



Enabler Release Definition for Client Provisioning

Candidate Version 1.1 – 21 Apr 2009

Open Mobile Alliance
OMA-ERELED-ClientProvisioning-V1_1-20090421-C

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Validation Disclaimer: Two specifications in this package have not been validated due to lack of sufficient interoperability testing needed to fulfill the IOP Process as set forth by the Open Mobile Alliance. They are being included in the Client Provisioning V1.1 Enabler Release for completeness of the package as originally conveyed by the WAP Forum. The two specifications are OMA-WAP-TS-ProvCont-V1_1 and OMA-WAP-TS-ProvSC-V1_1.

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Client Provisioning version 1.1 according to Open Mobile Alliance Release process and the documents listed in section 0. The Open Mobile Alliance continues the work of the WAP Forum to define a set of specifications to be used by service applications.

Provisioning is the process by which a WAP client is configured with a minimum of user interaction. The term covers both over the air (OTA) provisioning and provisioning by means of, e.g., SIM cards.

2. References

2.1 Normative References

- [CREQ] “Specification of WAP Conformance Requirements”. WAP Forum™. WAP-221-CREQ.
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>
- [PROVBOOT] “Provisioning Bootstrap”, Version 1.1, Open Mobile Alliance™,
OMA-WAP-TS-ProvBoot-V1_1, URL: <http://www.openmobilealliance.org/>
- [PROVCONT] “Provisioning Content”, Version 1.1, Open Mobile Alliance™,
OMA-WAP-TS-ProvCont-V1_1, URL: <http://www.openmobilealliance.org/>
- [PROVUAB] “Provisioning User Agent Behaviour”, Version 1.1, Open Mobile Alliance™,
OMA-WAP-TS-ProvUAB-V1_1, URL: <http://www.openmobilealliance.org/>
- [PROVSC] “Provisioning Smartcard”, Version 1.1, Open Mobile Alliance™,
OMA-WAP-TS-ProvSC-V1_1, URL: <http://www.openmobilealliance.org/>
- [PUSHOTA] “WAP Push OTA Specification”, WAP Forum™, WAP-235-PushOTA,
URL: <http://www.openmobilealliance.org/>
- [RFC2279] “UTF-8, a transformation format of ISO 10646”, ed. F. Yergeau, 1998,
URL: <http://www.ietf.org/rfc/rfc2279.txt>
- [WBXML] “WAP Binary XML Content Format”, WAP Forum™, WAP-192-WBXML,
URL: <http://www.openmobilealliance.org/>

2.2 Informative References

- [PROVARCH] “Provisioning Architecture Overview”, Version 1.1, Open Mobile Alliance™,
OMA-WAP-TS-ProvArch-V1_1, URL: <http://www.openmobilealliance.org/>
- [WAPARCH] “WAP Architecture”. WAP Forum™. WAP-210-WAPArch.
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.

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 [IOPPROC].

3.2 Definitions

| | |
|--|--|
| Bootstrap Server | Bootstrap Server is the sender of the bootstrap message. It may physically be co-located with a TPS but that is irrelevant from an architecture point of view. The address of the Bootstrap Server is not relevant. |
| Characteristics | This document uses the term characteristics to define the characteristics of, typically, a Network Element (access point, proxy). The word is broad enough to be used in all the required contexts. |
| Configuration Context | A Configuration Context is a set of connectivity and application configurations typically associated with a single Trusted Provisioning Server. However, the Configuration Context can also be independent of any Trusted Provisioning Server. A Trusted Provisioning Server can be associated with several Configuration Contexts, but a Trusted Provisioning Server cannot provision a device outside the scope of the Configuration Contexts associated with that particular Trusted Provisioning Server. In fact, all transactions related to provisioning are restricted to the Configuration Contexts associated with the Trusted Provisioning Server. |
| Connectivity Information | This connectivity information relates to the parameters and means needed to access WAP infrastructure. This includes network bearers, protocols, access point addresses as well as proxy addresses and Trusted Provisioning Server URLs. |
| Enabler Release | a 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 fulfill 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. |
| Network Access Point | A physical access point is an interface point between the wireless network and the fixed network. It is often a RAS (Remote Access Server), an SMSC, a USSDC, or something similar. It has an address (often a telephone number) and an access bearer. |
| Provisioning document | A particular instance of a XML document encoded according to this specification. The MIME-type of the textual document is <i>text/vnd.wap.connectivity-xml</i> . The MIME-type of the tokenised document is <i>application/vnd.wap.connectivity-wbxml</i> . |
| Trusted Provisioning Server | A Trusted Provisioning Server (TPS), is a source of provisioning information that can be trusted by a Configuration Context. They are the only entities that are allowed to provision the device with static configurations. In some cases, however, a single TPS is the only server allowed to configure the phone. Provisioning related to a specific TPS is restricted to Configuration Contexts that are associated with this TPS. |
| Trusted Proxy | The trusted (provisioning) proxy has a special position as it acts as a front end to a trusted provisioning server. The trusted proxy is responsible to protect the end user from malicious configuration information. |
| WAP Proxy | The WAP proxy is an endpoint for the WTP, WSP and WTLS protocols, as well as a proxy that is able to access WAP content. A WAP Proxy can have functionality such as that of, for example, a WSP Proxy or a WTA Proxy. |
| WSP Proxy | A generic WAP proxy, similar in functionality to a HTTP proxy. It is a variant of a WAP Proxy. |
| WTA Proxy | The WTA Proxy is a Wireless Telephony proxy as defined by WAP. |

