Open Market Handsets (OMH) Network Specification

CDG Document 197

Version 1.0

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Revision History

Date	Version	Description
July 2010	1.0	Initial release version. This document supersedes the network requirements in CDG167. [The original CDG167 contained both device and network requirements. The network requirements in CDG167 have been moved to this new document CDG197.]

1. Introduction

The Open Market Handsets (OMH) initiative is a strategic effort to benefit the CDMA ecosystem by enabling open distribution of devices across networks and regions by expanding Removable User Identity Module (R-UIM) capabilities to support a full set of competitive features and standardizing a uniform device and network implementation for each feature.

The R-UIM-enabled OMH feature set includes support for the following:

- Voice Services and Device Operation
- Short Message Service (SMS)
- 3G Packet Data (3GPD)
- Wireless Application Protocol (WAP) Browser
- Multimedia Message Service (MMS)
- Java
- Binary Runtime Environment for Wireless (BREW)
- Applications residing on OMH R-UIMs
- High Rate Packet Data (HRPD) (1xEV-DO)
- Location Based Services (LBS)

This document contains the requirements for OMH networks. Each requirement has a requirement number in this format: **Nn-m**, where **N** represents the network, **n** represents the feature set or functional area and **m** represents the requirement number within that feature set or functional area. These requirements are also formatted in blue, as an aid to the reader.

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2. R-UIM Compatibility (N1)

N1-1 The network ***shall*** allow the OMH device to work with legacy R-UIMs.

N1-5 The network ***shall*** allow the legacy device to work with OMH R-UIMs.

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3. Mechanisms

3.1 Authentication (N10)

N10-1 The network ***shall*** support Cellular Authentication and Voice Encryption (CAVE) based authentication.

N10-5 The network may support packet data authentication mechanisms [e.g., Simple IP, Mobile IP, High-Rate Packet Data (HRPD) Access, etc.].

3.2 CDMA Card Application Toolkit (N25)

The CDMA Card Application Toolkit (CCAT) provides the interface between the device and the R-UIM. CCAT is defined in [CS0035].

N25-1 The network may support the CCAT SMS-Point-to-Point (SMS-PP) download mechanism for provisioning information updates on the R-UIM.

Note: This mechanism provides the ability to modify provisioning data on the R-UIM using SMS messaging. Note that CCAT SMS-PP allows the provisioning of new data elements defined in [CDG166], whereas Over-the-Air Service Provisioning/Over-the-Air Parameter Administration (OTASP/OTAPA) does not.

N25-5 The network may support the CCAT SMS-PP download for the purpose of dynamically adding, deleting, and modifying the applets on the card.

3.3 Device and Model Identification (N30)

Device identification refers to the Electronic Serial Number/Mobile Equipment Identifier (ESN/MEID) of the device and the UIM Identifier/Expanded UIM Identifier (UIMID/EUIMID) of the card. Requirements are provided below for the device and network, but more detailed information regarding OMH and device identification can be found in the *Appendix: MEID/EUIMD Support* section of [CDG167].

In addition to device identification information, requirements are also provided below for storing the model information of the device on the R-UIM.

N30-1 The network may use either Short Form (SF_EUIMID) or Long Form (LF_EUIMID) EUIMIDs. The advantages and disadvantages of each are presented in the Appendix: MEID/EUIMD Support section of [CDG167].

N30-5 The network ***shall*** support MEID according to the 3GPP2 [CS0072] standard.

N30-10 The network may retrieve the device model information from EF_{Model} on the R-UIM by using various mechanisms (e.g., an application residing in the card sending model information to the network for device tracking). The actual mechanism used depends on the network's implementation.

Additional network recommendations regarding MEID and EUIMID, as well as the advantages and disadvantages of Short Form (SF_EUIMID) or Long Form (LF_EUIMID) EUIMIDs, are provided in the *Appendix: MEID/EUIMD Support* section of [CDG167].

3.4 OTA Provisioning and Firmware

3.4.1 CCAT / UTK Data Download (N35)

N35-1 The network may support the CCAT SMS-PP data download mechanism.

N35-5 All EFs on the R-UIM may be updatable via the SMS-PP data download mechanism.

