Enabler Release Definition for Data Synchronization

Candidate Version 2.0 – 12 Feb 2009

Open Mobile Alliance

OMA-ERELD-DS-V2_0-20090212-C

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1. Scope

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

2. References

2.1 Normative References

[DEVINF] " OMA DS Device Information", Version 2.0, Open Mobile Alliance™, OMA-TS-DS-DevInfo-V2_0,
URL: http://www.openmobilealliance.org

[DS_DEVINF_SCHEMA] "OMA DS Device Information Syntax", Version 2.0, Open Mobile Alliance™, OMA-SUP-XSD_DS_DevInf_Schema-V2_0,
URL:http:www.openmobilealliance.org

[DS_MO] "OMA DS Management Object", Version 1.0, Open Mobile Alliance™, OMA-TS-DS_MO-V1_0,
URL:http://www.openmobilealliance.org

[DS_MO_DDF] "OMA DS MO DDF", Version 1.0, Open Mobile Alliance™, OMA-SUP-MO_DS-V1_0,
URL:http:www.openmobilealliance.org

[DS_SYNTAX_SCHEMA] "OMA DS Syntax Schema", Version 2.0, Open Mobile Alliance™, OMA-SUP-XSD_DS_Syntax_Schema-V2_0,
URL:http:www.openmobilealliance.org

[DSCONCEPTS] "Data Synchronization Concepts and Definitions", Version 2.0, Open Mobile Alliance™, OMA-TS-DS_Concepts-V2_0,
URL:http:www.openmobilealliance.org

[DSHTTPBINDING] "OMA DSSyncML HTTP Binding Specification", Version 1.2.01, Open Mobile Alliance™, OMA-TS-DSSyncML_HTTPBinding-V1_2_01,
URL:http:www.openmobilealliance.org

[DSNOTI] "OMA DS Notification", Version 2.0, Open Mobile Alliance™, OMA-TS-DS_Notification-V2_0,
URL:http:www.openmobilealliance.org

[DSOBEXBINDING] "OMA DSSyncML OBEX Binding Specification", Version 1.2.0, Open Mobile Alliance™, OMA-TS-DSSyncML_OBEXBinding_V1_2_0,
URL:http:www.openmobilealliance.org

[DSPRO] "Data Synchronization Protocol", Version 2.0, Open Mobile Alliance™, OMA-TS-DS_Protocol-V2_0,
URL:http:www.openmobilealliance.org

[DSPROVISIONING] "OMA DS Provisioning", Version 2.0, Open Mobile Alliance™, OMA-TS-DS_Provisioning-V2_0,
URL:http:www.openmobilealliance.org

[DSSYNTAX] "Data Synchronization Syntax", Version 2.0, Open Mobile Alliance™, OMA-TS-DS_Syntax-V2_0,
URL:http:www.openmobilealliance.org

[DSWSPBINDING] "OMA DSSyncML OBEX WSP Binding Specification", Version 1.2.0, Open Mobile Alliance™, OMA-TS-DSSyncML_WSPBinding-V2V1_02,
URL:http:www.openmobilealliance.org

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.1, Open Mobile Alliance™, OMA-IOP-Process-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/

2.2 Informative References

[CHANGEHIST] "OMA DS Standards Change History", Open Mobile Alliance™, OMA-WP-SyncML_ChangeHistory,
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 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

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.

3.3 Abbreviations

DS	Data Synchronization
DTD	Document Type Definition
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
HTTP	HyperText Transfer Protocol
OBEX	Object Exchange protocol
OMA	Open Mobile Alliance
SCR	Static Conformance Requirements
SyncML	Synchronization Mark-up Language
WSP	Wireless Session Protocol
XML	Extensible Mark-up Language

4. Release Version Overview

There are multiple release versions for Data Synchronization enabler.

As SyncML Initiative joined OMA in 2002, post-2002 SyncML releases has been renamed OMA DS. Therefore you will find two sets of versions: SyncML 1.0.0, 1.0.1, 1.1.0, 1.1.1, prior to OMA integration, and OMA DS 1.1.2, 1.2, 1.2.x and 2.0, since OMA integration. SyncML 1.1.1 and OMA DS 1.1.2 versions are nearly the same. The major changes relate to evolutions between SyncML 1.0.1 and SyncML 1.1.1, and between OMA DS 1.1.2, OMA DS 1.2 and OMA DS 2.0.

The next sections outline the main changes made to the protocol since 1.0.1 release.

Detailed change history information can be found in [CHANGEHIST].

4.1 SyncML 1.0.1 Functionality

This version defines the basic fundamentals for data synchronization technology.

The major functionalities are: seven sync types, usage of anchors, mapping of identifiers, conflict resolution, authentication, exchange of device information, device memory management, multiple messages in packages, sync without separate initialization, busy signalling.

4.2 OMA DS 1.1.2 Functionality

Compared to SyncML 1.0.1, in this version, the new functionalities are: large object handling, number of changes, maximum object size, UTC tag in device information.

4.3 OMA DS 1.2.x Functionality

The main changes in this version are: suspend and resume, servcer alerted notification, record and field level filtering, field level replace, synchronization of hierarchical data objects, folder data objects, email data objects, file data objects.

Compared to DS 1.2, DS 1.2.x only includes editorial and clarification changes.

4.4 OMA DS 2.0 Functionality

The main changes in this version are:

- Overall

This version is not backward compatible with the previous versions. And it is not based on SyncML Common specifications.

