

OMA DM: Management Object for SIP

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OMA Device Management

NOKIA

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Change history

July 7, 2006	Version 1.0	Initial document release
October 27, 2006	Version 1.1	Minor updates throughout the document.
March 28, 2007	Version 1.2	Added more information to OutboundProxy/Host, OutboundProxy/Realm and RegistrarServer/Realm leaf objects.
November 9, 2007	Version 1.3	Minor editorial updates throughout the document. Reference added to the new SIP provisioning document (<i>S60 3rd Edition: SIP Settings Configuration Guide</i>)
October 20, 2008	Version 1.4	Added Nokia VoIP release 3.0 features.

1 Introduction

This document defines the SIP Management Object v1.3 settings format for Open Mobile Alliance (OMA) Device Management (DM) usage. The definition of the parameter settings formats consists of tree structure, instance identifiers, and a detailed description of the management tree.

This document is a Nokia interpretation of the OMA DM specification. The intent of the document is to explain the organisation of the parameters associated with this functionality.

1.1 Notation

This document uses the notation shown in Figure 1 to describe the DM management object tree model and parameters.

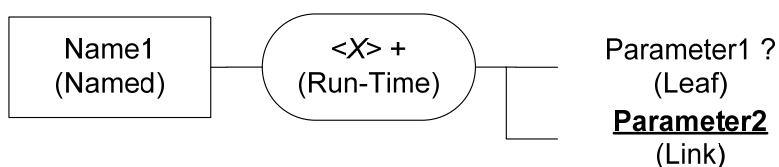


Figure 1: Notation

Named parent object

The name of the parent object is fixed. If the parent object's occurrence is One, the object's scope is permanent and cannot be deleted. If the parent object's occurrence is ZeroOrOne, the object's scope is dynamic and can be created and deleted at runtime by the Management Server.

Runtime object

Runtime objects can be created and deleted at run time by the Management Server. A runtime object's scope is dynamic. Runtime objects in the text are represented by an <x> notation, where <x> represents the node's instance identifier that will be generated dynamically and can have any alphanumeric characters as a value.

Leaf object

Management objects without any children are called leaf objects. The Description Framework Type for leaf objects in this document is *text/plain*.

Link object

A link object is a type of leaf object that has an absolute URI value pointing to another object in the management tree of the same device - that is, always starting from the root node.

The following characters are used in the management object tree diagram to indicate how many instances of a specific node the Management Authority is able to configure in the management object tree:

Character	Meaning
+	One or many occurrences; that is, at least one instance of the parameter needs to exist and be configured.
*	Zero or more occurrences.
?	Zero or one occurrence.

(None)	Occurrence is One; that is, the parameter needs to exist and be configured.
--------	---

Table 1: Characters used in the management object tree diagram

More information about the management tree, object descriptions, and property elements (Occurrence, Scope, Access Type, and Format) can be found in the *OMA Device Management Tree and Description* document [2].

2 Session Initiation Protocol (SIP) management object v1.3 description

This chapter defines the management object structure and identifiers needed when managing SIP services using OMA DM.

The management object identifier for SIP Management Object v1.3 is “com.s60/1.3/SIP”.

