

OMA DM: Management Object for Nokia VCC

Version 1.0; 28 May 2009

OMA Device
Management

NOKIA

Copyright © 2009 Nokia Corporation. All rights reserved.

Nokia and Forum Nokia are trademarks or registered trademarks of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

Disclaimer

The information in this document is provided 'as is', with no warranties whatsoever, including any warranty of merchantability, fitness for any particular purpose, or any warranty otherwise arising out of any proposal, specification, or sample. This document is provided for informational purposes only.

Nokia Corporation disclaims all liability, including liability for infringement of any proprietary rights, relating to implementation of information presented in this document. Nokia Corporation does not warrant or represent that such use will not infringe such rights.

Nokia Corporation retains the right to make changes to this document at any time, without notice.

Licence

A licence is hereby granted to download and print a copy of this document for personal use only. No other licence to any other intellectual property rights is granted herein.

Contents

1	Introduction.....	5
1.1	Notation	5
2	Nokia VCC Management Object v1.0 description	7
2.1	Management-object tree diagram	7
2.2	Node descriptions	8
2.2.1	./VCC001.....	8
2.2.2	./VCC001/Name	8
2.2.3	./VCC001/VDI	8
2.2.4	./VCC001/VDN.....	8
2.2.5	./VCC/Preferred Domain	9
2.2.6	./VCC/Immediate DT.....	9
2.2.7	./VCC/DT CS-to-IM CN direction	10
2.2.8	./VCC/DT IM CN-to-CS direction	10
2.2.9	./VCC/DT in held_waiting calls	11
2.2.10	./VCC/DT Allowed When CS Originated	11
2.2.11	./VCC/WLAN HO Threshold	12
2.2.12	./VCC/WLAN HO Hysteresis.....	12
2.2.13	./VCC/WLAN Hysteresis Timer Low.....	12
2.2.14	./VCC/WLAN Hysteresis Timer High.....	13
2.2.15	./VCC/CS HO Threshold.....	13
2.2.16	./VCC/CS HO Hysteresis.....	13
2.2.17	./VCC/CS Hysteresis Timer Low	14
2.2.18	./VCC/CS Hysteresis Timer High	14
2.3	ToConRef node	14
2.3.1	./VCC/ToConRef.....	14
2.4	VoIP node.....	14
2.4.1	./VCC/ToConRef/VoIP	14
2.4.2	./VCC/ToConRef/VoIP/ConRef	15
3	Terms and abbreviations.....	16
4	References	17
5	Evaluate this resource	18

Change history

28 May 2009	Version 1.0	Initial document release
-------------	-------------	--------------------------

1 Introduction

This document defines the Nokia settings format for Voice Call Continuity (VCC) for use in Open Mobile Alliance (OMA) Device Management (DM) settings files. The definition of the parameter-settings format consists of a tree structure, instance identifiers, and a detailed description of the nodes in management tree.

This document is based on a Nokia interpretation of the OMA DM specification.

Configuration of Nokia voice over IP (VoIP) settings is described in the document [OMA DM: Management Object for Nokia VoIP Implementation](#) [1].

1.1 Notation

This section describes the notation used in Section 2.1, 'Management-object tree diagram', to describe the model for the management-object tree and the nodes it contains. The diagram notation is shown in Figure 1.

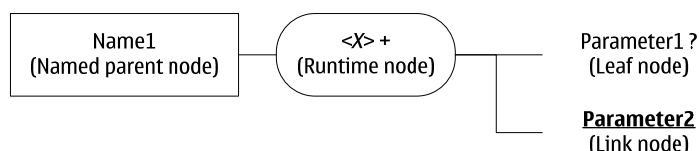


Figure 1: The notation used in this document

The nodes described with the notation are as follows:

Named parent node

The named parent node provides a container for a group of related settings nodes, the name of the node is fixed. If the parent node's occurrence is One, the node's scope is permanent and cannot be deleted. If the parent node's occurrence is ZeroOrOne, the node's scope is dynamic and the node can be created and deleted at runtime by the Management Server.

Runtime node

Runtime nodes can be created and deleted at runtime by the Management Server. Runtime nodes' scope is dynamic. Runtime nodes are represented by an <X> notation, where <X> represents the node's instance identifier, which is generated dynamically and can have any alphanumeric characters as a value.

Leaf node

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

Link node

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

The characters listed in Table 1 are used in the management-object tree diagram to indicate how many instances of a specific node the management authority is able to configure.

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: The characters used in the management-object tree diagram

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

2 Nokia VCC Management Object v1.0 description

This chapter defines the management-object structure and identifiers needed when using OMA DM to manage VCC settings.

