

OMA DM: Management Object for NATFW

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OMA Device Management

NOKIA

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Change history

October 27, 2006	Version 1.0	Initial document release
March 28, 2007	Version 1.1	Minor editorial changes. Information added to leaf node NATFW/DomainSpecific/<x>/STUNSrvAddr.

1 Introduction

This document defines the Network Address Translator Firewall (NATFW) management object v1.0 settings format for Open Mobile Alliance (OMA) Device Management (DM) usage. The definition of the parameter settings formats consists of a tree structure, instance identifiers, and a detailed description of the management tree.

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

These settings apply to Nokia devices supporting Nokia VoIP implementation.

1.1 Notation

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

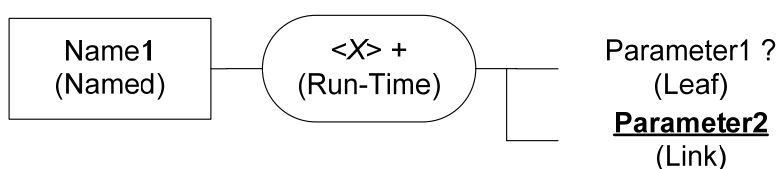


Figure 1: Notation

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 run time by the Management Server.

Run-time object

Run-time objects can be created and deleted at run time by the Management Server. Run-time objects' scope is dynamic. Run-time 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 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 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 from the *OMA Device Management Tree and Description* document [2].

2 NATFW management object v1.0 description

This chapter defines the management object structure and identifiers needed when managing NATFW Traversal settings using OMA DM.

2.1 Graphical representation

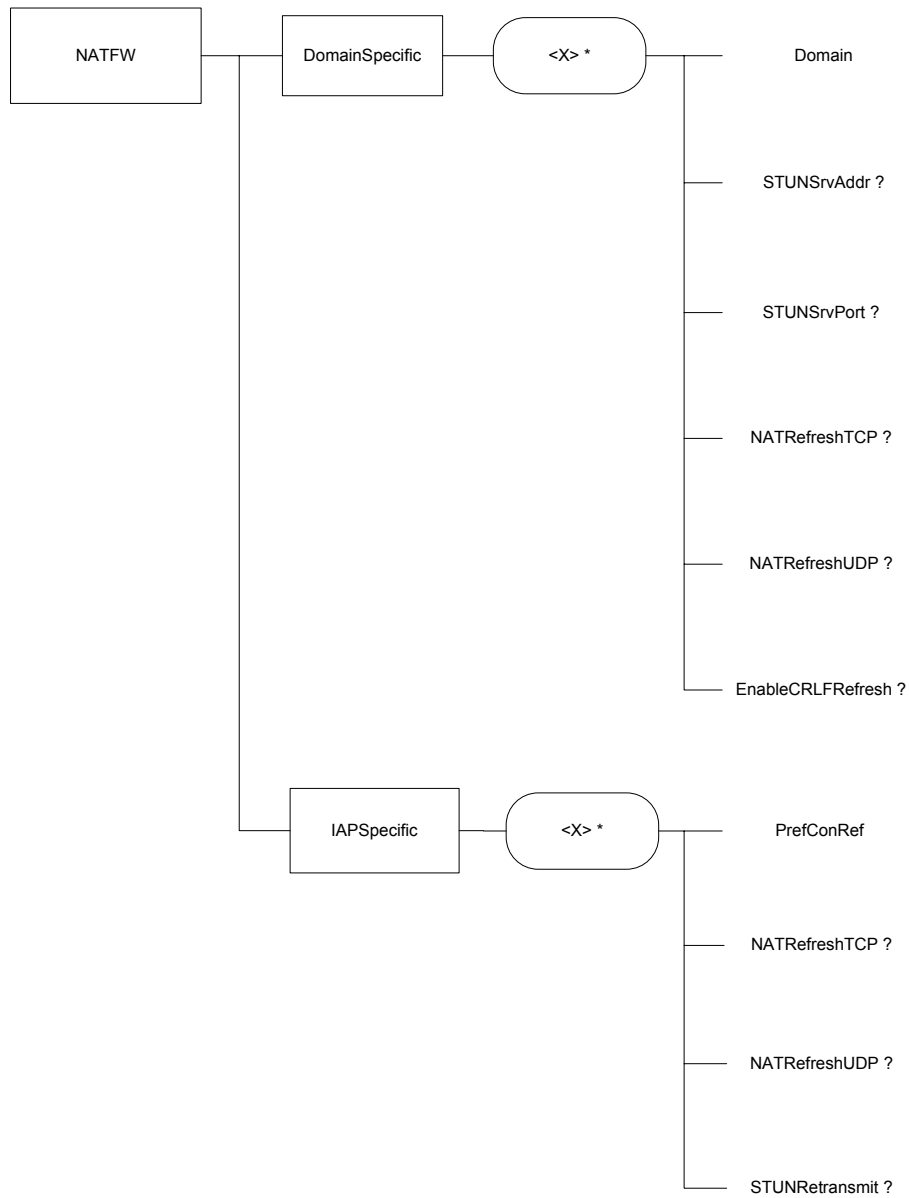


Figure 2. Graphical representation of the NATFW management object

2.2 Node descriptions

2.2.1 ./NATFW

Occurrence	Format	Access type
One	Node	Add, Get

The NATFW node is a parent to all NATFW Traversal objects. The scope of this node is permanent.

