Enabler Release Definition for Gateway Management Object (GwMO)

Approved Version 1.1 – 25 Jul 2017

Open Mobile Alliance
OMA-ERELD-GwMO-V1_1-20170725-A

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Gateway Management Object (GwMO v1.1) according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

[DevInvDDF]	"OMA Device Inventory Managed Object DDF, Version 1.1". Open Mobile Alliance™. OMA-SUP-MO_GwDeviceInventory-V1_0. URL:http://www.openmobilealliance.org/
[EDTgrDDF]	"OMA End Device Trigger Managed Object DDF, Version 1.0". Open Mobile Alliance™. OMA-SUP-MO_GwEDTrigger-V1_0. URL:http://www.openmobilealliance.org/
[FanoutDDF]	"OMA Fanout Managed Object DDF, Version 1.0". Open Mobile Alliance™. OMA-SUP-MO_GwFanout-V1_0. URL:http://www.openmobilealliance.org/
[GwCfgDDF]	"OMA Gateway Configuration Managed Object DDF, Version 1.1". Open Mobile Alliance™. OMA-SUP-MO_GwConfig-V1_0. URL:http://www.openmobilealliance.org/
[GwMO_AD_v1_1]	"OMA DM Gateway Management Object Architecture, Version 1.1 ", Open Mobile Alliance™, OMA-AD-GwMO-V1_1, URL:http://www.openmobilealliance.org/
[GwMO_RD_v1_ 1]	"OMA DM Gateway Management Object Requirements, Version 1.1 ", Open Mobile Alliance™, OMA-RD-GwMO-V1_1, URL:http://www.openmobilealliance.org/
[GwMO_TS_v1_ 1]	"OMA DM Gateway Management Object Specification, Version 1.1 ", Open Mobile Alliance™, OMA-RD-GwMO-V1_1, URL:http://www.openmobilealliance.org/
[GwMO_ZigBeeMO_TS _v1_0]	"Management Objects for ZigBee Devices, Version 1.0 ", Open Mobile Alliance™, OMA-TS-DM-GwMO_ZigBeeMO -V1_0, URL:http://www.openmobilealliance.org/
[ImgInvDDF]	"OMA Image Inventory Managed Object DDF, Version 1.0". Open Mobile Alliance™. OMA-SUP-MO_GwImageInventory-V1_0. 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
[SCRRULES]	"SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL:http://www.openmobilealliance.org/

2.2 Informative References

[DMDICT]	"OMA Device Management Dictionary, Version 1.0". Open Mobile Alliance™. OMA-SUP-DM_Dictionary-v1_0. URL:http://www.openmobilealliance.org/
[OMADICT]	"Dictionary for OMA Specifications", Version 2.9, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_9, URL: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", "Release Version Overview" and "Conformance Requirements Notation Details", are normative, unless they are explicitly indicated to be informative.

The formal notation convention used in sections 8 and 9 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

3.2   Definitions

Enabler Release	Collection of specifications that combined together form an enabler for a service area, e.g. a download enabler, a browsing enabler, a messaging enabler, a location enabler, etc. The specifications that are forming an enabler should combined fulfil a number of related market requirements.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.

3.3   Abbreviations

ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority

4. Release Version Overview

The GwMO enabler allows an OMA DM Server to manage devices that are not directly accessible to it (for example, because the devices are deployed behind a firewall or because the devices do not support the OMA DM protocol). It also enables the management of devices in a Machine to Machine (M2M) ecosystem (for example, fanning out DM commands from a DM Server to multiple End Devices and aggregating responses from multiple End Devices so that a consolidated response is sent back to the DM Server).

4.1   Version 1.0 Functionality

GwMO V1.0 covers:

- Transparent, Proxy, and Protocol Adaptation modes of operation

- Device inventory

- Command fanout and response aggregation

- Storage of configuration data and software image for subtending devices

4.2   Version 1.1 Functionality

GwMO V1.1 covers:

- DM Gateway adaptation to non-OMA DM potocols

    o   ZigBee,

    o   KNX,

    o   OpenWebNet,

    o   Bluetooth

- Hierarchical Architecture

- Other enhancements (proxy mode security enhancements)

5. Document Listing for GwMO v1.1

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[GwMO_RD_v1_1]	OMA-RD-GwMO-V1_1-20170725-A	Requirement Document for GwMO v1.1 Enabler
Architecture Document		
[GwMO_AD_v1_1]	OMA-AD-GwMO-V1_1-20170725-A	Architecture Document for GwMO v1.1 Enabler
Technical Specifications		
[GwMO_TS_v1_1]	OMA-TS-GwMO-V1_1-20170725-A	Technical Specification for GwMO v1.1 Enabler
[GwMO_ZigBeeMO_TS_v1_0]	OMA-TS-GwMO_ZigBeeMO-V1_0-20170725-A	ZigBeeMO Technical Specification for GwMO v1.1 Enabler
Supporting Files		
[DevInvDDF]	OMA-SUP-MO_GwDeviceInventory-V1_1-20170725-A	DDF for the Device Inventory MO
[GwCfgDDF]	OMA-SUP-MO_GwConfig-V1_1-20170725-A	DDF for the Gateway Config MO
[FanoutDDF]	OMA-SUP-MO_GwFanout-V1_0-20130618-A	DDF for the Fanout MO
[EDTgrDDF]	OMA-SUP-MO_GwEDTrigger-V1_0-20130618-A	DDF for the End Device Trigger MO
[ImgInvDDF]	OMA-SUP-MO_GwImageInventory-V1_0-20130618-A	DDF for the Image Inventory MO
[ZigBeeDeviceDDF]	OMA-SUP-MO_GwZigBeeDevice-V1_0-20170725-A	DDF for the ZigBee Device MO

