

UE Provisioning V2.0.7 (2004-06)

Technical Specification

**Push-to-talk over Cellular (PoC);
UE Provisioning;
PoC Release 2.0**

Comneon, Ericsson, Motorola, Nokia, Siemens

Keywords

Push-to-talk over Cellular (PoC), Over The Air
Provisioning (OTA provisioning)

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Contents

Foreword	4
Introduction	4
1 Scope	5
2 References	5
3 Definitions and abbreviations	5
3.1 Definitions	5
3.2 Abbreviations	6
3.3 Requirement vocabulary	6
4 Provisioning Overview	7
5 Over the Air Provisioning	7
5.1 OTA provisioning overview	7
5.2 OTA provisioning extensions	8
5.2.1 AUTO-LOGIN	9
5.2.2 POC-ENABLED	9
5.2.3 SECONDARY-PDP-CONTEXT	9
5.2.4 ACOUNTER	9
5.2.5 TRAFFIC-CLASS	9
5.3 OTA provisioning parameters	9
5.3.1 Existing parameters	9
5.3.2 PoC defined parameters	10
5.3.3 Other parameters	10
5.4 XML sample	11
Change History	13

Foreword

This Technical Specification has been produced by Comneon, Ericsson, Motorola, Nokia and Siemens.

Introduction

This technical specification describes the procedures for configuring the parameters of IMS Core Network, PoC, Presence and GLMS services to UE over the air.

The document is divided into the following parts:

- The general provisioning overview is described in clause 4.
- The Over The Air Provisioning (OTA provisioning) architecture and functionality are described in clause 5.

1 Scope

This document describes the mechanisms for provisioning the needed configuration for Push to Talk over Cellular into the UE with the minimum end user input.

UE provisioning (see (1) and (2)) of PoC parameters is described.

This specification is part of PoC release 2.0.

2 References

The following documents contain provisions, which through reference in this text constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a PoC document, a non-specific reference implicitly refers to the latest version of that document in the same release as the UE Provisioning document.

- (1) PoC User Requirements; PoC Release 2.0
- (2) PoC Architecture; PoC Release 2.0
- (3) PoC List Management and Do-Not-Disturb; PoC Release 2.0
- (4) PoC Signaling Flows; PoC Release 2.0
- (5) OMA - Provisioning Architecture Overview V1.1
- (6) OMA - Provisioning Bootstrap V1.1
- (7) OMA - Provisioning Content V1.1
- (8) OMA - Provisioning User Agent Behaviour V1.1
- (9) 3GPP 24.008 - Mobile radio interface Layer 3 specification; Core network protocols; Stage 3
- (10) OMA – Device Management, V1.1.2

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions that are defined in reference (1) apply.

Bootstrap process (bootstrapping): The process by which the unconfigured UE is taken from the initial state to or through the Trusted Provisioning Server Access State. This process can be system specific.

Characteristics: Characteristics of, typically, a Network Element (access point, proxy). The word is broad enough to be used in all the required contexts as used in (7).

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.

Content Server: A server that contains provisioning parameters that are sent to UE through Trusted Provisioning Server.

Continuous provisioning: The process by which the UE is provisioned with further infrastructure information at or after the Trusted Provisioning Server Access State. The information received during the bootstrap may be modified. This process is generic and optional. Continuous implies that the process can be repeated multiple times, but not that it is an ongoing activity.

Provisioning document: A particular instance of a XML document encoded according to (7). The MIME-type of the textual document is text/vnd.wap.connectivity-xml. The MIME-type of the tokenized document is application/vnd.wap.connectivity-wbxml.

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.

TPS Access State: The state in which the UE has obtained a minimum set of infrastructure components that enables the UE to establish the first communication channel(s) to WAP infrastructure, i.e. a trusted WAP proxy. This allows continuous provisioning but may also provide sufficient information to the UE to access any other WAP content or application.

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.

3.2 Abbreviations

For the purposes of this document, the abbreviations that are explained in reference (1) apply.

DM	Device Management
GPRS	General Packet Radio Service
MIME	Multipurpose Internet Mail Extensions
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
OTA	Over-the-Air
SMS	Short Message Service
WAP	Wireless Application Protocol

3.3 Requirement vocabulary

Shall	Indicates a mandatory requirement.
Should	Indicates a recommendation.
May	Indicates an optional requirement.

