



# **Standardized Connectivity Management Objects CDMA Packet Data Bearer Parameters**

For use with OMA Device Management

Approved Version 1.0 – 24 Oct 2008

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**Open Mobile Alliance**  
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# 1. Scope

## 1.1 Connectivity Object – CDMA Bearer

This document defines CDMA bearer-specific parameters that are used together with the standardized connectivity management object [CONNMO] in order to have a complete standardized Network Access Point definition for CDMA connectivity settings in the OMA DM management tree.

While this CDMA object is optional for any OMA DM implementation, its widespread use will simplify the management of basic CDMA connectivity parameters in devices.

The object is defined using the OMA DM Device Description Framework [DMTND]. The object has standardized points of extension to permit implementation-specific parameters to accompany the standardized parameters. This added flexibility is intended to encourage the use of the standardized object while not unnecessarily restricting individual vendor innovations.

## 2. References

### 2.1 Normative References

- [CONNMO] *Standardized Connectivity Management Objects, Version 1.0*, Open Mobile Alliance™, OMA-DDS-DM\_ConnMO\_V1\_0-D, [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMTND] *Device Management Tree and Description, Version 1.2*, Open Mobile Alliance™, OMA-TS-DM-DMTND-V1\_2, [URL:http://www.openmobilealliance.org](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](http://www.ietf.org/rfc/rfc2119.txt)

### 2.2 Normative Authorities of References

Various parameters specified in the management objects defined in this document rely on an authority outside the scope of this specification to supply the set of acceptable values and value formats. In such references to external authority, only the directly cited material is referenced, not the entire external specification. The following authorities of reference are cited in this document:

- [3GPP2C.S0016-C] “Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Systems-Release C”, 3GPP2 C.S0016-C v1.0, <http://www.3gpp2.org/>
- [GENFORM] *WAP General Formats Document, Open Mobile Alliance™, WAP-188-WAPGenFormats*, [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)

### 2.3 Informative References

N/A

## 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.

### 3.2 Definitions

See the DM Tree and Description [DMTND] document for definitions of terms related to the management tree.

### 3.3 Abbreviations

<b>NAP</b>	Network Access Point
<b>OMA</b>	Open Mobile Alliance

## 4. Introduction

Usually over time network protocols grow and are replaced as the market cycle plays out. Connectivity Management Object [CONNMO] is structured in such a way as to be resilient to the addition of new bearer and proxy types without requiring wholesale replacement of the object definitions. In this way, the common structure survives into future versions of the management objects thus easing the burden of transition from old bearer types to new.

This document specifies CDMA bearer specific part of the general Network Access Point management object and it also allows for vendor specific extensions.

## 5. Justification

This Reference Release includes several Management Object definitions for use, in conjunction with the OMA Device Management Enabler, to manage data network connectivity settings for mobile terminals over common bearer and proxy types.

### 5.1 Standardized Connectivity Management

Providing a standardized set of management objects for configuration of data network connectivity through the OMA Device Management system will improve the usability and customer experience of mobile terminals that rely upon data services. As proposed, the management object definitions may be used in conjunction with OMA Device Management Candidate and Approved Enabler Releases over a variety of transports including: HTTP, HTTPS, OBEX over IrDA, OBEX over Bluetooth, and various forms of Smart Card.

### 5.2 Application-Neutral

Producing these management object definitions in an application-neutral fashion, we avoid reinvention of solutions to the same set of problems for each of new application that requires data connectivity. This reduces the connectivity parameters that an application must define to a simple reference node, ConRef (Connectivity Reference).

### 5.3 Bearer-Neutral

By presenting the specifications in two parts, a bearer-neutral part and bearer-specific bindings, we reinforce the OMA principle of network neutrality while providing specificity where needed but without bias for or against any particular network type.



## 6. CDMA Bearer Specific Management Object

### 6.1 Introduction

A general introduction of the connectivity management object is given in the connectivity management object document [CONNMO] as well as the needed compliance rules. This document specifies the CDMA bearer specific NAP Object.

The CDMA sub-tree specified in this document MUST be placed under the *BearerParams* node in [CONNMO].