2.1 Management-object tree diagram

A graphical representation of the nodes in the management-object tree for the Nokia VCC Management Object is provided in Figure 1.

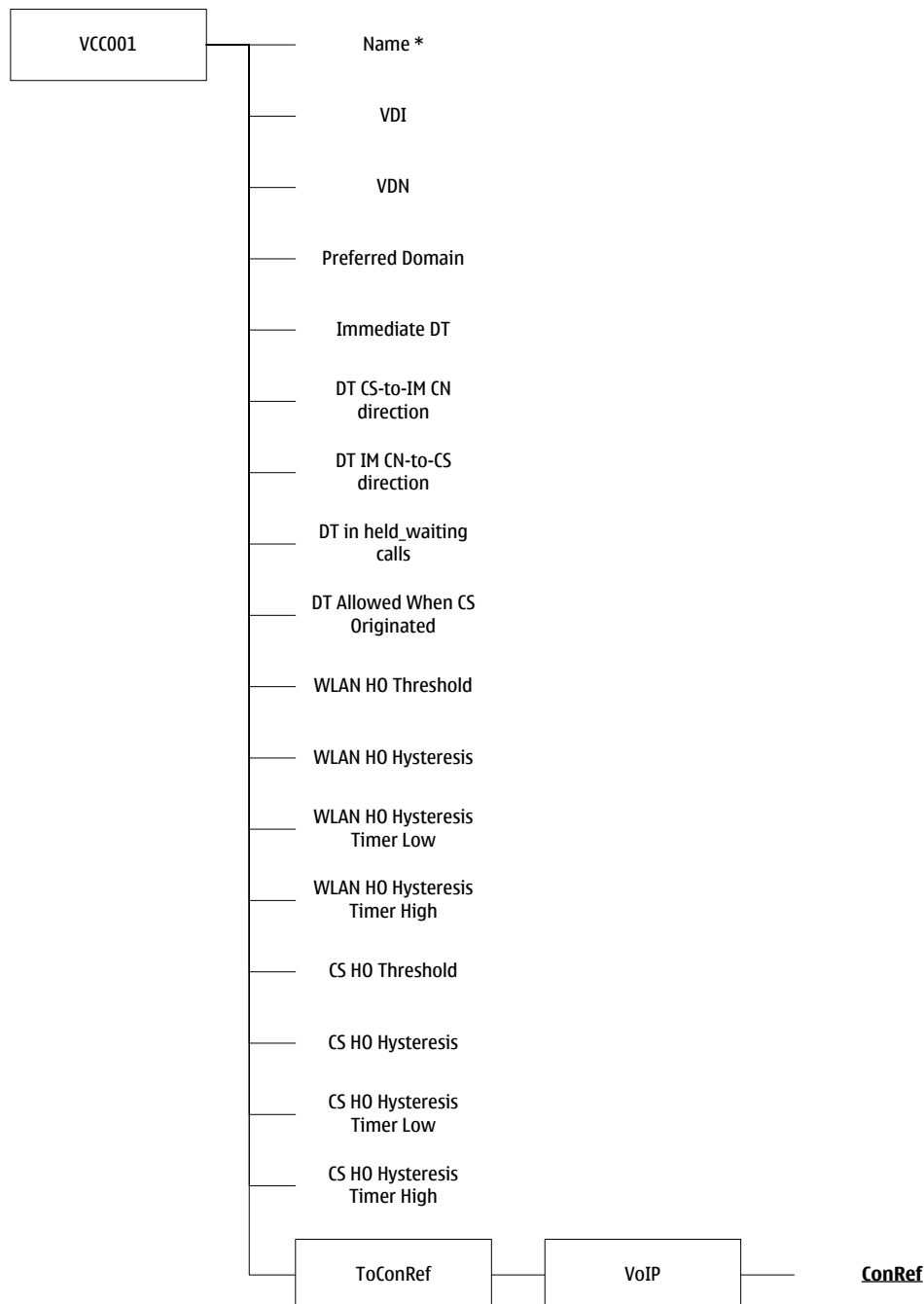


Figure 2. The management-object tree diagram for the Nokia VCC Management Object

2.2 Node descriptions

2.2.1 ./VCC001

Occurrence	Format	Access type
One	Node	Get

The VCC001 node is the Named parent node to all VCC settings. The scope of this node is permanent.

2.2.2 ./VCC001/Name

Occurrence	Format	Access type
ZeroOrMore	Chr	Get

The Name leaf defines a name for the VCC settings.

2.2.3 ./VCC001/VDI

Occurrence	Format	Access type
One	Chr	Get, Replace

The VDI leaf defines the VCC Domain Transfer URI that is included in SIP INVITE requests that are used to initiate domain transfer.

