



WAP-Sync-Spec
Data Synchronisation Specification
Version 30-May-2001

Wireless Application Protocol
WAP-234-SYNC-20010530-a

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Document History	
WAP-234-SYNC-20010313-p	Initial Revision
WAP-234-SYNC-20010530-p	Updated WSP reference in Appendix B
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1. Scope

This section is informative.

Wireless Application Protocol (WAP™) is a result of continuous work to define an industry wide specification for developing applications that operate over wireless communication networks. The scope for the WAP Forum is to define a set of specifications to be used by service applications. The wireless market is growing very quickly and reaching new customers and providing new services. To enable operators and manufacturers to meet the challenges in advanced services, differentiation, and fast/flexible service creation, WAP defines a set of protocols in transport, session and application layers. For additional information on the WAP architecture, refer to “*Wireless Application Protocol Architecture Specification*” [WAP].

A need to provide data synchronisation exists in WAP. This specification defines a common method for WAP data synchronisation.

2. References

2.1. Normative References

- [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)
- [SyncML] “SyncML Sync Protocol, version 1.0”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000.
URL: <http://www.syncml.org/>
- [SyncML-Rep] SyncML Representation Protocol, version 1.0”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000. URL: <http://www.syncml.org/>
- [SyncML-Meta] “SyncML Meta-Information DTD, version 1.0”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000. URL: <http://www.syncml.org/>
- [SyncML-DInf] “SyncML Device Information DTD”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000.
URL: <http://www.syncml.org/>
- [SyncML-HTTP] ”SyncML HTTP Binding, version 1.0”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000.
URL: <http://www.syncml.org/>
- [SyncML-WSP] ”SyncML over WSP, Version 1.0”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software, December 7, 2000.
URL: <http://www.syncml.org/>
- [CREQ] “Specification of WAP Conformance Requirements”. WAP Forum™.
WAP-221-CREQ-20000915-a. [URL:<http://www.wapforum.org/>](http://www.wapforum.org/)

2.2. Informative References

- [WAP] “Wireless Application Protocol Architecture Specification”, WAP Forum Ltd, 30-April-1998.
URL: <http://www.wapforum.org/>
- [SyncML-Conformance] “SyncML Conformance Testing Process”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software.
URL: <http://www.syncml.org/>
- [SyncML-IOT] “SyncML Interoperability Testing Process”, Ericsson, IBM, Lotus, Matsushita Communication Industrial Co., LTD, Motorola, Nokia, Palm, Inc., Psion, Starfish Software.
URL: <http://www.syncml.org/>

3. Terminology and Conventions

This section is informative.

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

Application - A value-added data service provided to a WAP Client. The application may utilise both push and pull data transfer to deliver content.

Client – In the context of synchronisation, a device (or application) that initiates a request for connection with a server or a device (or application) that expects to receive a request for connection from a server.

Device - is a network entity that is capable of sending and/or receiving packets of information and has a unique device address. A device can act as either a client or a server within a given context or across multiple contexts. For example, a device can service a number of clients (as a server) while being a client to another server.

PIM – Personal Information Manager, application on client or server which allows user to manage personal information such calendar, phone book, note and messages.

Server - a device (or application) that passively waits for connection requests from one or more clients. A server may accept or reject a connection request from a client. A server may initiate a connection to a client as part of a server initiated synchronisation.

Synchronisation - the process of exchanging information between multiple physical or virtual locations for the purpose of ensuring that each location's copy of that information reflects the same information content.

SyncML - Sync Markup Language, a data sync initiative. (<http://www.syncml.org/>)

Terminal - a device typically used by a user to request and receiving information. Also called a mobile terminal or mobile station.

User - a user is a person who interacts with a user agent to view, hear, or otherwise use a rendered content. Also referred to as end-user.

User agent - a user agent (or content interpreter) is any software or device that interprets resources. This may include textual browsers, voice browsers, search engines, etc.

XML – the Extensible Markup Language is a World Wide Web Consortium (W3C) standard for Internet markup language, of which WML is one such language.

3.3. Abbreviations

For the purposes of this document, the following abbreviations apply.

HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
PIM	Personal Information Manager
SCR	Static Conformance Requirements
WAP	Wireless Application Protocol
WSP	Wireless Session Protocol
XML	Extensible Mark-up Language

4. Introduction

This section is informative.

The need for data synchronisation exists today. Due to the exponential growth of mobile devices, the growing dependence on PIM/business data, and the lack of a common data synchronisation protocol, there is a potential for “Islands of Communication”. These “Islands” have no easy means of transferring data and may contain conflicting data. Everyone that needs to have common data in multiple locations will benefit from this. The continued expansion of data on devices and applications is accelerating the need for Data Synchronisation. The opportunities from this expansion will continue to foster proliferation of disparate synchronisation methods, unless a common data synchronisation method is adopted. This specification defines a common data synchronisation method for WAP.