4 Provisioning Overview

The user shall be provisioned with the PoC service in order to use PoC features. When and after the PoC service is provisioned, it should be possible for UE to receive the configuration information from the service provider network. This shall be done by using OMA client over the air provisioning (OTA provisioning) for initial client provisioning; see (5) to (8). Continuous provisioning, e.g. updating parameters, should be done according to OMA Device management (DM) specifications (10).

This enables minimal user intervention to configure the UE in order to use the PoC service.

5 Over the Air Provisioning

5.1 OTA provisioning overview

OTA provisioning enables the PoC UE to receive all the needed configuration parameters from the service provider network. For initial client provisioning the OMA Client Provisioning as defined in (5), (6), (7) and (8) shall be used.

OMA provides a general XML-based OTA provisioning framework, which can be used (see (5) - (8) for more information). In this way, the service provider network shall send a WAP-push/SMS containing a binary coded XML to every UE (the MIME-type defined by OMA is application/vnd.wap.connectivity-wbxml for coded form and text/vnd.wap.connectivity-xml for the textual XML form).

To fulfill the security requirements, the mechanisms defined by OMA Provisioning Bootstrap specification (6) shall be used.

For continuous provisioning, the OMA DM should be used (see (10)).

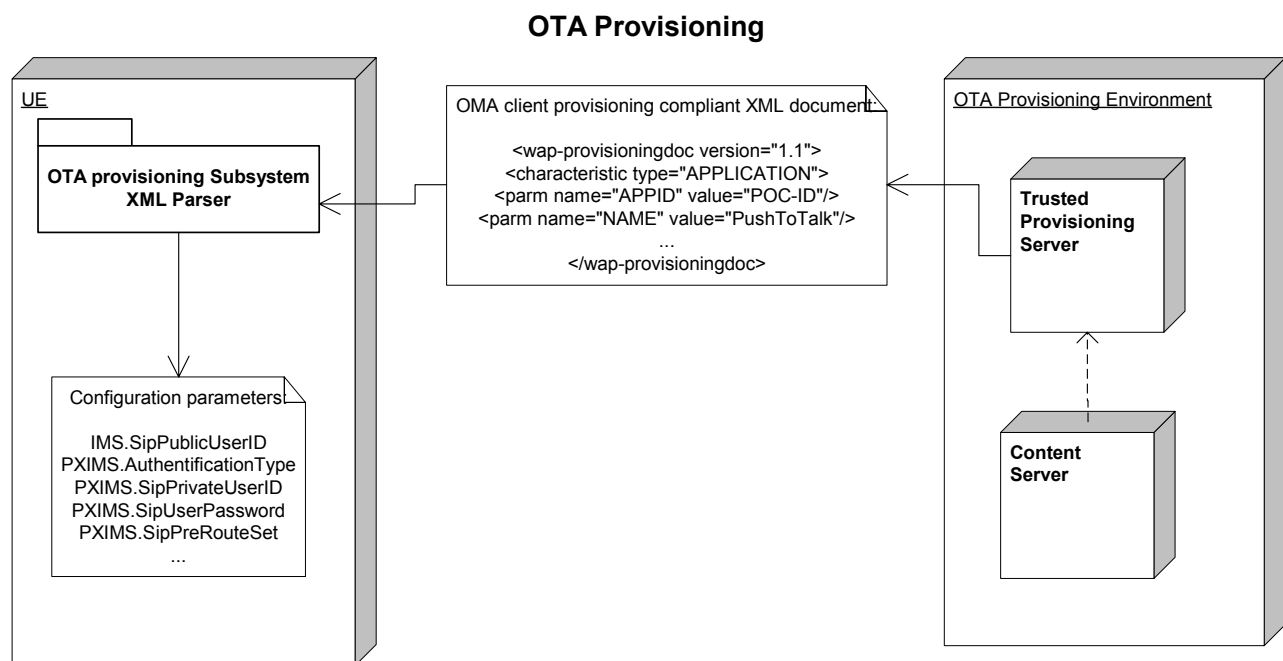


Figure 1: PoC UE Provisioning - OTA Provisioning Architecture Overview

5.2 OTA provisioning extensions

For the needs of PoC UE provisioning, the OMA OTA provisioning data model (as presented in (7)) needs to be extended as follows (using the notation of (7)):

```

characteristic : APPLICATION *
{
  parm: APPID
  parm: PROVIDER-ID ?
  parm: NAME ?
  parm: AACCEPT ?
  parm: APROTOCOL ?
  parm: TO-PROXY *
  parm: TO-NAPID *
  parm: ADDR *
  parm: AUTO-LOGIN ?
  parm: POC-ENABLED ?
  parm: SECONDARY-PDP-CONTEXT ?
  parm: AOUNTER *
  parm: TRAFFIC-CLASS ?

  characteristic : APPADDR *
  {
    parm: ADDR
    parm: ADDRTYPE ?

    characteristic: PORT *
    {
      parm: PORTNBR
      parm: SERVICE *
    }
  }

  characteristic : APPAUTH *
  {
    parm: AAUTHLEVEL ?
    parm: AAUTHTYPE ?
    parm: AAUTHNAME ?
    parm: AAUTHSECRET ?
    parm: AAUTHDATA ?
  }

  characteristic : RESOURCE *
  {
    parm: URI
    parm: NAME ?
    parm: AACCEPT ?
    parm: AAUTHTYPE ?
    parm: AAUTHNAME ?
    parm: AAUTHSECRET ?
    parm: AAUTHDATA ?
    parm: STARTPAGE ?
  }
}

```

The added parameters are: AUTO-LOGIN, POC-ENABLED, SECONDARY-PDP-CONTEXT, AOUNTER and TRAFFIC-CLASS.

