



Diagnostics and Monitoring Trap Events Specifications

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Contents

1. SCOPE.....	5
2. REFERENCES	6
2.1 NORMATIVE REFERENCES.....	6
2.2 INFORMATIVE REFERENCES.....	6
3. TERMINOLOGY AND CONVENTIONS.....	7
3.1 CONVENTIONS.....	7
3.2 DEFINITIONS.....	7
3.3 ABBREVIATIONS.....	7
4. INTRODUCTION	8
5. GEOGRAPHIC TRAP.....	9
5.1 INTRODUCTION.....	9
5.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	9
5.3 FUNCTION DESCRIPTION	9
6. RECEIVED POWER TRAP	13
6.1 INTRODUCTION.....	13
6.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	13
6.3 FUNCTION DESCRIPTION	13
7. CALL DROP TRAP	17
7.1 INTRODUCTION.....	17
7.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	17
7.3 FUNCTION DESCRIPTION	17
8. LOG CAPACITY FULL TRAP	21
8.1 INTRODUCTION.....	21
8.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	21
8.3 FUNCTION DESCRIPTION	21
9. QOS TRAP	25
9.1 INTRODUCTION.....	25
9.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	25
9.3 FUNCTION DESCRIPTION	25
10. HARD REBOOT TRAP.....	29
10.1 INTRODUCTION.....	29
10.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	29
10.3 FUNCTION DESCRIPTION	29
11. DATA SPEED TRAP	32
11.1 INTRODUCTION.....	32
11.2 NON-APPLICABLE NODES FROM TRAP MO FRAMEWORK DEFINITION.....	32
11.3 FUNCTION DESCRIPTION	32
APPENDIX A. CHANGE HISTORY (INFORMATIVE).....	37
A.1 APPROVED VERSION HISTORY	37
APPENDIX B. STATIC CONFORMANCE REQUIREMENTS (NORMATIVE)	38
B.1 SCR FOR DIAGMON CLIENT (GEOTRAP).....	38
B.2 SCR FOR DIAGMON SERVER (GEOTRAP)	38
B.3 SCR FOR DIAGMON CLIENT (RECEIVEDPOWER).....	38
B.4 SCR FOR DIAGMON SERVER (RECEIVEDPOWER)	38
B.5 SCR FOR DIAGMON CLIENT (CALLDROP).....	38
B.6 SCR FOR DIAGMON SERVER (CALLDROP)	38
B.7 SCR FOR DIAGMON CLIENT (LOGCAP)	38
B.8 SCR FOR DIAGMON SERVER (LOGCAP)	39

B.9 SCR FOR DIAGMON CLIENT (QOS).....39
 B.10 SCR FOR DIAGMON SERVER (QOS)39
 B.11 SCR FOR DIAGMON CLIENT (HARDREBOOT).....39
 B.12 SCR FOR DIAGMON SERVER (HARDREBOOT)39
 B.13 SCR FOR DIAGMON CLIENT (DATASPEED)39
 B.14 SCR FOR DIAGMON SERVER (DATASPEED).....39

Figures

Figure 1 – Geographic Trap Function9
 Figure 2 – Received Power Trap Function13
 Figure 3 – Call Drop Trap Function17
 Figure 4 – Log Capacity Full Trap MO21
 Figure 5 – QoS Metrics Trap Event25
 Figure 6 – Hard Reboot Trap MO29
 Figure 7 – Data Speed Trap Function.....32

1. Scope

This document defines the specific DiagMon Trap Events using the framework as defined in [DiagMonTrapMO].

Existing TrapMO framework features are reused and this document provides information on the standardised Trap Events.

This specification defines:

- The standardized Trap Event Identifier (TrapID) format for each of the Trap Events covered in this specification
- Any additional information to use the Trap Event reporting mechanism

2. References

2.1 Normative References

- [3GPP-TS_23.032] 3GPP TS 23.032: Technical Specification Group Core Network and Terminals; Access Network Discovery and Selection Function (ANDSF) Management Object (MO)
- [DiagMonTrapMO] “Diagnostic and Monitoring Trap Framework Management Object”, Version 1.2. Open Mobile Alliance™, OMA-TS-DiagMonTrapMOFrameworkV1_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)
- [RFC4234] “Augmented BNF for Syntax Specifications: ABNF”. D. Crocker, Ed., P. Overell. October 2005,
[URL:http://www.ietf.org/rfc/rfc4234.txt](http://www.ietf.org/rfc/rfc4234.txt)
- [SCRRULES] “SCR Rules and Procedures”, Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures,
[URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [TS102.250] “Speech and multimedia Transmission Quality (STQ); QoS aspects for popular services in mobile networks”, ETSI TS 102 250-2 ver. 2.2.1,
[URL:http://www.etsi.org/](http://www.etsi.org/)

2.2 Informative References

- [OMADICT] “Dictionary for OMA Specifications”, Version 2.9, Open Mobile Alliance™,
OMA-ORG-Dictionary-V2_9,
[URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

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

Kindly consult [OMADICT] for all definitions used in this document.