2.1 Graphical representation

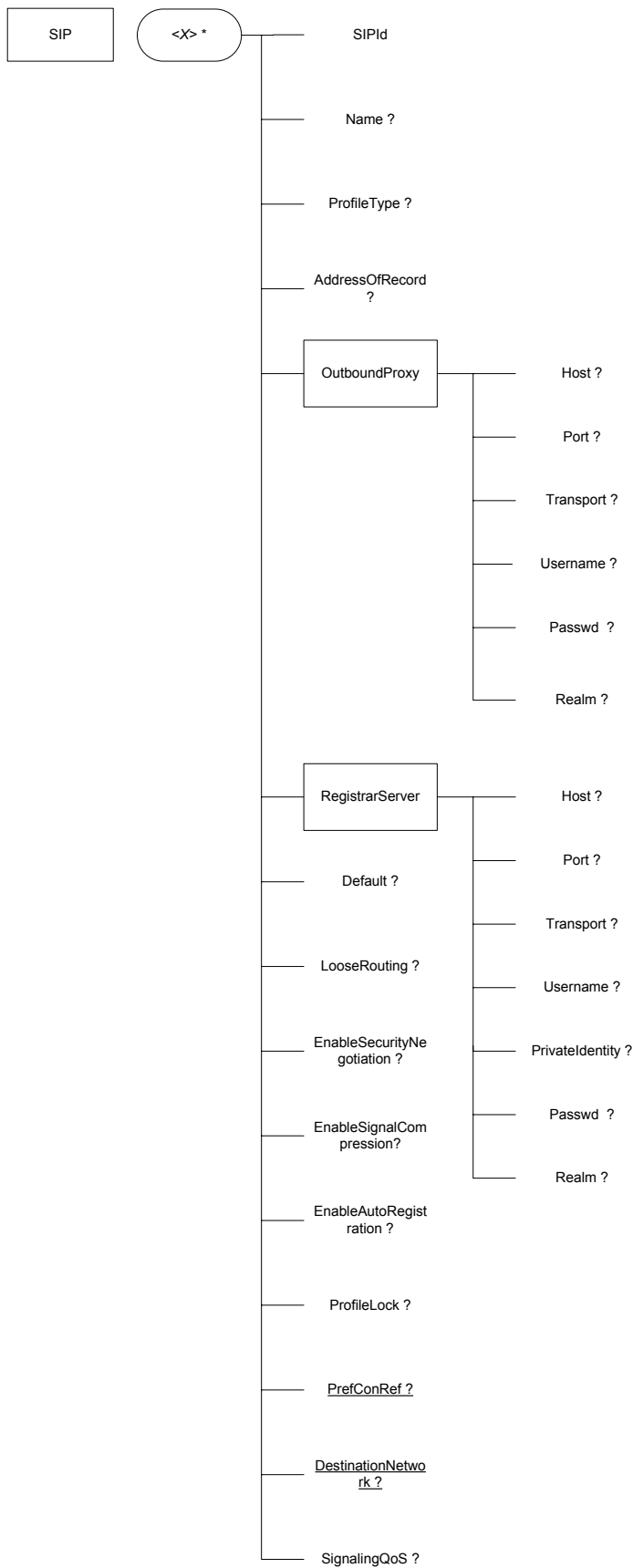


Figure 2: Graphical representation of the SIP management object

2.2 Node descriptions

2.2.1 ./SIP

Occurrence	Format	Access type
One	Node	Get

The SIP node is a parent to all SIP objects.

2.2.2 ./SIP/<X>/

Occurrence	Format	Access type
ZeroOrMore	Node	Add, Delete, Get, Replace

This runtime node acts as a placeholder for SIP profiles.

2.2.3 ./SIP/<X>/SIPId

Occurrence	Format	Access type
ZeroOrOne	Chr	Get

The SIPId leaf defines the ID for the SIP profile. If logical referencing is used, this ID can be used for linking other settings to SIP settings (for example, VoIP settings).

2.2.4 ./SIP/<X>/Name

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Name leaf defines the displayable provider name for the SIP profile.

2.2.5 ./SIP/<X>/ProfileType

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The ProfileType leaf defines the type of the SIP profile. Possible values for ProfileType are listed below:

Values	Description
IETF	Network compliant with IETF standards.
ims	Network compliant with 3GPP standards.

2.2.6 ./SIP/<X>/AddressOfRecord

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The AddressOfRecord leaf defines (IETF) Address-Of-Record / (IMS) Public User Identity. The value is SIP URI according to IETF RFC 3261. More information about URIs can be found in the document *Uniform Resource Identifiers (URI): Generic Syntax* [4].

2.2.7 ./SIP/<X>/Default

Occurrence	Format	Access type
ZeroOrOne	Bool	Add, Get, Replace

The Default leaf defines whether or not the profile is used by default.

Values	Description
True	The profile is used as a default. Note: Other profiles are automatically set as not being default when setting one profile as the default.
False	The profile is not default.

2.2.8 ./SIP/<X>/LooseRouting

Occurrence	Format	Access type
ZeroOrOne	Bool	Add, Get, Replace

The LooseRouting leaf defines whether or not the profile uses loose routing. Possible values are:

Values	Description
True	Loose routing is used.
False	Loose routing is not used.

2.2.9 ./SIP/<X>/EnableSecurityNegotiation

Occurrence	Format	Access type
ZeroOrOne	Bool	Add, Get, Replace

The EnableSecurityNegotiation leaf defines whether or not the profile uses security negotiation. Possible values are:

Values	Description
True	Security negotiation enabled.
False	Security negotiation disabled.