Table 1: Listing of Documents in GwMO v1.1 Enabler

6. OMNA Considerations

The OMNA portal maintains the following MOs in the MO registry:

MO Identifier	Description	Owner	Version	MO DDF	MO Spec
urn:oma:mo:oma-gwmo-deviceinventory:1.1	Device Inventory MO	DM WG	1.1	OMA-SUP-MO_GwDeviceInventory-V1_1	OMA-TS-GwMO-V1_1
urn:oma:mo:oma-gwmo-config:1.1	Gateway Config MO	DM WG	1.1	OMA-SUP-MO_GwConfig-V1_1	OMA-TS-GwMO-V1_1
urn:oma:mo:oma-gwmo-fanout:1.0	Fanout MO	DM WG	1.0	OMA-SUP-MO_GwFanout-V1_0	OMA-TS-GwMO-V1_1
urn:oma:mo:oma-gwmo-imageinventory:1.0	Image Inventory MO	DM WG	1.0	OMA-SUP-MO_GwEDTrigger-V1_0	OMA-TS-GwMO-V1_1
urn:oma:mo:oma-gwmo-edtrigger:1.0	End Device Trigger MO	DM WG	1.0	OMA-SUP-MO_GwImageInventory-V1_0	OMA-TS-GwMO-V1_1
urn:oma:mo: oma-dm-zigbee:1.0	ZigBee Device MO	DM WG	1.0	OMA-SUP-MO_ZigBeeDevice -V1_0	OMA-TS-GwMO_ZigBeeMO-V1_0

The OMNA portal maintains the following alert types in the Alert Type registry:

Alert Type Identifier	Alert Type Description	Owner	Version	Spec	MO Identifier (Optional)
urn:oma:at:oma-gwmo:deviceattached:1.1	Device Attach Alert	DM WG	1.1	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:devicedetached:1.0	Device Detach Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:resultaggregation:1.0	Fanout Result Aggregation Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:completionstatus:1.0	Fanout Completion Status Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:BootstrappedDMSList:1.0	Bootstrapped DMS List Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:AssociatedGateway:1.0	Associated Gateway Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	
urn:oma:at:oma-gwmo:imageready:1.0	Image Ready Alert	DM WG	1.0	OMA-TS-GwMO-V1_1	

7. Conformance Requirements Notation Details

This section is informative

The tables in following chapters use the following notation:

Item: Entry in this column MUST be a valid ScrItem according to [SCRRULES].

Feature/Application: Entry in this column SHOULD be a short descriptive label to the **Item** in question.

Requirement: Expression in the column MUST be a valid TerminalExpression according to [SCRRULES] and it MUST accurately reflect the architectural requirement of the **Item** in question.

8. ERDEF for GwMO v1.1 - Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-GwMO-C-001-M	Device Inventory MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-002-M	Gateway Configuration MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-003-M	Fanout MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-004-O	Image Inventory MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-005-O	End Device Trigger MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-006-M	Inventory Update Alerts	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-007-M	Command Fanout	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-008-M	Response Aggregation	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-009-M	Response Completion Indication	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-010-M	Notification with Push Extension Header	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-011-M	DM Server Assisted Bootstrapping	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-012-M	Local DM Bootstrap Server Assisted Bootstrapping	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-013-O	Device Detection Alert	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-014-O	Bootstrapped DMS List Alert	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-C-015-O	End Device Image Distribution	[GwMO_TS_v1_ 1]

Table 2: ERDEF for GwMO Client-side Requirements

9. ERDEF for GwMO v1.1 - Server Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-GwMO-S-001-M	Operations on Device Inventory MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-002-M	Operations on Gateway Configuraton MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-003-M	Operations on Fanout MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-004-M	Operations on Image Inventory MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-005-O	Operations on End Device Trigger MO	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-006-M	Processing Inventory Update Alerts	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-007-M	Issuing Notification with Push Extension Header	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-008-M	DM Server Assisted Bootstrapping	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-009-O	Processing Device Detection Alert	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-010-O	Processing Bootstrapped DMS List Alert	[GwMO_TS_v1_ 1]
OMA-ERDEF-GwMO-S-011-O	Processing Image Ready Alert	[GwMO_TS_v1_ 1]

Table 3: ERDEF for GwMO Server-side Requirements

Appendix A.   Change History   (Informative)

A.1   Approved Version History

Reference	Date	Description
OMA-ERELD-GwMO-V1_1-20170725-A	25 Jul 2017	Status changed to Approved by TP TP Ref # OMA-TP-2017-0031-INP_GwMO-V1_1_ERP_for_Final_Approval