A change request shall be addressed to OMA with descriptions of these new parameters. A new version (PoC capable) then shall be recognized from a new provisioning document version (current version is 1.1) as stated in the XML:

```
<wap-provisioningdoc version="1.1">
```

Also, new application ID must be registered with OMNA for each application characteristics needed for PoC UE Provisioning. These are: Basic IMS client functionality (IMS-CLIENT-ID), PoC (POC-ID), Presence (PRESENCE-ID) and Group Management (GLMS-ID).

5.2.1 AUTO-LOGIN

AUTO-LOGIN has a string value with these possible values: Never, Always, HomeNetwork. It provides the information that UE may use to decide if application is initialised automatically on the UE (e.g. UE will be registered to the application network automatically on powering on).

5.2.2 POC-ENABLED

POC-ENABLED is an indication that UE may use to find out if certain service is enabled (value is 1) or if it is disabled (value is 0).

5.2.3 SECONDARY-PDP-CONTEXT

SECONDARY-PDP-CONTEXT is an indication that UE may use, whether to activate a secondary PDP context (value is 1) for service or whether not to activate secondary PDP context for service (value is 0).

5.2.4 ACounter

ACOUNTER value is an integer number with a service specific meaning.

5.2.5 TRAFFIC-CLASS

TRAFFIC-CLASS parameter is reused from NAPDEF characteristic as found in (7). It is used to provide the information that may be used by UE about needed application specific quality of service.

5.3 OTA provisioning parameters

PoC UE Provisioning uses several configuration parameters that should be provided by OTA provisioning. OTA provisioning should contain minimum of 6 characteristics (XML elements defined in (7)): 1 NAPDEF characteristic (this is used for normal GPRS configuration as it is currently used, for illustration an example is given below), 1 PXLOGICAL characteristic and 4 extended (see 5.2) APPLICATION characteristics.

Separate APPLICATION characteristic elements should be used for each specific service as follows: Basic IMS client functionality (IMS), PoC, Presence (PS) and Group Management (GLMS). For this reason, each service (APPLICATION) must have an application ID registered at OMNA. The mapping to OTA provisioning data model to one of these six mentioned characteristics (application IDs) is given by the prefix of parameter name and PXLOGICAL is prefixed with PXIMS.

5.3.1 Existing parameters

Generally, a network access (e.g. GPRS) must be provided for the possibility to connect to the PoC network (IMS Core, Presence Server, GLMS and PoC Server). Configuration of the network access is not in a scope of this document. PoC configuration uses the NAPID of the configured network access. In the XML sample a GPRS configuration is provided (5.4).