3.3 Abbreviations

Kindly consult [OMADICT] for all abbreviations used in this document.

4. Introduction

The DiagMon Trap Events specification defines a number of standardised instantiations of the [[DiagMonTrapMO]] framework for the purposes of managing traps in a predictable and industry-wide manner.

5. Geographic Trap

5.1 Introduction

Whenever a device would enter into a specified geographic area, it would cause this Trap to go active – the Trap would start communications with any specified DiagMon Servers and would also Exec any specified management objects. Whenever the device would leave that specified geographic area, it would cause this Trap to go inactive – the Trap would start communications with any specified DiagMon Servers and would also Exec any specified management objects.

If there are multiple geographic areas under TrapConfig, then the Trap will go active when the device enters into any of the areas, and the Trap will go inactive only when the device is in none of the areas.

The DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

5.2 Non-applicable nodes from Trap MO Framework definition

None.

5.3 Function Description

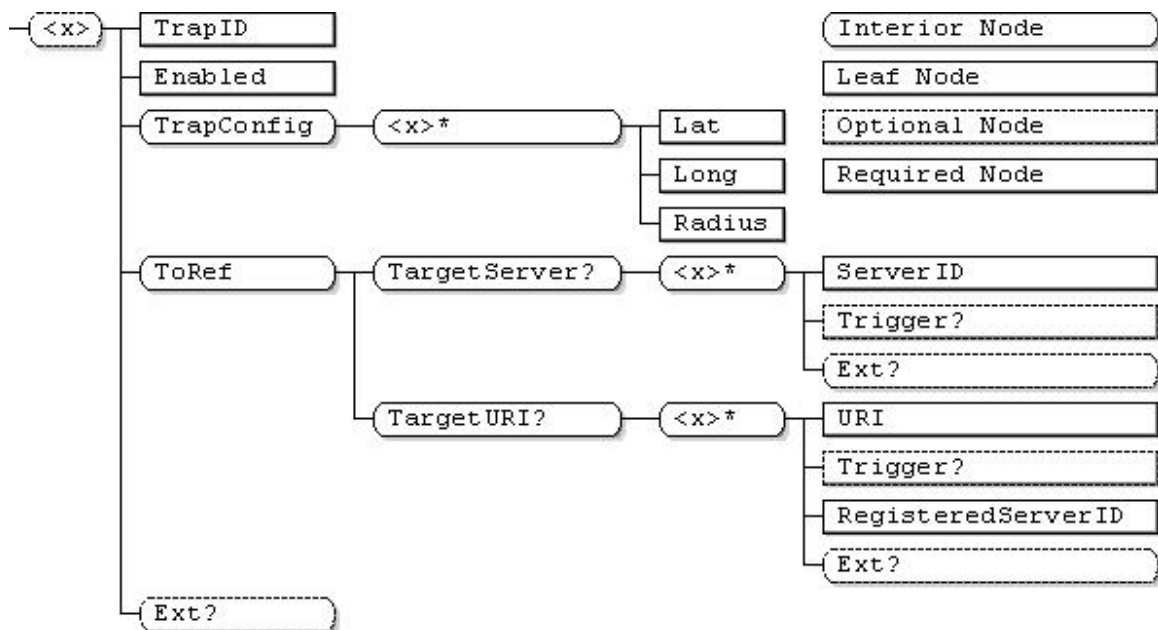


Figure 1 – Geographic Trap Function

.../<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	One	node	Get

This interior node is a placeholder for the Geographic Trap MO. Identifier for the Geographic Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:geo:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node is a placeholder for all geographic data.

<x>/TrapConfig/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get,

This interior node is a placeholder for zero or more geographic locations

<x>/TrapConfig/<x>/Lat

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get, Replace

This leaf node contains the latitude of the circular area as defined in [3GPP-TS_23.032], section 6.1 i.e. as an integer in the range of -8388607 to 8388607.

