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1. Scope

The scope of this document is limited to the Enabler Release Definition of LightweightM2M v1.0 according to OMA Release process and the Enabler Release specification baseline listed in section 5.
2. References

2.1 Normative References


2.2 Informative References

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.

**M2M Device**
A M2M Device is a device that runs (a) M2M application(s) and communicates through the Network Provider’s network.

**M2M Service Provider**
A M2M Service Provider provides (a) M2M service(s) to the M2M User by communicating to the M2M Device through the Network Provider’s network.

**M2M User**
A M2M User uses the service provided by the M2M Service Provider.

3.3 Abbreviations

**DM**
Device Management

**ERDEF**
Enabler Requirement Definition

**ERELD**
Enabler Release Definition

**LwM2M**
Lightweight Machine to Machine

**M2M**
Machine to Machine

**OMA**
Open Mobile Alliance

**OMNA**
Open Mobile Naming Authority

**RD**
Requirements Document

**SMS**
Short Messaging Service
4. Release Version Overview

Lightweight M2M enabler defines the application layer communication protocol between a LwM2M Server and a LwM2M Client, which is located in a LwM2M Device. The OMA Lightweight M2M enabler includes device management and service enablement for LwM2M Devices. The target LwM2M Devices for this enabler are mainly resource constrained devices. Therefore, this enabler makes use of a light and compact protocol as well as an efficient resource data model. It provides a choice for the M2M Service Provider to deploy a M2M system to provide service to the M2M User.

4.1 Version 1.0 Functionality

Lightweight M2M 1.0 enabler introduces the following features below for the initial release.

- Simple Object based resource model
- Resource operations of creation/retrieval/update/deletion/configuration of attribute
- Resource observation/notification
- TLV/JSON/Plain Text/Opaque data format support
- UDP and SMS transport layer support
- DTLS based security
- Queue mode for NAT/Firewall environment
- Multiple LwM2M Server support
- Basic M2M functionalities: LwM2M Server, Access Control, Device, Connectivity, Firmware Update, Location, Connectivity Statistics
## 5. Document Listing for LightweightM2M V1.0

<table>
<thead>
<tr>
<th>Doc Ref</th>
<th>Permanent Document Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Requirement Document</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Architecture Document</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technical Specification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Supporting Files</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| [LWM2M_Access_Control_XML] | OMA-SUP-XML_LWM2M_Access_Control-V1_0_1-20170704-A | XML document for LightweightM2M Access Control
Working file in LWM2M_XML directory:
File: LWM2M_Access_Control-v1_0_1.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |
| [LWM2M_Connectivity_Monitoring_XML] | OMA-SUP-XML_LWM2M_Connectivity_Monitoring-V1_0_1-20170704-A | XML document for LightweightM2M Connectivity Monitoring
Working file in LWM2M_XML directory:
File: LWM2M_Connectivity_Monitoring-v1_0_1.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |
| [LWM2M_Connectivity_Statistics_XML] | OMA-SUP-XML_LWM2M_Connectivity_Statistics-V1_0_1-20170704-A | XML document for LightweightM2M Connectivity Statistics
Working file in LWM2M_XML directory:
File: LWM2M_Connectivity_Statistics-v1_0_1.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |
| [LWM2M_Device.XML] | OMA-SUP-XML_LWM2M_Device-V1_0_1-20170704-A | XML document for LightweightM2M Device
Working file in LWM2M_XML directory:
File: LWM2M_Device-v1_0_1.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |
| [LWM2M_Firmware_Update_XML] | OMA-SUP-XML_LWM2M_Firmware_Update-V1_0_1-20170704-A | XML document for LightweightM2M Firmware Update
Working file in LWM2M_XML directory:
File: LWM2M_Firmware_Update-v1_0_1.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |
| [LWM2M_Location.XML] | OMA-SUP-XML_LWM2M_Location-V1_0-20170208-A | XML document for LightweightM2M Location
Working file in LWM2M_XML directory:
File: LWM2M_Location-v1_0.xml
Path: [http://www.openmobilealliance.org/tech/profiles](http://www.openmobilealliance.org/tech/profiles) |

Table 1: Listing of Documents in LightweightM2M Enabler
6. OMNA Considerations

6.1 Objects in OMNA Lightweight M2M Object & Resource Registry

The OMNA portal needs to add and maintain the following Objects into its registry:

<table>
<thead>
<tr>
<th>Object URN Identifier</th>
<th>Organization</th>
<th>Object Specification URL</th>
<th>Description</th>
</tr>
</thead>
</table>
6.2  IANA Considerations

IANA needs to maintain the structured syntax suffix tlv and also needs to maintain the following Media Types and CoAP [CoAP] needs to maintain Content-Format Registry associated to the Media Types:

- application/vnd.oma.lwm2m+json
- application/vnd.oma.lwm2m+tlv

6.2.1  Publication of [LightweightM2M_TS]

The IANA Structured Syntax Suffix Registry requires a pointer to the latest revision of [LightweightM2M_TS]. That pointer needs to be stable, i.e. when OMA revises the document, there should be no need to update that link in the IANA registry. Due restrictions of the current standard publication process, publication of the [LightweightM2M_TS] in an additional location will be used to provide such a stable link for the IANA registry to refer to the latest TS for this Enabler, [LightweightM2M_TS]. The filename of the document referred by the IANA link is: OMA-TS-LightweightM2M-V1_0.zip. The document filename does not contain the date or document status.

6.2.1.1  Actions required on publication

In addition to the standard publication process, the document [LightweightM2M_TS] has to be copied into the “Documents for External Reference” directory, and date and status have to be removed from the filename, such that it can be referenced externally as http://www.openmobilealliance.org/tech/extref/OMA-TS-LightweightM2M-V1_0.zip.
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 LightweightM2M - Client Requirements

This section is normative.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature / Application</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMA-ERDEF-LWM2M-C-001-M</td>
<td>Lightweight M2M Protocol</td>
<td>[LightweightM2M_TS]</td>
</tr>
</tbody>
</table>

Table 2: ERDEF for LightweightM2M Client-side Requirements
9. ERDEF for LightweightM2M - Server Requirements

This section is normative.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature / Application</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMA-ERDEF-LWM2M-C-001-M</td>
<td>Lightweight M2M Protocol</td>
<td>[LightweightM2M_TS]</td>
</tr>
</tbody>
</table>

Table 3: ERDEF for LightweightM2M Server-side Requirements
Appendix A. Change History

A.1 Approved Version History

<table>
<thead>
<tr>
<th>Reference</th>
<th>Date</th>
<th>Description</th>
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</table>
| OMA-ERELD-LightweightM2M-V1_0-20170208-A | 08 Feb 2017 | Status changed to Approved by TP  
TP Ref # OMA-TP-2017-0009-INP_LightweightM2M-V1_0_ERP_for_Final_Approval |
| OMA-ERELD-LightweightM2M-V1_0_1-20170704-A | 04 Jul 2017 | Status changed to Approved by TP  
TP Ref # OMA-TP-2017-0029R01-INP_LightweightM2M_V1.0.1_ERP_for_Final_Approval_Notification |