Value	Description
URI	A URI, for example sip:domain.xr@home.net

2.2.4 ./VCC001/VDN

Occurrence	Format	Access type
One	Chr	Get, Replace

The VDN leaf is the VCC Domain Transfer Number that the user includes in the setup of a circuit switched (CS) call to initiate domain transfer.

Value	Description
tel URI	Telephone number URI (for more information, see IETF RFC 3966 [3])

2.2.5 .VCC/Preferred Domain

Occurrence	Format	Access type
One	Chr	Get, Replace

The Preferred Domain leaf represents the operator's preferred domain for user equipment (UE)-originated calls and sessions.

Value	Description
0	Indicates that a CS domain is preferred
1	Indicates an IP Multimedia Core Network Subsystem (IMS) is preferred (Default)

2.2.6 .VCC/Immediate DT

Occurrence	Format	Access type
One	Chr	Get, Replace

The Immediate DT leaf indicates whether to initiate a VCC domain transfer (DT) immediately to the operator's preferred domain when that domain becomes available. This operator policy affects only active sessions.

Note: If the operator's Immediate DT policy indicates that the domain transfer is not immediately required, then it is up to the VCC UE to determine when to perform the domain transfer if the preferred domain is available.

Value	Description
0	Indicates the preference not to initiate domain transfer immediately to the preferred domain when that domain becomes available (Default)
1	Indicates the preference to initiate domain transfer immediately to the preferred domain when that domain becomes available

2.2.7 .VCC/DT CS-to-IM CN direction

Occurrence	Format	Access type
One	Chr	Get, Replace

The Domain Transfer CS-to-IM CN direction leaf indicates whether a VCC domain transfer from the CS domain to the IMS domain is restricted.

Value	Description
0	Indicates that the network operator prefers the domain transfer from the CS domain to the IMS domain to occur (Default)
1	Indicates that the network operator prefers the domain transfer from the CS domain to the IMS domain not to occur

2.2.8 .VCC/DT IM CN-to-CS direction

Occurrence	Format	Access type
One	Chr	Get, Replace

The Domain Transfer IM CN-to-CS direction leaf indicates whether a VCC domain transfer from the IMS domain to the CS domain is restricted.

Value	Description
0	Indicates that the network operator prefers the domain transfer from the IMS domain to the CS domain to occur (Default)
1	Indicates that the network operator prefers the domain transfer from the IMS domain to the CS domain not to occur

2.2.9 .VCC/DT in held_waiting calls

Occurrence	Format	Access type
One	Chr	Get, Replace

The Domain Transfer in held_waiting calls leaf indicates whether a VCC domain transfer is restricted when the VCC UE is engaged in an active and held or waiting call or session in the transferring-out domain (the restriction does not apply in a case where the VCC UE loses coverage in the transferring-out domain). If the operator policy requires restriction in the domain transfer for held or waiting calls, then the VCC UE should not take into account any other operator policy for the domain transfer.

Value	Description
0	Indicates that the network operator prefers the domain transfer to occur when the VCC UE is engaged in an active and held or waiting call or session in the transferring-out domain (Default)
1	Indicates that the network operator prefers the domain transfer not to occur when the VCC UE is engaged in an active and held or waiting call or session in the transferring-out domain

2.2.10 .VCC/DT Allowed When CS Originated

Occurrence	Format	Access type
One	Chr	Get, Replace

The DT Allowed When CS Originated leaf defines whether domain transfer is allowed when a call is CS-originated.

Value	Description
0	DT is not allowed when the call is CS-originated
1	DT is allowed when the call is CS-originated (Default)

2.2.11 ./.VCC/WLAN HO Threshold

Occurrence	Format	Access type
One	Chr	Get, Replace

The WLAN Handover (HO) Threshold leaf defines the threshold value for WLAN signal strength at which domain transfer starts.

Value	Description
0-110	WLAN handover threshold value in dBm. Although the value is given without a negative sign, the actual signal threshold level is always negative. For example, the value 70 corresponds to -70dBm. (Default: 60)

2.2.12 ./.VCC/WLAN HO Hysteresis

Occurrence	Format	Access type
One	Chr	Get, Replace

The WLAN HO Hysteresis leaf defines the hysteresis value for the WLAN signal. The hysteresis value is subtracted from the WLAN HO threshold value to obtain the signal level of a weak signal. For example, if the threshold value is 70, meaning -70dBm, and the hysteresis values is 3, then the lower limit is -73dBm.

Value	Description
0-10	The hysteresis value for a WLAN signal in dBm (Default: 3)

2.2.13 ./.VCC/WLAN Hysteresis Timer Low

Occurrence	Format	Access type
One	Chr	Get, Replace

The WLAN Hysteresis Timer Low leaf defines the period of time the WLAN signal must be below the value defined in the WLAN HO Threshold leaf for the signal to be interpreted as 'bad' and for domain transfer to be initiated.