N35-15 Following an SMS-PP data download, the network may send an SMS message asking the user to power cycle the device in order for changes to take effect.

N35-20 The network may support the UTK SMS-PP data download mechanism.

3.4.2 OTASP / OTAPA (N40)

Since OMH R-UIMs are expected to be provisioned with all necessary information before reaching the subscriber, OTA provisioning mechanisms are generally only needed to modify provisioning information on R-UIMs already in the field.

Note: While current OTASP/OTAPA functionality defined in 3GPP2 [CS0016] is maintained, OMH does not extend OTASP/OTAPA functionality to support new Elementary Files (EFs) defined in [CDG166].

N40-1 The network may support OTASP/OTAPA currently defined in 3GPP2 [CS0016].

3.5 Root Certificates (N45)

N45-1 The operator's network configuration for root certificates ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *EF_{RC} (Root Certificates)* section of [CDG166].

4. Voice (N55)

N55-1	The operator's network configuration for voice service ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *Basic Voice Service and Device Operation* section of [CDG166].
N55-5	The network ***shall*** support service option 3 (EVRC).
N55-10	The network should support service option 68 (4GV-NB).
N55-15	The network may support additional service options [e.g., service option 70 (4GV-WB), etc.].
N55-20	The network should support "+" code dialing.

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5. SMS (N60)

N60-1	The operator's network configuration for SMS service ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *SMS* section of [CDG166].
N60-5	The network ***shall*** support Mobile Originated (MO) SMS over traffic channel.
N60-10	The network ***shall*** support MO SMS over access channel.
	Note: EF_{SMSCAP} on the R-UIM allows the operator to indicate whether its network prefers MO SMS over access channel or not. To cover a roaming scenario, the visited networks should always allow MO SMS over access channel, since sending MO SMS over access channel in a roaming device can be enabled in the R-UIM.
N60-15	The network ***shall*** support service option 6 or 14. It may support both.
	Note: EF_{SMSCAP} on the R-UIM allows the operator to indicate which service option is supported by its network.
N60-20	The network ***shall*** support Mobile Terminated (MT) SMS delivery over paging the channel or traffic channel. It may support both.
N60-25	The network may support Enhanced Short Message Service (EMS).
N60-35	The network may support Broadcast SMS.
N60-40	The network may support Flash SMS.
N60-45	The Short Message Service Center (SMSC) ***shall*** ensure that all MT SMS messages are no larger than 140 bytes in length.

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6. 3G Packet Data (N65)

N65-1	The operator's network configuration for 3GPD ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *3GPD* section of [CDG166].
N65-5	The network ***shall*** support service option 33.
N65-10	The network ***shall*** support Simple IP operation using Challenge Handshaking Protocol (CHAP) and/or Password Authentication Protocol (PAP).
N65-15	The network should use unique Network Address Identifier (NAI) in the form of user@realm and unique and strong password for Simple IP authentication.
N65-20	The network should support Mobile IP operation.
N65-25	The network should use a unique NAI in the form of user@realm and unique and strong password for Mobile IP authentication.
N65-30	The network ***shall*** support IPv4.
	Note: IPv6 will be addressed in a later phase.

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7. HRPD (1xEV-DO) (N70)

This section presents additional requirements for the 3G Packet Data section to support HRPD.

N70-1 The network ***shall*** perform A12 authentication on devices accessing HRPD service.

N70-5 The network ***shall*** not use HardwareID when performing A12 authentication.

N70-10 The network should use unique NAI in the form of user@realm and unique and strong password for A12 authentication.

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8. WAP Browser (N75)

N75-1	The operator's network configuration for WAP ***shall*** be consistent with the provisioning information on the R-UIM. For details, see the *Browser* section of [CDG166].
N75-5	The WAP server ***shall*** support at least WAP 2.0.
N75-10	The WAP server ***shall*** support at least HTTP 1.1.
N75-15	If a WAP server is being used, the WAP server address ***shall*** be locally routable (i.e., reachable by the device).
N75-20	The network ***shall*** provide DNS resolution capability for WAP Gateway Domain Name (PXADDR-FQDN) and Home URL (HomeURL) information provisioned on the R-UIM.
N75-25	The network ***shall*** ensure the access to the OMH device's User Agent Profiles (UAProfs) from a publicly addressable server.