### 6.2 Definitions related to NAP MO Bearer Type Value

The CDMA sub-tree specified in this document MUST be placed under the *BearerParams* node in [CONNMO].  
[BearerType](#)

The *BearerType* node value specified in [CONNMO] MUST be “CDMA”.

#### [AddrType](#)

The *AddrType* in the NAP MO specified in [CONNMO], if it exists, MUST have the value ‘E164’. The *Addr* value in the NAP MO specified in [CONNMO] MUST be a phone number formatted according to the E164 scheme [GENFORM].

### 6.3 Graphical Representation (Informative)

The following figure provides the structure of CDMA bearer specific management object.

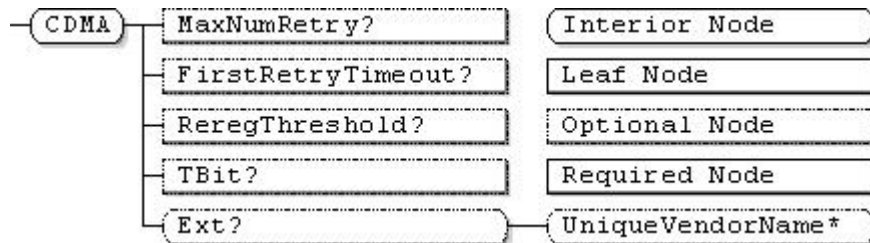


Figure 1. CDMA bearer specific Management Object

#### 6.3.1 Node Descriptions

.../BearerParams/CDMA

Status	Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node specifies the CDMA bearer specific management object for a *network access point*, or NAP, management object. Management Object Identifier for the CDMA MO MUST be: “urn:oma:mo:oma-connmo-cdma:1.0”.

**MaxNumRetry**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get

Defines maximum Number of Retry for the MobileIP Registration. Values are represented as integers. Valid values are 1-3. See [3GPP2C.S0016\_C], section 3.5.8.6 for additional details

**FirstRetryTimeout**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get

Defines the amount of time elapsed while the mobile station did not receive the MobileIP Registration Reply, in units of 250ms, between the first and second MobileIP Registration Requests. Values are represented as integers. Valid values are 1-7. See [3GPP2C.S0016\_C], section 3.5.8.6 for additional details.

**ReregThreshold**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get

Defines time, in units of minute, before the expiration of the registration lifetime that the mobile will try to reregister. Values are represented as integers. Valid values are 1-63. See [3GPP2C.S0016\_C], section 3.5.8.6 for additional details.

**TBit**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	bool	Get

Defines if reverse tunneling is required. This parameter shall be set to 'True' if reverse tunneling is required. If set to 'False', or if it is absent, then reverse tunneling is not required. See [3GPP2C.S0016\_C], section 3.5.8.6 for additional details.

**Ext**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This optional interior node designates the single top-level branch of the NAP DM management object tree into which vendor extensions MAY be added, permanently or dynamically. Ext sub trees, such as this one, are included at various places in the DM connectivity management objects to provide flexible points of extension for implementation-specific parameters. However, vendor extensions MUST NOT be defined outside of the Ext sub-trees.

**Ext/UniqueVendorName**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrMore	node	Get

This interior node is supplied by a vendor to distinguish their extension from those of other vendors. The *UniqueVendorName* SHOULD be a trademark or company name controlled by each vendor to ensure uniqueness. The structure of any subtree below a *UniqueVendorName* interior node is implementation-specific.

## 7. Operational Considerations

ConnMO is normatively dependent on the DM 1.2 specifications. However, this normative dependency should not be seen as restricting these MO definitions only to DM clients implementing that version of the DM enabler.

For example, a management authority may exchange ConnMO data-files using means not specifically defined in the DM 1.2 enabler.

## Appendix A. Change History

(Informative)

### A.1 Approved Version History

Reference	Date	Description
OMA-DDS-DM_ConnMO_3GPP2-V1_0-20081024-A	24 Oct 2008	Approved by OMA Technical Plenary: Ref TP#: OMA-TP-2008-0405- INP_ConnMO_V1_0_RRP_for_Notification_and_Final_Approval