Standardized Connectivity Management Objects
3GPP Circuit-Switched Data Bearer Parameters

For use with OMA Device Management

Approved Version 1.0 – 24 Oct 2008

Open Mobile Alliance

OMA-DDS-DM_ConnMO_3GPPCS-V1_0-20081024-A

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1. Scope

1.1 Connectivity Object – 3GPP Circuit-Switched Bearer

This document defines a 3GPP Circuit-Switched (e.g. HSCSD) 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 3GPP Circuit-Switched connectivity settings in the OMA DM management tree.

While this 3GPP Circuit-Switched object is optional for any OMA DM implementation, their widespread use will simplify the management of basic 3GPP Circuit-Switched 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.

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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

[DMTND] *Device Management Tree and Description, Version 1.2*, Open Mobile Alliance™, OMA-TS-DM-DMTND-V1_2, 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

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:

[3GPP22.002-360-BT] *3GPP TS 22.002-360 Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN), chapter 3*, URL:http://www.3gpp.org/

[3GPP22.002-AsynchNT] *3GPP TS 22.002 Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN), chapter 3.1.1.2.1, URL:http://www.3gpp.org/*

[3GPP22.002-AsynchNTD] *3GPP TS 22.002 Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN), chapter 3.1.1.2.2, URL:http://www.3gpp.org/*

[3GPP22.002-FMT] *3GPP TS 22.002 Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN), chapter 3.1.1.2.4, URL:http://www.3gpp.org/*

[GENFORM] *WAP General Formats Document,* Open Mobile Alliance™, WAP-188-WAPGenFormats, URL:http://www.openmobilealliance.org

[RFC1334] *RFC1334, PPP Authentication Protocols,* B. Lloyd, W. Simpson 1992, URL; http://www.ietf.org/rfc/rfc1334.txt

[RFC1994] *RFC1994, PPP Challenge Handshake Authentication Protocol,* W. Simpson 1996, URL; http://www.ietf.org/rfc/rfc1994.txt

2.3 Informative References

N/A

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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

NAP	Network Access Point
OMA	Open Mobile Alliance

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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 3GPP Circuit-Switched bearer specific part of the general Network Access Point management object and it allows for vendor specific extensions.

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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.

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6. 3GPP Circuit-Switched 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 3GPP Circuit-Switched bearer specific sub-tree that is placed under the general Network Access Point management object in order to enable the 3GPP Circuit-Switched bearer specific parameter manipulation.

6.2 Definitions related to NAP MO

The 3GPPCS 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 "3GPPCS".

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].

AuthType

The AuthType value in the NAP MO specified in [CONNMO] MUST be from the table below:

AuthType	Description
PAP	Password Authentication Protocol [RFC1334]
CHAP	Challenge Handshake Authentication Protocol [RFC1994]

Table 1: NAP Authentication Protocol Types

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6.3 Graphical Representation (Informative)

The following figure provides the structure of 3GPP Circuit-Switched bearer specific management object.

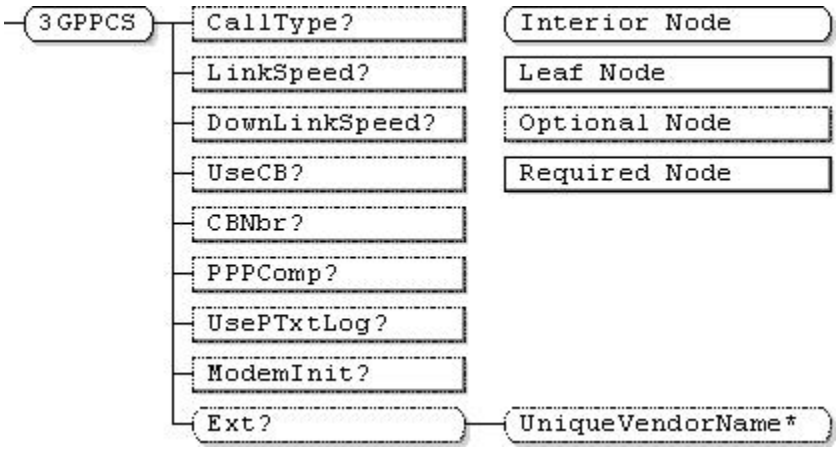

Figure 1. 3GPP Circuit-Switched bearer specific Management Object

6.4 Node descriptions

…/BearerParams/3GPPCS

Status	Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node specifies the 3GPP Circuit-Switched bearer specific management object for a *network access point*, or NAP, management object. Management Object Identifier for the 3GPPCS MO MUST be: "urn:oma:mo:oma-connmo-3gppcs:1.0".

CallType

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

The CallType parameter is used to define protocol to be used for data exchange or call type. If the parameter is not present or if no value is given, the default value ANALOG-MODEM SHOULD be assumed.

CallType	Description
ANALOG-MODEM	ANALOG-MODEM (default) in use [3GPP22.002-AsynchNT].
V120	V.120 in use [3GPP22.002-AsynchNTD].
V110	V.110 in use [3GPP22.002-AsynchNTD].
X31	X.31 in use [3GPP22.002-FMT].
BIT-TRANSPARENT	BIT-TRANSPARENT in use [3GPP22.002-360-BT].

Table 2: Call Types

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LinkSpeed

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

Defines the speed on the up-link channel and optionally the down-link channel for circuit switched bearers. Possible values are "autobaud" or a number (baud in decimal format).

DownLinkSpeed

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

Defines the speed on the down-link channel for circuit switched bearers. Possible values are "autobaud" or a number (baud in decimal format). If this parameter is not specified or if the ME does not support different up- and down-link speeds, the value of the LinkSpeed parameter may be assumed to be effective for the down-link channel as well.

UseCB

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	bool	Get

The UseCB parameter defines if callback is used. A value of *true* indicates callback is used; if the parameter is not specified indicates callback is not used.

CBNbr

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

The CBNbr parameter is used to indicate the callback number. CBNbr value is a phone number according to the E164 scheme [GENFORM]. If the parameter is not specified, the server number SHOULD be used instead (if UseCB is *true*).

PPPComp

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	bool	Get

The PPPComp parameter defines if PPP compression is used. If the value is *true,* PPP compression MUST be used. If the value is *false* or the parameter is not specified, PPPComp SHOULD NOT be attempted by the mobile device.

UsePTxtLog

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	bool	Get

The UsePTxtLog parameter defines if Plain Text Login is used. I.e. it defines whether the authentication information is sent in a clear text format to the recipient. A value of *true* indicates that Plain Text Login SHOULD be used. A value of *false* or the parameter is not specified indicates Plain Text Login SHOULD NOT be used.

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ModemInit

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

The ModemInit parameter is used to indicate the modem initialization parameters. ModemInit value is a string containing AT commands.

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 sub-tree below a *UniqueVendorName* interior node is implementation-specific.

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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.

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Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-DDS-DM_ConnMO_3GPPCS-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

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