2.2.10 ./SIP/<X>/EnableSignalCompression

Occurrence	Format	Access type
ZeroOrOne	Bool	Add, Get, Replace

The EnableSignalCompression leaf defines whether or not the profile uses signal compression. Possible values are:

Values	Description
True	Signal compression enabled.
False	Signal compression disabled.

2.2.11 ./SIP/<X>/EnableAutoRegistration

Occurrence	Format	Access Type
ZeroOrOne	Bool	Add, Get, Replace

The EnableAutoRegistration leaf defines whether or not the profile uses automatic registration. Possible values are:

Values	Description
True	Autoregistration enabled.
False	Autoregistration disabled.

2.2.12 ./SIP/<X>/ProfileLock

Occurrence	Format	Access Type
ZeroOrOne	Chr	Add, Get, Replace

The ProfileLock parameter is used to lock the profile. When the profile lock is enabled, editing the profile from the UI is not possible. Note that when a SIP profile is linked to a VoIP profile, the SIP profile becomes always locked.

Values	Description
True	Profile lock is enabled.
False	Profile lock is disabled. This is the default value.

2.2.13 ./SIP/<X>/PrefConRef

Occurrence	Format	Access Type
ZeroOrOne	Chr	Add, Get, Replace

The PrefConRef link is used to define the logical reference to connectivity information (AP) stored elsewhere in the management tree.

Values	Description
E.g., './AP/APIId005'	DM DDF tree location for connectivity information (AP).

2.2.14 ./SIP/<X>/NetworkDestination

Occurrence	Format	Access Type
ZeroOrOne	Chr	Add, Get, Replace

The NetworkDestination link is used to define the logical reference to connectivity information (Network Destination, SNAP) stored elsewhere in the management tree. Note that if this leaf is in use, that is, has a value, then the PrefConRef leaf node is not used. This leaf is supported from Nokia VoIP v3.0 onwards.

Values	Description
E.g., BearerManagementSNAP/SNAP5	Network Destination address in the management tree. The value is given without tree root ('./')

2.2.15 ./SIP/<X>/SignalingQoS

Occurrence	Format	Access Type
ZeroOrOne	Int	Add, Get, Replace

The SignalingQoS parameter is used to define Quality of Service for SIP signaling. The value affects Differentiated Services CodePoint (DSCP) bits to be used in IP headers (IPv4 TOS and IPv6 TC). For more information, see IETF RFC 2597 [6], IETF RFC 3260 [7] and IETF RFC 4594 [8]. This leaf is supported from Nokia VoIP v3.0 onwards.

Values	Description
0-63	DSCP bits value in integer (default: 40).

2.2.16 ./SIP/<X>/OutboundProxy

Occurrence	Format	Access type
One	Node	Add, Get

This node holds outbound proxy settings.

2.2.17 ./SIP/<X>/OutboundProxy/Host

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Host leaf defines the address of the outbound proxy/P-CSCF. The value can be an IPv4/6 address, domain, or an FQDN.

Note that if the Host leaf has value 0.0.0.0 the host is resolved using DHCP Option 120.

2.2.18 ./SIP/<X>/OutboundProxy/Port

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The Port leaf defines the port number of the outbound proxy/P-CSCF. If the Host leaf is not presented as an IPv4/6 address and this leaf is defined, then the client will perform an A or AAAA record lookup and NAPTR and SRV record lookups are not performed (see the document *Session Initiation Protocol (SIP): Locating SIP Servers* (IETF RFC 3263) [5] for more information).

2.2.19 `./SIP/<X>/OutboundProxy/Transport`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Transport leaf defines the transport protocol to be used between the terminal and outbound proxy/P-CSCF. If the Host leaf is not presented as an IPv4/6 address and this leaf is defined but the Port leaf is not defined, then the client will perform DNS SRV, A, and AAAA record lookup, but NAPTR record lookups are not performed (see the document *Session Initiation Protocol (SIP): Locating SIP Servers* (IETF RFC 3263) [5] for more information).

Values	Description
TCP	TCP is used as the transport protocol.
UDP	UDP is used as the transport protocol.
Auto	Transport protocol is automatic.

2.2.20 `./SIP/<X>/OutboundProxy/Username`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Username leaf defines the user name for the outbound proxy/P-CSCF realm.