<x>/TrapConfig/<x>/Long

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get, Replace

This leaf node contains the longitude of the circular area as defined in 3GPP-TS_23.032, section 6.1 i.e. as an integer in the range of -8388607 to 8388607.

<x>/TrapConfig/<x>/Radius

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get, Replace

This leaf node contains the radius of the circular area as defined in 3GPP-TS_23.032, section 6.6 i.e. as an integer in the range of 0 to 65535.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [[DiagMonTrapMO]] for description of this node.

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get,

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get,

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

6. Received Power Trap

6.1 Introduction

When the device communicates over the wireless network, it is important to collect the measurement data (e.g. signal quality information) for the network optimization. This Trap can help the network optimization process by triggering the DiagMon Server when the received power of the device drops below the server-specific value.

Whenever a device’s received power drops below a server-specified value (TrapConfig/TrapActivePower), it causes this Trap to go active. Whenever the device’s received power rises above another server-specified value (TrapConfig/TrapInactivePower), it causes this Trap to go inactive. In cases that the Trap goes active or inactive, the DiagMon Client notifies the registered recipients as specified in the [DiagMonTrapMO].

Note that a device can have several instances of this Trap to monitor various network types (e.g. WiFi, CDMA, LTE and etc), and the TrapConfig/NetType node specifies the network type being monitored by the Trap.

If the device supports the wireless connectivity, the DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

6.2 Non-applicable nodes from Trap MO Framework definition

None.

6.3 Function Description

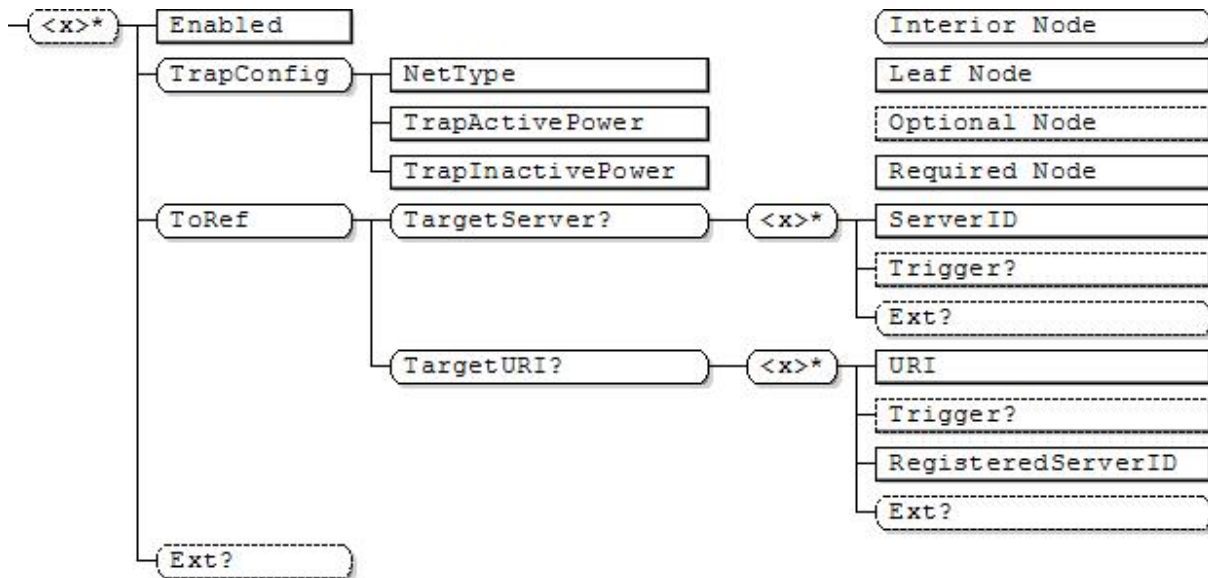


Figure 2 – Received Power Trap Function

.../<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrMore	node	Get

This interior node is a placeholder for the Received Power Trap MO. Identifier for the Received Power Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:rxpwr:1.0”.

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node is a placeholder for the received power configuration.

<x>/TrapConfig/NetType

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

The value of this node specifies the network type (WiFi, CDMA, LTE) being monitored by this trap. Multiple wireless networks can be monitored by having multiple trap instances with the different value of this node. The format of this value is up to the implementation.

<x>/TrapConfig/TrapActivePower

Status	Tree Occurrence	Format	Min. Access Types
Required	One	float	Get, Replace

This node contains the radio power expressed in dBm. The Trap goes active if the received radio power goes below the value in this node.