Data Synchronisation over WAP can be used in a number of ways. Here is a non-exhaustive list of a few ways in which data synchronisation over WAP can be used:

Client initiated synchronisation with multiple databases

A businessman has kept his calendar and contacts on the company server. Then he buys a new mobile device. He synchronises the calendar and contacts on the server with his new mobile device.

Generic Enterprise Data

A traveling salesperson goes out on sales call and generates multiple sales orders. Upon completion of day, he/she synchronises the orders to the company’s sales database for immediate processing.

Client initiated synchronisation with multiple servers

A user has a mobile device, which includes a calendar application, a PC that includes a calendar application, and a calendar account on a remote web server. The user wants to sync the mobile device with the PC’s and the remote server’s independent calendars.

Client initiated periodic updates

A user has several Internet sites whose content he wishes to make available for offline viewing on his mobile device. He synchronises with the web sites once a day.

Server initiated One To Many Synchronisation

There is a selective update to the corporate price list datastore. Only the updated information is synchronised with each of the price list datastores residing on the sales force’s mobile devices.

Server initiated data sync with multiple datastores in a common server

A Wireless Operator provides a web-based email and calendaring system where their wireless customers can sign up for email or calendar capabilities. A user has a web email account. He receives a new email into this account. The server initiates synchronisation with the inbox on the user’s mobile phone and delivers the new email. Later on the user’s assistant updates the user’s calendar to accommodate a new appointment. Once again the server initiates synchronisation - this time with the user’s mobile phone calendar.

Synchronisation between devices

A user has a palmtop computer and an intelligent phone. The user wants to keep both address books synchronised between the two devices. (Note: this could also be several family members that want to maintain a common address book). The user has two or more devices that can ONLY connect via WAP – there is no other connection possible. The user is interested in keeping the same data on the various devices, and doesn’t want to enter the same data more than once. This will save the user time, frustration, and possibly conflicting data.

5. The Core

This section is normative.

In this section, all references to **SyncML** mean the SyncML 1.0 specifications published by the SyncML Initiative in December, 2000, [SyncML],[SyncML-Rep],[SyncML-Meta] and [SyncML-DInf] plus all relevant errata, corrections, and other modifications to those specifications, including 1.x version of the SyncML specification. Any future major releases of SyncML such as a version 2.0 are not included in this specification.

5.1. WAP Clients support synchronisation via SyncML

If a WAP Client Device supports data synchronisation for applications over WAP, it MUST support data synchronisation over WAP via **SyncML** for all such applications.

This paragraph is informational. WAP Client Devices conforming to this specification must pass SyncML Conformance Testing as defined in [SyncML-Conformance] and also must pass SyncML Interoperability Testing as defined in [SyncML-IOT].

5.2. WAP Servers support synchronisation via SyncML

If a WAP Server supports data synchronisation over WAP with WAP Server or WAP Client Devices, it MUST support data synchronisation over WAP via **SyncML**.

This paragraph is informational. WAP Servers conforming to this specification must pass SyncML Conformance Testing as defined in [SyncML-Conformance] and also must pass SyncML Interoperability Testing as defined in [SyncML-IOT].

5.3. One Binding required

If a WAP Client or Server supports data synchronisation over WAP, then it MUST support at least one of either the SyncML WSP Binding [SyncML-WSP] or the SyncML HTTP Binding [SyncML-HTTP].

Appendix A. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [CREQ].

SYNC SERVER SCR

Item	Function	Reference	Status	Requirement
SYNC-S-001	Support synchronisation over WAP via SyncML.	Section 5.2	M	SYNC-S-002 OR SYNC-S-003
SYNC-S-002	Support SyncML WSP Binding.	Section 5.3	O	
SYNC-S-003	Support SyncML HTTP Binding	Section 5.3	O	

SYNC CLIENT SCR

Item	Function	Reference	Status	Requirement
SYNC-C-001	Support synchronisation over WAP via SyncML.	Section 5.1	M	SYNC-C-002 OR SYNC-C-003
SYNC-C-002	Support SyncML WSP Binding.	Section 5.3	O	
SYNC-C-003	Support SyncML HTTP Binding	Section 5.3	O	

Appendix B. Specification Dependencies (Informative)

Through normative reference in the SyncML specifications [SyncML], [SyncML-Rep], [SyncML-Meta], [SyncML-DInf], [SyncML-WSP] and [SyncML-HTTP], there are dependencies on the following WAP specifications:

- [WBXML] “WAP Binary XML Content Format Specification”, WAP-192-20000306, WAP Forum Ltd, URL: <http://www.wapforum.org/>
- [WSP] “Wireless Session Protocol Specification”, WAP Forum Ltd., WAP-203-20000504, URL: <http://www.wapforum.org/>
- [PAP] “Push Access Protocol”, WAP Forum Ltd., WAP-164-19991108, URL: <http://www.wapforum.org/>

Appendix C. Change History (Informative)

Type of Change	Date	Section	Description
Class 0	13-Mar-2001		The initial version of this document.
Class 2	30-May-2001	Appendix B	Updated WSP Reference