2.2.21 `./SIP/<X>/OutboundProxy/Passwd`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Replace

The Passwd leaf defines the password for the outbound proxy/P-CSCF realm.

2.2.22 `./SIP/<X>/OutboundProxy/Realm`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Realm leaf defines the realm for the outbound proxy/P-CSCF. Note that the Realm leaf must hold exactly the same text string that the proxy server returns in the realm parameter of the Proxy-Authenticate header of 407 response to REGISTER. This leaf node is obsolete from Nokia VoIP v3.0 onwards.

2.2.23 `./SIP/<X>/RegistrarServer`

Occurrence	Format	Access type
One	Node	Add, Get

This node holds registrar server settings.

2.2.24 `./SIP/<X>/RegistrarServer/Host`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Host leaf defines the address of the registrar server/S-CSCF. The value can be an IPv4/6 address, domain, or an FQDN.

2.2.25 ./SIP/<X>/RegistrarServer/Port

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The Port leaf defines the port number of the registrar server.

Note: This parameter is effective only when the ProfileType parameter is set to IETF.

2.2.26 ./SIP/<X>/RegistrarServer/Transport

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Transport leaf defines the transport protocol to be used between the terminal and the registrar server.

Note: This parameter is effective only when the ProfileType parameter is set to IETF.

Values	Description
TCP	TCP is used as transport protocol.
UDP	UDP is used as transport protocol.
Auto	Transport protocol is automatic.

2.2.27 ./SIP/<X>/RegistrarServer/Username

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Username leaf defines the user name for the registrar server realm.

Note: This parameter is effective only when the ProfileType parameter is set to IETF.

2.2.28 ./SIP/<X>/RegistrarServer/PrivateIdentity

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The PrivateUserIdentity leaf defines the private user identity for the S-CSCF realm.

Note: This parameter is effective only when the ProfileType parameter is set to ims.

2.2.29 `./SIP/<X>/RegistrarServer/Passwd`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Replace

The Passwd leaf defines the password for the registrar server/S-CSCF realm.

2.2.30 `./SIP/<X>/RegistrarServer/Realm`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The Realm leaf defines the realm for the registrar server/S-CSCF.

Note that the Realm leaf must be exactly the same text string that the registrar server returns in the realm parameter of the WWW-Authenticate header of 401 response to REGISTER.

This leaf node is obsolete from Nokia VoIP v3.0 onwards.

3 Terms and abbreviations

Term or abbreviation	Meaning
AP	Access Point
DM	Device Management
DSCP	Differentiated Services Codepoint
FQDN	Fully Qualified Domain Name
IETF	Internet Engineering Task Force
IMS	IP Multimedia Subsystem
IPv4/6	Internet Protocol version 4/6
OMA	Open Mobile Alliance
P-CSCF	Proxy — Call State Control Function (analogous to outbound proxy)
S-CSCF	Serving — Call State Control Function (analogous to registrar proxy)
SIP	Session Initiation Protocol
SNAP	Service Network Access Point
SyncML	Synchronization Markup Language
TC	Traffic Class
TCP	Transmission Control Protocol
TOS	Type of Service
UDP	User Datagram Protocol
URI	Uniform Resource Identifier
VoIP	Voice Over IP

4 References

- [1] OMA Device Management Standardized Objects, available at Open Mobile Alliance Ltd. <http://www.openmobilealliance.com/>
- [2] OMA Device Management Tree and Description, available at Open Mobile Alliance Ltd. <http://www.openmobilealliance.com/>
- [3] Internet Protocol [RFC791], available at The Internet Engineering Task Force (IETF) <http://www.ietf.org/>
- [4] Uniform Resource Identifiers (URI): Generic Syntax [RFC2396], available at The Internet Engineering Task Force (IETF) <http://www.ietf.org/>
- [5] Session Initiation Protocol (SIP): Locating SIP Servers [RFC3263], available at The Internet Engineering Task Force (IETF) <http://www.ietf.org/>
- [6] Assured Forwarding PHB Group [RFC2597], available at The Internet Engineering Task Force (IETF) http://www.ietf.org
- [7] New Terminology and Clarifications for Diffserv [RFC3260], available at The Internet Engineering Task Force (IETF) http://www.ietf.org
- [8] Configuration Guidelines for DiffServ Service Classes [RFC4594], available at The Internet Engineering Task Force (IETF) http://www.ietf.org

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