Internal Parameter name	Possible values (example)	Description	Optionality (mandatory /optional)	OMA data model mapping in provisioning document
POC.Napid	String (e.g. POC-NAP)	Network Access Point ID identifying the PoC GPRS profile used for PoC network access.	Mandatory	NAPDEF.NAPID, PXLOGICAL.PXPHYSICAL.TO-NAPID, APPLICATION.TO-NAPID

5.3.2 PoC defined parameters

This is a list of parameters which were identified as needed based on (3) and (4). The parameter names are according to (3) and (4) with prefix added for simple matching to correct OTA provisioning characteristics (as mentioned in 5.3).

Internal Parameter name	Possible values (example)	Description	Optionality (mandatory /optional)	OMA data model mapping in provisioning document
IMS.SipPublicUserID	URI (sip:john.ash@ims.operator.com)	Public user SIP URI, consisting of user domain and public user name.	Optional	APPLICATION.RESOURCE.URI
PXIMS.AuthenticationType	String (HTTP-DIGEST)	IMS authentication type.	Mandatory according to (7) (when any authentication data are provided)	PXLOGICAL.PXAUTHINFO.PXAUTH-TYPE
PXIMS.SipPrivateUserID	String (accountIMS@ims.operator.com)	User name for IMS authentication.	Optional	PXLOGICAL.PXAUTHINFO.PXAUTH-ID
PXIMS.SipUserPassword	String (passwdIMS)	Password for IMS authentication.	Optional	PXLOGICAL.PXAUTHINFO.PXAUTH-PW
PXIMS.SipPreRouteSet	URI (< sip: proxy.imsoperator.com:5060;lr;transport=udp;comp=sigcomp >)	The pre-existing route set used by the UE for routing SIP requests. It is a SIP URI of a P-CSCF in the IMS Core network. If needed, more can be present in the provisioning document.	Mandatory	PXLOGICAL.STARTPAGE
POC.Ad-hocGroupRequest	URI (sip:ad-hoc@ims.operator.com)	URI parameter identifying a request for an ad-hoc instant talk session.	Mandatory	APPLICATION.ADDR
GLMS.ServerUrl	URL (http://glms.imsoperator.com)	Group and list management server URL.	Mandatory	APPLICATION.ADDR

5.3.3 Other parameters

This is a list of parameters that are not explicitly requested by PoC, but they could be useful for UE network configuration.

Internal Parameter name	Possible values (example)	Description	Optionality (mandatory /optional)	OMA data model mapping in provisioning document
POC.AutoLogin	String (Never, Always, HomeNetwork)	Indication of a Service specific automatic network login, that UE may use, with following values: Always = register at power on, HomeNetwork = register at power on in home network only, Never = no automatic registration.	Optional Default: Never	APPLICATION.AUTO-LOGIN
POC.ServiceEnabled	0/1	Indication that UE may use on whether PoC service is enabled (value is 1) or disabled (value is 0).	Optional Default: 1	APPLICATION.POC-ENABLED
POC.SecondaryPdpContext	0/1	Indication that UE may use on whether secondary PDP context is activated for user plane of PoC (value is 1) or whether secondary PDP context is not activated (value is 0).	Optional Default:0	APPLICATION.SECONDARY-PDP-CONTEXT

POC.MaxAd-hocGroupSize	Int(20)	The maximal number of members for Ad-hoc sessions.	Optional Default: unlimited (the limit will be handled by the server)	APPLICATION.ACOUNTER
POC.QoS	Number (as defined in (9))	PoC quality of service (user plane) – interactive or streaming.	Optional	APPLICATION.TRAFFIC-CLASS
PS.ServiceEnabled	0/1	Indication that UE may use on whether Presence service is enabled (value is 1) or disabled (value is 0).	Optional Default: 1	APPLICATION.POC-ENABLED
GLMS.ServiceEnabled	0/1	Indication that UE may use on whether GLMS service is enabled (value is 1) or disabled (value is 0).	Optional Default: 1	APPLICATION.POC-ENABLED