Value	Description
0-99999999	Timer value in microseconds (Default: 1000000)

2.2.14 .VCC/WLAN Hysteresis Timer High

Occurrence	Format	Access type
One	Chr	Get, Replace

The WLAN Hysteresis Timer High leaf defines the period of time the WLAN signal must be above the value defined in the WLAN HO Threshold leaf for the signal to be interpreted as 'good' and for DT not to be initiated.

Value	Description
0-99999999	Timer value in microseconds (Default: 1000000)

2.2.15 .VCC/CS HO Threshold

Occurrence	Format	Access type
One	Chr	Get, Replace

The CS HO Threshold leaf defines the threshold value for CS signal strength at which domain transfer is initiated.

Value	Description
0 - 110	Threshold value for the CS signal in dBm. Although the value is given without a negative sign, the actual signal threshold is always negative. For example, the value 70 means -70dBm. (Default: 100)

2.2.16 .VCC/CS HO Hysteresis

Occurrence	Format	Access type
One	Chr	Get, Replace

The CS HO Hysteresis leaf defines the hysteresis value for the CS signal. The hysteresis value is subtracted from the CS HO threshold value to determine the threshold signal level for a weak signal. For example, if the threshold value is 70, meaning -70dBm, and the hysteresis value is 3, then the lower threshold is -73dBm.

Value	Description
0 - 10	Hysteresis value for the CS signal in dBm (Default: 3)

2.2.17 ./.VCC/CS Hysteresis Timer Low

Occurrence	Format	Access Type
One	Chr	Get, Replace

The CS Hysteresis Timer Low leaf defines the period of time the CS signal must be below the hysteresis value, defined in the CS HO Threshold leaf, for the signal to be interpreted as 'bad' and for DT to be initiated.

Value	Description
0-99999999	Timer value in microseconds (Default: 1000000)

2.2.18 ./.VCC/CS Hysteresis Timer High

Occurrence	Format	Access type
One	Chr	Get, Replace

The CS Hysteresis Timer High leaf defines the period of time the CS signal must be above the value defined in the CS HO Threshold leaf for the signal to be interpreted as 'good' and for DT not to be initiated.

Value	Description
0-99999999	Timer value in microseconds (Default: 1000000)

2.3 ToConRef node

2.3.1 ./.VCC/ToConRef

Occurrence	Format	Access type
One	Node	Get

The ToConRef node is the Named parent node that defines the connection references of the VCC settings.

2.4 VoIP node

2.4.1 ./.VCC/ToConRef/VoIP

Occurrence	Format	Access type
One	Node	Get

The VoIP node is the Named parent node that holds all VoIP-reference-related data.

2.4.2 .VCC/ToConRef/VoIP/ConRef

Occurrence	Format	Access type
One	Chr	Get, Replace

The ConRef link defines the DM Device Description Framework (DDF) file tree location for VoIP settings.

Value	Description
E.g., ./VoIP/MyVoIP	VoIP settings location in the DM DDF tree

3 Terms and abbreviations

Term or abbreviation	Meaning
CN	Core Network
CS	Circuit switched
dBm	Power ratio in decibels (dB) of the measured power, referenced to one milliwatt (mW)
DDF	Device Description Framework
DM	Device Management
DT	Domain transfer
HO	Handover
IETF	Internet Engineering Task Force
IM	IP Multimedia
IMS	IP Multimedia Core Network Subsystem
OMA	Open Mobile Alliance
SIP	Session Initiation Protocol
UE	User equipment
URI	Uniform resource identifier
VCC	Voice Call Continuity
VDI	VCC Domain Transfer URI
VDN	VCC Domain Transfer Number
VoIP	Voice over IP
WLAN	Wireless local area network

4 References

- [1] [OMA DM: Management Object for Nokia VoIP Implementation](#), available on the [Forum Nokia](#) website
- [2] OMA Device Management Tree and Description, Version 1.1.2, available on the [Open Mobile Alliance](#) website
- [3] The tel URI for Telephone Numbers, available on the [IETF](#) website

Further reading:

OMA Device Management Standardized Objects, Version 1.1.2
[Open Mobile Alliance](#)

Uniform Resource Identifiers (URI), RFC 2396, v1.1.2
[Internet Engineering Task Force](#)

Provisioning Content v1.1 [OMA-WAP-TS-ProvCont-v1_1-20080226-C]
[Open Mobile Alliance](#)

5 Evaluate this resource

Please spare a moment to help us improve documentation quality and recognise the resources you find most valuable, by [rating this resource](#).