<x>/TrapConfig/TrapInactivePower

Status	Tree Occurrence	Format	Min. Access Types
Required	One	float	Get, Replace

This node contains the radio power expressed in dBm. The Trap goes inactive if the received radio power goes above the value in this node.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

7. Call Drop Trap

7.1 Introduction

Whenever a call drop occurs in the predefined period, it would cause this Trap to go active – the Trap would start communications with any specified DiagMon Servers and would also Exec any specified management objects.

The DiagMon Server MUST set the start and end time before using this Trap.

The DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

7.2 Non-applicable nodes from Trap MO Framework definition

None.

7.3 Function Description

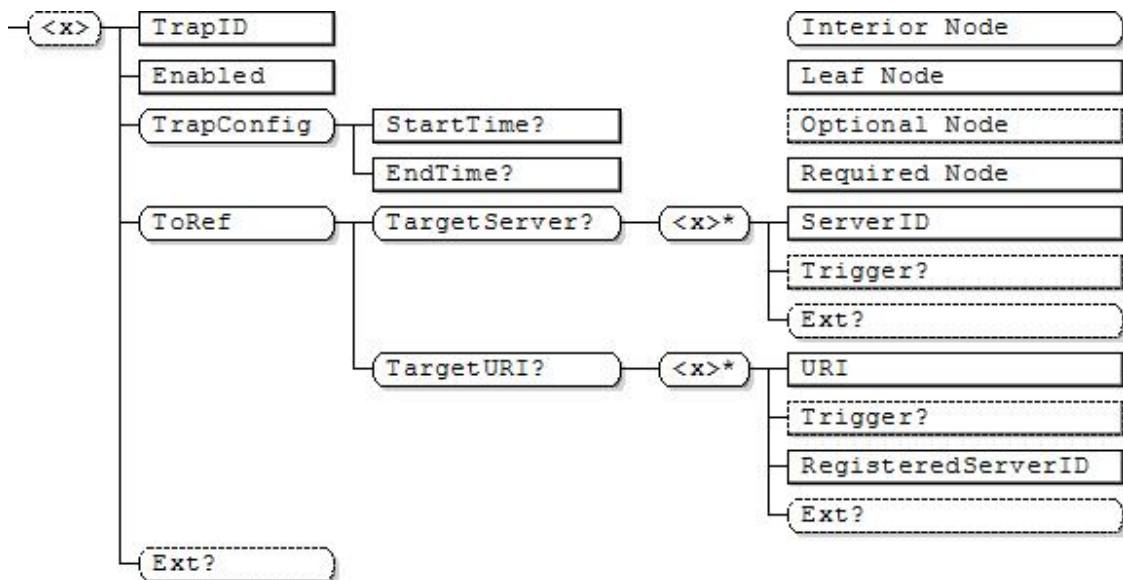


Figure 3 – Call Drop Trap Function

<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	One	node	Get

This interior node is a placeholder for the Call Drop MO. Identifier for the Call Drop Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:calldrop:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig/StartTime

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig/EndTime

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [[DiagMonTrapMO]] for description of this node.

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

8. Log Capacity Full Trap

8.1 Introduction

This Trap is appropriate for devices that keep logging data.

When the log capacity reached the specified level of capacity, the Trap event will be reported to DiagMon Server(s).

The DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

8.2 Non-applicable nodes from Trap MO Framework definition

None.