Three binding (HTTP binding, OBEX binding, WSP binding) documents are moved from SyncML Common 1.2.1 enabler to this enabler.

And three data object definition (Email, Folder, File) documents are moved out of this enabler and can be referred to DS 1.2.1 enabler.

- Device Information

The device information DTD (Document Type Definition) is changed to XML Schema. The hierarchy of the device information is reorganized. Some new elements are added to indicate the optional features.

- Protocol

Fingerprints are introduced to compare the data items before synchronization. New sync type negotiation parameters are introduced. Continuous sync is introduced to fulfill the real time synchronization requirements. The overall sync flows are redesigned.

- Syntax

The representation protocol is changed to syntax, and DTD is changed to XML Schema. Source and Target related elements are redesigned to make it clearer which is Source and which is Target. Some DM (Device Mangement) related commands are removed or simplified. Some meta information related elements are combined into Syntax.

For this release, the SyncML Common representation protocol and meta information protocol are not reused.

- Management Object

A new document is introduced to use DS Management Object for provisioning parameters. Also, the corresponding supplement DDF document is introduced.

- Notification

Notification acknowledgement mechanism is introduced. A more generic notification framework is defined and new action types can be easily added.

5. Document Listing for DS 2.0

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[DS_RD]	OMA-RD-DS-V2_0-20070418-C	Requirement Document for DS 2.0 Enabler
Architecture Document		
[DS_AD]	OMA-AD-DS-V2_0-20090212-C	Architecture Document for DS 2.0 Enabler
Technical Specifications		
[DSCONCEPTS]	OMA-TS-DS_Concepts-V2_0-20090212-C	Defines the concepts and definitions for DS 2.0 enabler
[DEVINF]	OMA-TS-DS_DevInf-V2_0-20090212-C	Defines the device information to be exchanged between DS Client and DS Server for DS 2.0 enabler
[DSHTTPBINDING]	OMA-TS-SyncML_HTTPBinding-V1_2_1-20070611-A	Defines the HTTP binding specification for DS 2.0 enabler
[DSNOTI]	OMA-TS-DS_Notification-V2_0-20090212-C	Defines the Notification specification for DS 2.0 enabler
[DSOBEXBINDING]	OMA-TS-DS_OBEXBinding-V1_2-20070221-A	Defines the OBEX binding specification for DS 2.0 enabler
[DSPRO]	OMA-TS-DS_Protocol-V2_0-20090212-C	Defines the DS fundamentals, sync flows, DS usages for DS 2.0 enabler
[DSSYNTAX]	OMA-TS-DS_Syntax-V2_0-20090212-C	Defines the syntax of the SyncML commands for DS 2.0 enabler
[DSWSPBINDING]	OMA-TS-DS_WSPBinding-V1_2-20070221-A	Defines the WSP binding specification for DS 2.0 enabler
[DS_MO]	OMA-TS-DS_MO-V1_0-20090212-C	Defines the DS Management Object for provisioning in DS 2.0 enabler
[DSPROVISIONING]	OMA-TS-DS_Provisioning-V2_0-20090212-C	Defines the DS Application Characteristic files for provisioning in DS 2.0 enabler
Supporting Files		
[DS_MO_DDF]	OMA-SUP-MO_DS-V1_0-20090212-C	Defines the DS Management Object Device Description Framework for DS 2.0 enabler
[DS_SYNTAX_SCHEMA]	OMA-SUP-XSD_DS_Syntax_Schema-V2_0-20090212-C	Defines the DS Syntax Schema for DS 2.0 enabler
[DS_DEVINF_SCHEMA]	OMA-SUP-XSD_DS_DevInf_Schema-V2_0-20090212-C	Defines the DS Device Information Schema for DS 2.0 enabler

Table 1: Listing of Documents in DS Enabler

6. OMNA Considerations

The DS 2.0 enabler has the following OMNA considerations:

(1) Management Object Identifier registration in OMNA:

Management Object Identifier for the DS Management Object is: “urn:oma:mo:oma-dsmo:1.0”.

(2) WBXML Formal Public Identifier for SyncML 2.0 0x1205 (suggested)

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 [IOPPROC].

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 [IOPPROC] and it MUST accurately reflect the architectural requirement of the **Item** in question.

8. ERDEF for DS 2.0 - Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DS-C-001	DS Client Functions	M	Test DS Client functions.

Table 2: ERDEF for DS 2.0 Client-side Requirements

9. ERDEF for DS 2.0 - Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DS-S-001	DS Server	M	Test DS Server functions

Table 3: ERDEF for DS 2.0 Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 2.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-DS-V2_0	02 Aug 2006	All	Original version of this document
	01 Aug 2008	All	Incorporates the agreed CR: OMA-DS-DS_2_0-2008-0091-CR_ERELD_Update
	07 Nov 2008	All	Incorporates the agreed CR: OMA-DS-DS_2_0-2008-0136R01-CR_ERELD_Update
	20 Nov 2008	All	Editorial clean-up prior to Consistency review. Section 5 updated.
	11 Dec 2008	All	Incorporates the agreed CR: OMA-DS-DS_2_0-2008-0155R02-CR_ERELD_Update
	09 Jan 2009	2, 5	Clean-up of the references. Section 5 updated.
	30 Jan 2009	5	Section 5 updated.
	03 Feb 2009	5	Section 5 updated.
Candidate Version OMA-ERELD-DS-V2_0	12 Feb 2009	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2009-0074R01-INP_DS_V2_0_ERP_for_Candidate_Approval