2.2.2 ./NATFW/DomainSpecific

Occurrence	Format	Access type
One	Node	Add, Get

The `DomainSpecific` node is a parent to all domain-specific NATFW settings.

2.2.3 ./NATFW/DomainSpecific/<x>

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

This run-time node acts as a placeholder for domain-specific NATFW settings.

2.2.4 ./NATFW/DomainSpecific/<x>/Domain

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The `Domain` leaf defines the domain to identify domain-specific NATFW settings.

Values	Description
	Part of NAI according to IETF RFC 2486.

2.2.5 ./NATFW/DomainSpecific/<x>/STUNsrvAddr

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

The `STUNsrvAddr` leaf defines STUN server address in domain-specific NATFW settings. See reference document [3] for more information about STUN. Note that if this leaf's value is 0.0.0.0, STUN is disabled.

Values	Description
	IPv4/6 address or host name with domain name

2.2.6 `./NATFW/DomainSpecific/<x>/STUNsrVPort`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `STUNsrVPort` leaf defines the STUN server port in domain-specific NATFW settings.

Values	Description
	Port number (default: 3478)

2.2.7 `./NATFW/DomainSpecific/<x>/NATRefreshTCP`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `NATRefreshTCP` leaf defines the NAT refresh interval for TCP in domain-specific NATFW settings. The unit of refresh interval is seconds. If an IAP-specific value for this interval is defined, it overrides this value.

Values	Description
	NAT refresh interval in seconds (default: 1200 seconds).

2.2.8 `./NATFW/DomainSpecific/<x>/NATRefreshUDP`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `NATRefreshUDP` leaf defines the NAT refresh interval for UDP in domain-specific NATFW settings. The unit of refresh interval is seconds. If an IAP-specific value for this interval is defined, it overrides this value.

Values	Description
	NAT refresh interval in seconds (default: 28 seconds).

2.2.9 `./NATFW/DomainSpecific/<x>/EnableCRLFRefresh`

Occurrence	Format	Access type
ZeroOrOne	Bool	Add, Get, Replace

The `EnableCRLFRefresh` leaf defines the usage of CRLF-based NAT binding refresh. This attribute affects the CRLF sending.

Values	Description
True	CRLF refresh is enabled over any transport (UPD/TCP/TLS).
False	CRLF refresh is disabled.

2.2.10 `./NATFW/IAPSpecific`

Occurrence	Format	Access type
One	Node	Add, Get

The `IAPSpecific` node is a parent to all access point-specific NATFW settings.

2.2.11 `./NATFW/IAPSpecific/<x>`

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

This run-time node acts as a placeholder for IAP-specific NATFW settings.

2.2.12 `./NATFW/IAPSpecific/<x>/PrefConRef`

Occurrence	Format	Access type
ZeroOrOne	Chr	Add, Get, Replace

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

Values	Description
AP/APIdxxx	Leaf values are defined in the <i>OMA Device Management Standardized Objects</i> document [1].

2.2.13 `./NATFW/IAPSpecific/<x>/NATRefreshTCP`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `NATRefreshTCP` leaf defines the NAT refresh interval for TCP in IAP-specific NATFW settings. The unit of refresh interval is seconds. The value overrides the domain-specific `NATRefreshTCP` value if it is defined.

Values	Description
	NAT refresh interval in seconds (default: 1200 seconds).

2.2.14 `./NATFW/IAPSpecific/<x>/NATRefreshUDP`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `NATRefreshUDP` leaf defines the NAT refresh interval for UDP in IAP-specific NATFW settings. The unit of refresh interval is seconds. The value overrides the domain-specific `NATRefreshUDP` value if it is defined.

Values	Description
	NAT refresh interval in seconds (default: 28 seconds).

2.2.15 `./NATFW/IAPSpecific/<x>/STUNRetransmit`

Occurrence	Format	Access type
ZeroOrOne	Int	Add, Get, Replace

The `STUNRetransmit` leaf defines the STUN request retransmit timer in IAP-specific NATFW settings. The unit of timer is milliseconds.

Values	Description
	STUN retransmit timer value in milliseconds (default: 250 milliseconds).

3 Terms and abbreviations

Term or abbreviation	Meaning
AP	Access Point
CRLF	Carrier Line Feed
DDF	Device Description Framework
DM	Device Management
FW	Firewall
IAP	Internet access point
NAT	Network Address Translator
NATFW	Network Address Translator Firewall
OMA	Open Mobile Alliance
STUN	Simple Traversal of User Datagram Protocol (UDP) Through Network Address Translators (NATs)
SyncML	Synchronization Markup Language
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
VoIP	Voice over IP

4 References

- [1] OMA Device Management Standardized Objects, Open Mobile Alliance Ltd.
<http://www.openmobilealliance.com/>
- [2] OMA Device Management Tree and Description, Open Mobile Alliance Ltd.
<http://www.openmobilealliance.com/>
- [3] “STUN – Simple Traversal of User Datagram Protocol (UDP) Through Network Address Translators (NATs)”, [RFC3489], The Internet Engineering Task Force (IETF)
<http://www.ietf.org/>

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