8.3 Function Description

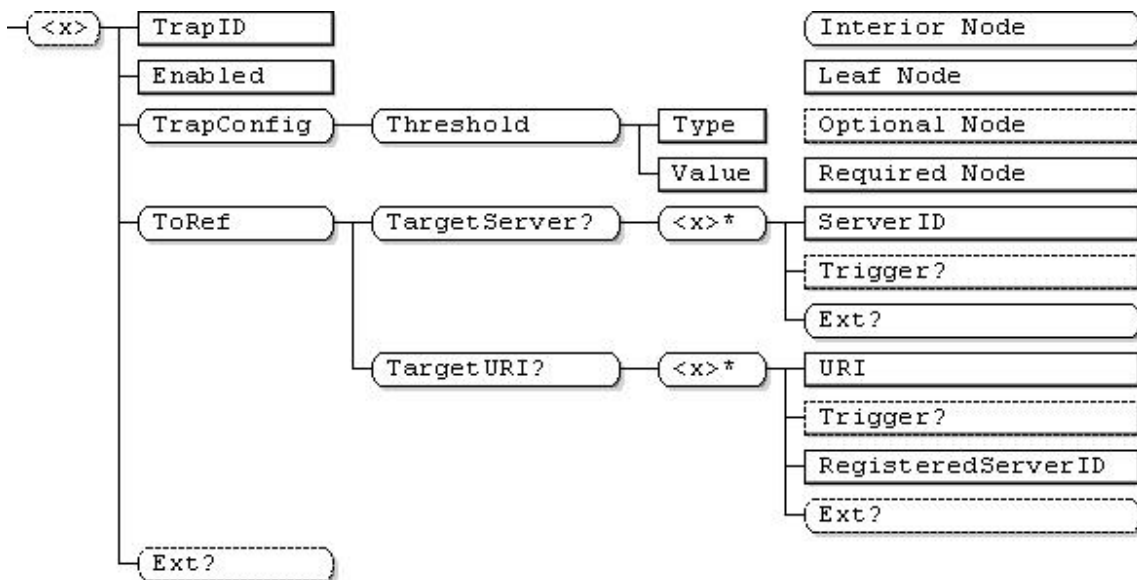


Figure 4 – Log Capacity Full Trap MO

<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	One	node	Get, Add

This interior node is a placeholder for the Log Capacity Full Trap MO. Identifier for the Log Capacity Full Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:logcapacityfull:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig/Threshold

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node is a placeholder for the configuration to change the behaviour of the Log Capacity Full Trap MO.

<x>/TrapConfig/Threshold/Type

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get, Replace

This leaf node contains the type of threshold value. The Device MUST report the Trap event when the log capacity becomes equal to or below the threshold.

Value	Condition of the trap is reported
0	The threshold value is given in percent of log storage available on the device.
1	The threshold value is given in kilobytes of log storage available on the device.

<x>/TrapConfig/Threshold/Value

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get, Replace

This leaf node contains the threshold value to determine the log capacity reached full.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

9. QoS Trap

9.1 Introduction

If the device exposes QoS metrics functionality to the DiagMon Client, then the DiagMon Client MUST support this Trap event. The DiagMon Server MUST support this Trap event.

9.2 Non-applicable nodes from Trap MO Framework definition

None.

9.3 Function Description

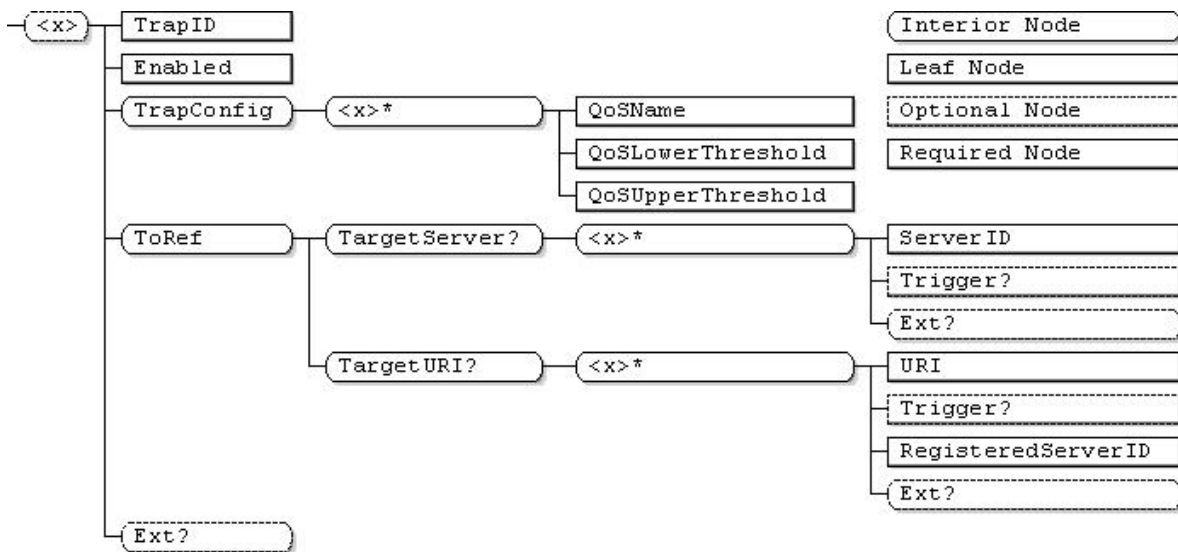


Figure 5 – QoS Metrics Trap Event

.../<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	One	node	Get

This interior node is a placeholder for the QoS Trap MO. Identifier for the QoS Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:qos:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get, Replace

This interior node is a placeholder for zero or more qos parameter configurations.

