Release includes the following types of documents:

- The XML-based representation protocol which specifies the common XML syntax and semantics used by all SyncML protocols and is the superset of the DS and DM representation protocols
- The transport bindings
- The Meta Information associated with a SyncML command or data item or collection used by all SyncML protocols
- The logical structure and format of the notification messages used by all SyncML server alerted notifications

2. References

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.1, Open Mobile Alliance™, OMA-IOP-Process-V1_1, URL:http://www.openmobilealliance.org/

[REPPRO] "SyncML Representation Protocol", Open Mobile Alliance™, OMA-TS-SyncML_RepPro-V1_2, URL:http://www.openmobilealliance.org/

[REPPRODTD] "SyncML Representation Protocol, Document Type Definition ", Open Mobile Alliance™, OMA-TS-SyncML_RepPro_DTD-V1_2, 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

[SAN] "SyncML Server Alerted Notification", Open Mobile Alliance™, OMA-TS-SyncML_SAN-V1_2, URL:http://www.openmobilealliance.org/

[SYNCHTTP] "SyncML HTTP Binding Specification", Open Mobile Alliance™, OMA-TS-SyncML_HTTPBinding-V1_2, URL:http://www.openmobilealliance.org/

[SYNCMETA] "SyncML Meta Information", Open Mobile Alliance™, OMA-TS-SyncML_MetaInfo-V1_2, URL:http:www.openmobilealliance.org/

[SYNCMETADTD] "SyncML Meta Information, Document Type Definition", Open Mobile Alliance™, OMA-TS-SyncML_MetaInfo_DTD-V1_2, URL:http:www.openmobilealliance.org/

[SYNCOBEX] "SyncML OBEX Binding Specification", Open Mobile Alliance™, OMA-TS-SyncML_OBEXBinding-V1_2, URL:http://www.openmobilealliance.org/

[SYNCWSP] "SyncML WSP Binding Specification", Open Mobile Alliance™, OMA-TS-SyncML_WSPBinding-V1_2, URL:http://www.openmobilealliance.org/

2.1 Informative References

None

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 9 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

3.3 Abbreviations

Data Synchronization	The act of establishing an equivalence between two data collections, where each data element in one item maps to a data item in the other, and their data is equivalent.
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.

3.4 Abbreviations

DM	Device Management
DS	Data Synchronization
DTD	Document Type Definition
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
OMA	Open Mobile Alliance
SCR	Static Conformance Requirements
SyncML	Synchronization Mark-up Language
XML	Extensible Mark-up Language

4. Introduction

This document outlines the Enabler Release Definition for the SyncML Common Specifications and the respective conformance requirements for client and server implementations claiming compliance to the Open Mobile Alliance DS and DM v1.2 specifications.

The Common Specifications include documents that define the binding requirements for communicating SyncML over various transports. Although SyncML is transport independent, a set of common bindings is defined to encourage interoperability.

The SyncML representation protocol is defined by a set of messages that are conveyed between entities participating in a SyncML operation. The messages are represented as an XML document. The SyncML Representation Protocol document in the Common Specifications defines the logical structure and format of various SyncML messages that are used by DS, DM or both. The SyncML representation protocol supports protocol models that are based on a request/response command structure, as well as those that are based on a "blind push" command structure.

The SyncML server alerted notification specification outlines a mechanism providing a server the ability to notify a client by defining the logical structure and format of SyncML notification messages that can be used by DS, DM, or both.

Meta Information that is used to convey characteristics of the data object to be synced or managed (e.g. Maximum size, format, type) or of the datastore (memory, state) is defined in another of the Common Specifications.

This Enabler Release does not include a Requirements Document (RD) or Architectural Document (AD). This Enabler Release is based on a previous release that is a legacy enabler which had no RD or AD. The updates for this Enabler Release are very limited in scope for purposes required by DM v1.2 specifications and because of this no RD or AD was created.

5. Description of Differences from Previous Version

The main difference is the total rewriting of the Server Alerted Notification feature. This has lead to the introduction of a new document in the ERELD, i.e. [SAN], which is dedicated to this feature. [REPPRO] and [SYNCMETA] specifications have also been updated to support new features in OMA DS 1.2 such as Field level Replace, Hierarchical Synchronization or Filtering.