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9. MMS (N80)

N80-1	The operator's network configuration for MMS ***shall*** be consistent with the provisioning information on the R-UIM. For details, see the *MMS* section of [CDG166].
N80-5	The network ***shall*** support the 3GPP2 OMA/WAP MM1 implementation of MMS using HTTP as the transport.
N80-10	The network ***shall*** comply with WAP requirements identified in the WAP Browser section of this document.
N80-15	The Mobile Messaging Service Center (MMSC) address provisioned on the R-UIM ***shall*** be locally routable (i.e., reachable by the device).
N80-20	The network ***shall*** provide DNS resolution capability for the MMSC information provisioned on R-UIM.
N80-25	The MMSC ***shall*** allow messages with empty subject and/or bodies.
N80-30	The network ***shall*** use the WAP Push teleservice ID (i.e., 4100) to push MMS notifications.

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10. Java (N85)

N85-1 The operator's network configuration for Java ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *Java* section of [CDG166].

N85-5 If the operator has provisioned a Java download URL on the R-UIM, this server ***shall*** be locally routable (i.e., reachable by the device).

N85-10 If the operator has provisioned a Java download URL on the R-UIM, the network ***shall*** provide DNS resolution capability for this server.

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11. BREW (N90)

N90-1 The operator's network configuration for BREW ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *BREW* section of [CDG166].

N90-5 The network ***shall*** be configured with BREW Platform IDs for OMH devices that are intended to be used in the network.

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12. LBS (N95)

N95-1 The network may support V2 User Plane.

N95-5 The network may support Control Plane.

N95-10 The network may support XTRA service.

N95-15 The operator's network configuration for LBS ***shall*** be consistent with the provisioning information on the R-UIM. For details on this information, see the *LBS* section of [CDG166].

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13. Terminology

Acronyms	*Meaning*
3GPD	3G Packet Data
BREW	Binary Runtime Environment for Wireless
CAVE	Cellular Authentication and Voice Encryption
CCAT	CDMA Card Application Toolkit
CHAP	Challenge Handshaking Authentication Protocol
EF	Elementary File
EMS	Enhanced Short Message Service
ESN	Electronic Serial Number
ESN/MEID	Electronic Serial Number/Mobile Equipment Identifier
EUMID	Expanded UIM Identifier
HRPD	High-Rate Packet Data
LBS	Location Based Services
MEID	Mobile Equipment Identifier
MMS	Multimedia Messaging Service
MMSC	Mobile Messaging Service Center
MO	Mobile Originated
MT	Mobile Terminated
NAI	Network Address Identifier
OMA	Open Mobile Alliance
OMH	Open Market Handsets
OTA	Over-the-Air
OTAPA	Over-the-Air Parameter Administration
OTASP	Over-the-Air Service Provisioning
PAP	Password Authentication Protocol

Acronyms	***Meaning***
R-UIM	Removable User Identity Module
SMS	Short Message Service
SMSC	Short Message Service Center
SMS-PP	Short Message Service Point to Point
UAProf	User Agent Profile
UIMID	UIM Identifier
UTK	UIM Toolkit
WAP	Wireless Application Protocol

14. References

[CDG166] CDG Reference Document 166, *OMH R-UIM Specification*.
www.cdg.org/omh.

[CDG167] CDG Reference Document 167, *OMH Device Specification*.
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[CS0015] 3GPP2 C.S0015-A (TIA-637B), *Short Message Service (SMS) for Wideband Spread Spectrum Systems,* v2.0, September 30, 2005.
www.3gpp2.org/Public_html/specs/C.S0015-A_v2.0_051006.pdf

[CS0016] 3GPP2 C.S0016-C (TIA-683C), *Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards,* v1.0, October 22, 2004.
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[CS0035] 3GPP2 C.S0035-A, *CDMA Card Application Toolkit (CCAT),* v1.0, February 18, 2005.
www.3gpp2.org/Public_html/specs/C.S0035-A_v1.0_050224.pdf

[CS0072] 3GPP2 C.S0072-0, *Mobile Station Equipment Identifier (MEID) Support for cdma2000 Spread Spectrum Systems,* v1.0, July 22, 2005.

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