3.3 Abbreviations

| | |
|--------------|--|
| DTD | Document Type Definition |
| ERDEF | Enabler Requirement Definition |
| ERELD | Enabler Release Definition |
| HTTP | HyperText Transfer Protocol |
| ME | Mobile Equipment |
| MIME | Multipurpose Internet Mail Extensions |
| NAP | Network Access Point |
| OMA | Open Mobile Alliance |
| OTA | Over-the-Air |
| SIM | Subscriber Identity Module |
| SMSC | Short Message Service Centre |
| TPS | Trusted Provisioning Server |
| URL | Uniform Resource Locator |
| USSDC | Unstructured Supplementary Service Data Centre |
| WAP | Wireless Application Protocol |
| WBXML | WAP Binary XML |
| WIM | WAP Identity Module |
| WSP | Wireless Session Protocol |
| WTA | Wireless Telephony Application |
| WTLS | Wireless Transport Layer Security |
| XML | eXtensible Mark-up Language |

4. Release Version Overview

This document outlines the Enabler Release Definition for Client Provisioning version 1.1 and the respective conformance requirements for clients and servers implementing claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

Provisioning is the process by which a WAP client is configured with a minimum of user interaction. The term covers both over the air (OTA) provisioning and provisioning by means of, e.g., SIM cards. The WAP provisioning mechanism leverages the WAP technology whenever possible [WAPARCH]. This includes the use of the WAP stack as well as mechanisms such as WAP Push [PUSHOTA]. The provisioning architecture attempts to generalise the mechanisms used by different network types so that the network specific part is isolated to the bootstrap phase.

This is an informative section. It describes the functionality that is delivered with the Client Provisioning specifications and their internal mandatory requirements.

The Client Provisioning specifications define how initial configuration parameters can be delivered to a WAP client from a bootstrap server that is part of the provisioning infrastructure. The mandatory functionality covers basic network transport connectivity information: parameters for network access points and the proxies that are to be used. The network access point parameters define also which network bearers are supposed to be used, but clients are not required to support any particular bearers. The mandatory ACCESS characteristic can be used to provide rules that control how the WAP client will access the network either through proxies or directly through network access points. As an option, it is possible to use the APPLICATION characteristic to deliver application protocol configuration information related to e.g. the multimedia messaging service. The optional functionality also includes the possibility to define proxies and network access points that may be used only in specific mobile networks or countries. The configuration information is represented using provisioning documents formatted according to [PROVCONT].

The provisioning documents are delivered as binary XML documents [WBXML] using the UTF-8 [RFC2279] character set. These documents are delivered over the air using a bootstrap protocol [PROVBOOT]. The details of the bootstrap protocol, especially the security mechanisms, depend on the network technology, but the basic mechanism uses connectionless WAP push [PUSHOTA]. The specifications also define mandatory security mechanisms that can be used with all network technologies. As an option, the provisioning documents can be delivered using WIM or SIM cards [PROVSC].

The specifications cover also how the WAP client is required to interpret the received provisioning documents. There are mandatory rules for how the security mechanisms are to be used and how the provisioning documents delivered through different channels must be combined. There are also mandatory rules for how to implement conflict resolution, error handling, proxy selection and parameter prioritisation when interpreting the received provisioning documents. The provisioning information received by a WAP client is expected to be stored in configuration contexts, and there is a mechanism that can be used to control how many configuration contexts may be used in the client. These aspects are covered by [PROVUAB].