6. Document Listing for SyncML Common

This section is normative.

Doc Ref	Permanent Document Reference	Description
Technical Specifications		
[SYNCHTTP]	OMA-TS-SyncML_HTTPBinding-V1_2_1-20070611-A	OMA DS is transport independent. This document defines the binding requirements for communicating OMA DS over the Hypertext Transfer Protocol (HTTP)
[SYNCMETA]	OMA-TS-SyncML_MetaInfo-V1_2_2-20090724-A	This document outlines the SyncML Meta Information Specification and the respective conformance requirements for clients and servers.
[SYNCOBEX]	OMA-TS-SyncML_OBEXBinding-V1_2-20070221-A	OMA DS is transport independent. This document defines the binding requirements for communicating OMA DS over the Object Exchange Protocol (OBEX)
[REPRO]	OMA-TS-SyncML_RepPro-V1_2_2-20090724-A	This document specifies the common XML syntax and semantics used by all SyncML protocols. The SyncML representation protocol is defined by a set of messages that are conveyed between entities participating in a SyncML operation.
[SAN]	OMA-TS-SyncML_SAN-V1_2_1-20070611-A	This specification describes the Server Alerted Notification package and associated behaviour. This package is intended to provide the means for a server to notify a client to start a SyncML session with the server.
[SYNCWSP]	OMA-TS-SyncML_WSPBinding-V1_2-20070221-A	This document describes how to use the SyncML over WSP (WAP). The document uses the primitives and methods defined in the WAP Forum WSP specification as of WAP June 2000 Conformance Release.
Supporting Files		
[SYNCMETADTD]	OMA-SUP-DTD-SyncML_MetaInfo-V1_2-20070221-A	DTD describing the META element syntax, as a complement to [SYNCMETA] Working file in DTD directory: file: OMA-SUP-DTD-SyncML_MetaInfo-V1_2-20070110-C.dtd path: http://www.openmobilealliance.org/tech/DTD/
[REPRODTD]	OMA-SUP-DTD-SyncML_RepPro-V1_2-20070221-A	DTD describing SyncML Messages syntax, as a complement to [REPPRO]. Working file in DTD directory: file: OMA-SUP-DTD-SyncML_RepPro-V1_2-20070110-C.dtd path: http://www.openmobilealliance.org/tech/DTD/

Table 1: Listing of Documents in SyncML Common Enabler

7. Minimum Functionality Description for Common Specifications

This section is informative.

7.1 Minimum Functionality of Client Implementations using the Common Specifications

This section is informative.

- The list of minimum functionality for a DS or DM client using the Common Specifications is very numerous. Please refer to the Enabler Release specification baseline listed in Section 6.

7.2 Minimum Functionality of Server Implementations using the Common Specifications

This section is informative.

The list of minimum functionality for a DS or DM server using the Common Specifications is very numerous. Please refer to the Enabler Release specification baseline listed in Section 6.

8. 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.

9. ERDEF for Common Specifications - Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DS-C-001	Client	M	[REPPRO] AND [REPPRODTD] AND [SAN] AND [SYNCHTTP] AND [SYNCMETA] AND [SYNCMETADTD] AND [SYNCOBEX] AND [SYNCWSP]

Table 2: ERDEF for Common Specifications Client-side Requirements

10. ERDEF for Common Specifications - Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DS-S-001	Server	M	[REPPRO] AND [REPPRODTD] AND [SAN] AND [SYNCHTTP] AND [SYNCMETA] AND [SYNCMETADTD] AND [SYNCOBEX] AND [SYNCWSP]

Table 3: ERDEF for Common Specifications Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ERELD-SyncML_Common-V1_2-20070221-A	21 Feb 2007	Status changed to Approved by TP: OMA-TP-2007-0005R03-INP_ERP_SyncML_Common_V1_2_for_Final_Approval
OMA-ERELD-SyncML_Common-V1_2_2-20090724-A	24 Jul 2009	Status changed to Approved by TP TP Ref # OMA-TP-2009-0323R02-INP_SyncML_Common_V1_2_2_ERP_for_Notification