5.4 XML sample

This is an XML sample for a provisioning document; it should be sufficient for understanding of the XML structure.

```
<?xml version="1.0"?>
<!DOCTYPE wap-provisioningdoc PUBLIC "-//WAPFORUM//DTD PROV 1.0//EN"
"http://www.wapforum.org/DTD/prov.dtd">
<wap-provisioningdoc version="1.1">

<characteristic type="NAPDEF">
  <parm name="NAPID" value="IMS-NAP"/>
  <parm name="NAME" value="IMS"/>
  <parm name="BEARER" value="GSM-GPRS"/>
  <parm name="NAP-ADDRESS" value="gprs.operator.com"/>
  <parm name="NAP-ADDRTYPE" value="APN"/>
  <parm name="DNS-ADDR" value="132.12.78.223"/>
  <parm name="DNS-ADDR" value="132.12.78.225"/>
  <characteristic type="NAPAUTHINFO">
    <parm name="AUTHTYPE" value="PAP"/>
    <parm name="AUTHNAME" value="accountXyZ"/>
    <parm name="AUTHSECRET" value="passwdZyX"/>
  </characteristic>
</characteristic>

<characteristic type="PXLOGICAL">
  <parm name="PROXY-ID" value="proxy.imsoperator.com"/>
  <parm name="NAME" value="IMS-PROXY"/>
  <parm name="STARTPAGE" value="
  <sip:proxy.imsoperator.com:5060;transport=udp;comp=sigcomp"/>
  <characteristic type="PXAUTHINFO">
    <parm name="PXAUTH-TYPE" value="HTTP-DIGEST"/>
    <parm name="PXAUTH-ID" value="accountIMS@ims.operator.com"/>
    <parm name="PXAUTH-PW" value="passwdIMS"/>
  </characteristic>
  <characteristic type="PXPHYSICAL">
    <parm name="PHYSICAL-PROXY-ID" value="PROXY-1"/>
    <parm name="DOMAIN" value="imsoperator.com"/>
    <parm name="PXADDR" value="215.221.51.5"/>
    <parm name="PXADDRTYPE" value="IPV4"/>
    <parm name="TO-NAPID" value="IMS-NAP"/>
    <characteristic type="PORT">
      <parm name="PORTNBR" value="5060"/>
    </characteristic>
  </characteristic>
</characteristic>

<characteristic type="APPLICATION">
  <parm name="APPID" value="IMS-CLIENT-ID"/>
  <parm name="NAME" value="IMS-CORE"/>
  <parm name="TO-NAPID" value="IMS-NAP"/>
  <parm name="TO-PROXY" value="proxy.imsoperator.com"/>
  <parm name="ACOUNTER" value="4"/>
  <characteristic type="RESOURCE">
    <parm name="URI" value="sip:john.ash@ims.operator.com"/>
  </characteristic>
</characteristic>
</characteristic>
```

```
<characteristic type="APPLICATION">
  <parm name="APPID" value="POC-ID"/>
  <parm name="NAME" value="PushToTalk"/>
  <parm name="TO-NAPID" value="IMS-NAP"/>
  <parm name="TO-PROXY" value="proxy.imsoperator.com"/>
  <parm name="ADDR" value="sip:ad-hoc@ims.operator.com"/>
  <parm name="AUTO-LOGIN" value="HomeNetwork"/>
  <parm name="POC-ENABLED" value="1"/>
  <parm name="ACOUNTER" value="20"/>
  <parm name="TRAFFIC-CLASS" value="0x60"/>
  <parm name="APPLICATION.SECONDARY-PDP-CONTEXT" value="1"/>
</characteristic>

<characteristic type="APPLICATION">
  <parm name="APPID" value="PRESENCE-ID"/>
  <parm name="NAME" value="Presence"/>
  <parm name="TO-NAPID" value="IMS-NAP"/>
  <parm name="TO-PROXY" value="proxy.imsoperator.com"/>
  <parm name="POC-ENABLED" value="1"/>
</characteristic>

<characteristic type="APPLICATION">
  <parm name="APPID" value="GLMS-ID"/>
  <parm name="NAME" value="GLMS"/>
  <parm name="TO-NAPID" value="IMS-NAP"/>
  <parm name="TO-PROXY" value="proxy.imsoperator.com"/>
  <parm name="POC-ENABLED" value="1"/>
  <parm name="ADDR" value=" http://glms.imsoperator.com "/>
</characteristic>

</wap-provisioningdoc>
```

Change History

Change history			
Date	Subject/Comment	Old	New
2004-05-12	Agreed by Comneon, Ericsson, Motorola, Nokia, Siemens		2.0.6
2004-06-07	Removed "confidential" and "proprietary" notes and updated change history	2.0.6	2.0.7