<x>/TrapConfig/<x>/QoSName

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

This node specifies the QoS parameter name to be measured. When using the QoS parameters from [TS102.250], the parameter name SHALL be as specified in this specification (e.g. “Streaming Reproduction Start Delay”).

<x>/TrapConfig/<x>/QoSLowerThreshold

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

This node specifies the value of QoS parameters to be used as lower threshold. The value format MUST be interpreted according to parameter definition (e.g. if the parameter is, as previously indicated, “Streaming Reproduction Start Delay”, the value is expressed in seconds according to [TS 102.250]). The Trap SHALL be enabled when its value is equal or greater than the value of this node.

<x>/TrapConfig/<x>/QoSUpperThreshold

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

This node specifies the value of QoS parameters to be used as upper threshold. The value format MUST be interpreted according to parameter definition (e.g., if the parameter is, as previously indicated, “Streaming Reproduction Start Delay”, the value is expressed in seconds according to [TS102.250]). The Trap SHALL be enabled when its value is minor or equal than the value of this node.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get,

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

10.Hard Reboot Trap

10.1 Introduction

This Trap MO enables to report the event of ‘hard reboot’ is detected. The hard reboot could occur when the power source for the device is abruptly turned off, and turned back later. The report of the Hard Reboot Trap gives an opportunity for the DiagMon Server to investigate the reason of the Hard Reboot.

The DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

10.2 Non-applicable nodes from Trap MO Framework definition

The following nodes SHOULD NOT be used for this function:

- TrapConfig

10.3 Function Description

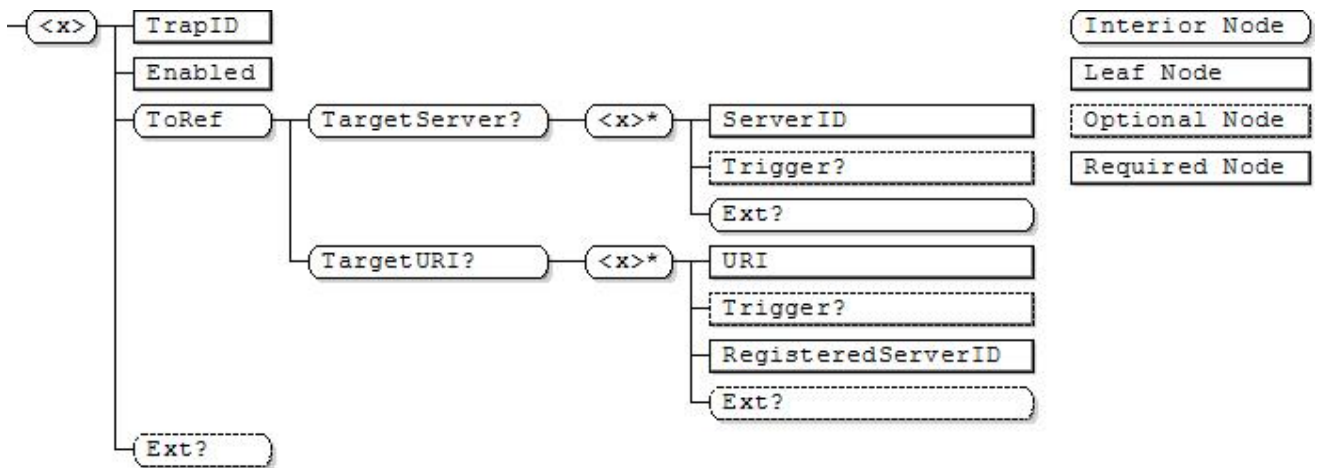


Figure 6 – Hard Reboot Trap MO

<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get, Add

This interior node is a placeholder for the Hard RebootTrap MO. Identifier for the Hard Reboot Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:hard-reboot:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Delete, Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

11.Data Speed Trap

11.1 Introduction

This Trap occurs whenever an average data speed reaches the certain threshold value..

Whenever an uplink or downlink average data speed reaches the lower or higher threshold value, it would cause this Trap to go active – the Trap would start communications with any specified servers and would also Exec any specified management objects.

The average data speeds are calculated based on the given configurable period of time.

The DiagMon Client SHOULD support this Trap. The DiagMon Server MUST support this Trap.

11.2 Non-applicable nodes from Trap MO Framework definition

None.