4.1 Version 1.0

The initial release of Client Provisioning (CP) Enabler was as provisioning components of the WAP Forum 2.0 Conformance Release. For the purpose of version management, the WAP Forum material is considered to have comprised the version 1.0 of the CP Enabler Release though it was never marked as such.

4.2 Version 1.1

Client Provisioning version 1.1 is an OMA developed backwards compatible extension of the client provisioning enabler developed by the WAP Forum. This version has added support for direct access (and WAP Proxy support) and application access provisioning.

5. Document Listing for Client Provisioning

This section is normative.

| Doc Ref | Permanent Document Reference | Description |
|---------------------------------|-------------------------------------|--|
| Technical Specifications | | |
| [PROVARCH] | OMA-WAP-TS-ProvArch-V1_1-20090421-C | Provisioning Architecture Overview |
| [PROVBOOT] | OMA-WAP-TS-ProvBoot-V1_1-20090421-C | Specification that defines the Provisioning Bootstrap |
| [PROVCONT] | OMA-WAP-TS-ProvCont-V1_1-20090421-C | Specification that defines the Provisioning Content |
| [PROVUAB] | OMA-WAP-TS-ProvUAB-V1_1-20090421-C | Specification that describes the Provisioning User Agent Behaviour |
| [PROVSC] | OMA-WAP-TS-ProvSC-V1_1-20090421-C | Specification that describes the Smart Card Provisioning |

Table 1: Listing of Documents in Client Provisioning V1.1

6. 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 [CREQ].

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 Terminal Expression according to [CREQ] and it MUST accurately reflect the architectural requirement of the **Item** in question.

7. ERDEF for Client Provisioning - Client Requirements

This section is normative.

Even though this [PROVCONT] and [PROVSC] specifications were not validated per the IOP Process, this information on static conformance retains the expected operational dependencies of the whole Client Provisioning V1.1 Enabler Release.

| Item | Feature / Application | Status | Requirement |
|------------------------------|--|--------|---|
| OMA-ERDEF-PROVISIONING-C-001 | Provisioning V1_1 Client | M | PROVCONT:MCF AND PROVBOOT:MCF AND PROVUAB:MCF |
| OMA-ERDEF-PROVISIONING-C-002 | Smart Card Provisioning V1_1 Client | O | PROVSC:MCF |

Table 2 ERDEF for Client Provisioning Client-side Requirements

8. ERDEF for Client Provisioning - Server Requirements

This section is normative.

Even though the [PROVCONT] specification was not validated per the IOP Process, this information on static conformance retains the expected operational dependencies of the whole Client Provisioning V1.1 Enabler Release.

| Item | Feature / Application | Status | Requirement |
|------------------------------|--------------------------|--------|--------------|
| OMA-ERDEF-PROVISIONING-S-001 | Provisioning V1_1 Server | M | PROVCONT:MSF |

Table 3 ERDEF for Client Provisioning 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 1.1 History

| Document Identifier | Date | Sections | Description |
|--|-------------|---|--|
| Candidate versions: OMA-ERELD-ClientProvisioning-v1_1 | 11 Nov 2002 | n/a | Initial version of document |
| | 24 Mar 2004 | ProvSC | CR DM-2004-0059 incorporated |
| | 28 Apr 2005 | ProvArch ProvBoot ProvCont ProvSC ProvUAB | CR DM-2003-0093 incorporated. Template update. CR DM-2003-0093 incorporated. Template update. CR DM-2003-0021, 0048 incorporated. Template update. Template update. CR DM-2003-0093 incorporated. Template update. |
| Draft Versions: OMA-ERELD-ClientProvisioning-V1_1 | 25 Oct 2007 | All | Updated document listing Updated template |
| Candidate versions: OMA-ERELD-ClientProvisioning-v1_1 | 26 Feb 2008 | All | Updated document listing Status changed to Candidate by TP TP ref# OMA-TP-2008-0085- INP_ClientProvisioning_V1_1_ERP_for_Notification |
| Draft Versions: OMA-ERELD-ClientProvisioning-V1_1 | 26 Mar 2008 | All | Updated documents listing Updated in line with: OMA-DM-CP-2009-0003 |
| Candidate Versions: | 21 Apr 2009 | 5 | Updated document listing Status changed to Candidate by TP TP ref#OMA-TP-2009-0164R01- INP_ClientProvisioning_V1_1_ERP_for_Notification |