11.3 Function Description

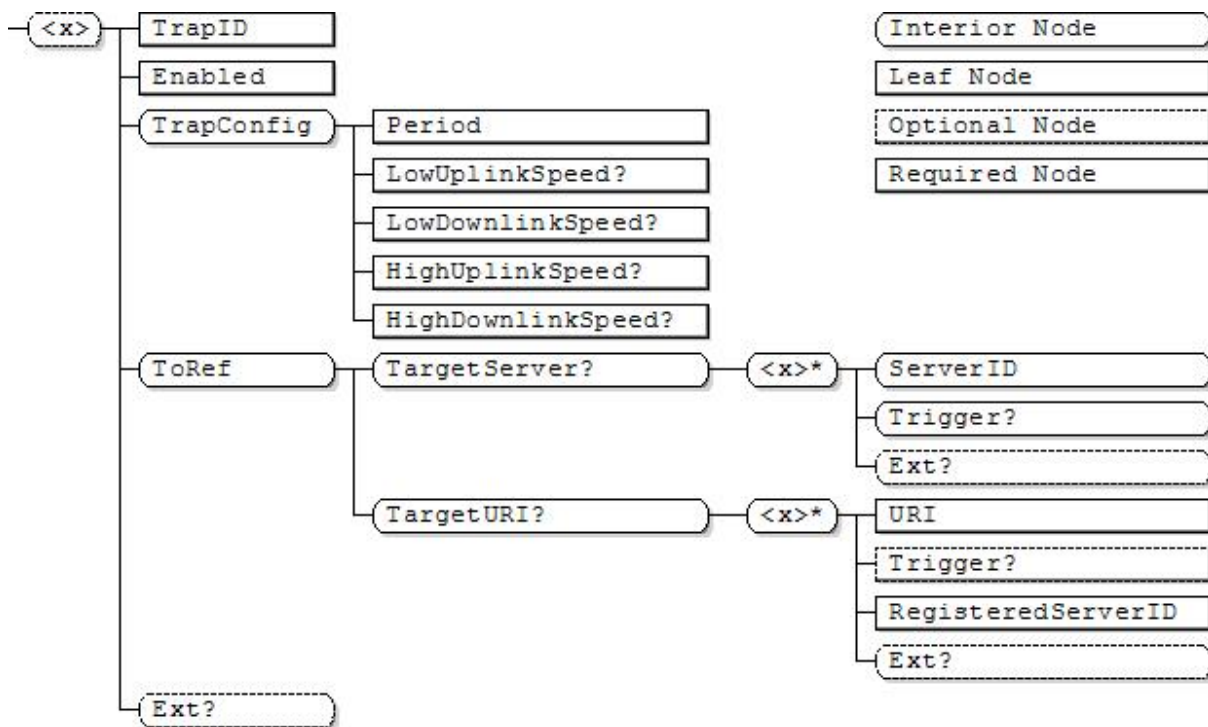


Figure 7 – Data Speed Trap Function

<x>

Status	Tree Occurrence	Format	Min. Access Types
Optional	One	node	Get

This interior node is a placeholder for the Data Speed Trap MO. The Management Object Identifier for the Data Speed Trap MO MUST be: “urn:oma:mo:oma-diagmontrap:dataspeed:1.0”.

<x>/TrapID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/TrapConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

This interior node is a placeholder for the configuration data for the threshold data speeds for uplink and downlink.

<x>/TrapConfig/Period

Status	Tree Occurrence	Format	Min. Access Types
Required	One	int	Get

This node contains the period of time in seconds for which the average data speeds (uplink and downlink) are calculated. The DM Server MUST set this value.

<x>/TrapConfig/LowUplinkSpeed

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	float	Get, Replace

This node contains the uplink average data speed value expressed in kbytes/s. The Trap becomes active when the uplink average data speed calculated for the given period of time (the sibling Period node) reaches below this lower threshold value.

<x>/TrapConfig/LowDownlinkSpeed

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	float	Get, Replace

This node contains the downlink average data speed expressed in kbytes/s. The Trap becomes active when the downlink average data speed calculated for the given period of time (the sibling Period node) reaches below this lower threshold value.

<x>/TrapConfig/HighUplinkSpeed

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	float	Get, Replace

This node contains the uplink average data speed expressed in kbytes/s. The Trap becomes active when the uplink average data speed calculated for the given period of time (the sibling Period node) reaches above this higher threshold value.

<x>/TrapConfig/HighDownlinkSpeed

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	float	Get, Replace

This node contains the downlink average data speed expressed in kbytes/s. The Trap becomes active when the downlink average data speed calculated for the given period of time (the sibling Period node) reaches above this higher threshold value.

<x>/ToRef

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/ServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetServer/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node

<x>/ToRef/TargetServer/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [[DiagMonTrapMO]] for description of this node

<x>/ToRef/TargetURI

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Add, Get, Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/URI

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Trigger

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	int	Get

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/RegisteredServerID

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	No Get, No Replace

See [DiagMonTrapMO] for description of this node.

<x>/ToRef/TargetURI/<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

See [DiagMonTrapMO] for description of this node.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-TS-DiagMonTrapEvents-V1_2-20131008-A	08 Oct 2013	Status changed to Approved by TP TP Ref # OMA-TP-2013-0311-INP_DiagMon_V1_2_ERP_for_Final_Approval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [SCRRULES].

B.1 SCR for DiagMon Client (geotrap)

Item	Function	Reference	Requirement
DIAGTRAP-GEO-C-001-O	Support for Geographic Trap MO	Section 5.1	DIAGTRAP-GEO-C-002-O
DIAGTRAP-GEO-C-002-O	Support for all mandatory nodes	Section 5.3	

B.2 SCR for DiagMon Server (geotrap)

Item	Function	Reference	Requirement
DIAGTRAP-GEO-S-001-M	Support for Geographic Trap MO	Section 5.1	

B.3 SCR for DiagMon Client (receivedpower)

Item	Function	Reference	Requirement
DIAGTRAP-RXPWR-C-001-O	Support for Received Power Trap MO	Section 6.1	DIAGTRAP-RXPWR-C-002-O
DIAGTRAP-RXPWR-C-002-O	Support for all mandatory nodes	Section 6.3	

B.4 SCR for DiagMon Server (receivedpower)

Item	Function	Reference	Requirement
DIAGTRAP-RXPWR-S-001-M	Support for Received Power Trap MO	Section 6.1	

B.5 SCR for DiagMon Client (calldrop)

Item	Function	Reference	Requirement
DIAGTRAP-CALLDROP-C-001-O	Support for Call Drop Trap MO	Section 7.1	DIAGTRAP-CALLDROP-C-002-O
DIAGTRAP-CALLDROP-C-002-O	Support for all mandatory nodes	Section 7.3	

B.6 SCR for DiagMon Server (calldrop)

Item	Function	Reference	Requirement
DIAGTRAP-CALLDROP-S-001-M	Support for Call Drop Trap MO	Section 7.1	

B.7 SCR for DiagMon Client (logcap)

Item	Function	Reference	Requirement
DIAGTRAP-LOGCAP-C-001-O	Support for Log Capacity Full Trap MO	Section 8.1	DIAGTRAP-LOGCAP-C-002-O
DIAGTRAP-LOGCAP-C-002-O	Support for all mandatory nodes	Section 8.3	

B.8 SCR for DiagMon Server (logcap)

Item	Function	Reference	Requirement
DIAGTRAP-LOGCAP-S-001-M	Support for Log Capacity Full Trap MO	Section 8.1	

B.9 SCR for DiagMon Client (qos)

Item	Function	Reference	Requirement
DIAGTRAP-QOS-C-001-O	Support for QoS Trap MO	Section 9.1	DIAGTRAP-QOS-C-002-O
DIAGTRAP-QOS-C-002-O	Support for all mandatory nodes	Section 9.3	

B.10 SCR for DiagMon Server (qos)

Item	Function	Reference	Requirement
DIAGTRAP-QOS-S-001-M	Support for QoS Trap MO	Section 9.1	

B.11 SCR for DiagMon Client (hardreboot)

Item	Function	Reference	Requirement
DIAGTRAP-HARDREBOOT-C-001-O	Support for Hard Reboot Trap MO	Section 10.1	DIAGTRAP-HARDREBOOT-C-002-O
DIAGTRAP-HARDREBOOT-C-002-O	Support for all mandatory nodes	Section 10.3	

B.12 SCR for DiagMon Server (hardreboot)

Item	Function	Reference	Requirement
DIAGTRAP-HARDREBOOT-S-001-M	Support for Hard Reboot Trap MO	Section 10.1	

B.13 SCR for DiagMon Client (dataspeed)

Item	Function	Reference	Requirement
DIAGTRAP-DATASPEED-C-001-O	Support for Data Speed Trap MO	Section 11.1	DIAGTRAP-DATASPEED-C-002-O
DIAGTRAP-DATASPEED-C-002-O	Support for all mandatory nodes	Section 11.3	

B.14 SCR for DiagMon Server (dataspeed)

Item	Function	Reference	Requirement
DIAGTRAP-DATASPEED-S-001-M	Support for Data Speed Trap MO	Section 11.1	