



# Enabler Release Definition for LightweightM2M

Candidate Version: 1.1 - 12-Jun-2018

Open Mobile Alliance

OMA-ERELD-LightweightM2M-V1\_1-20180612-C

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# 1. Scope

The scope of this document is limited to the Enabler Release Definition of LightweightM2M v1.1 according to OMA Release process and the Enabler Release specification baseline listed below.

## 2. References

### 2.1. Normative References

|                     |  |
|---------------------|--|
| [CoAP]              | Shelby, Z., Hartke, K., Bormann, C., and B. Frank, “Constrained Application Protocol (CoAP)”, draft-ietf-core-coap-18, Jun 2013.   |
| [LightweightM2M_RD] | “Lightweight Machine to Machine Requirements”, Version 1.1, Open Mobile Alliance™, OMA-RD-LightweightM2M-V1_1, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>                            |
| [LwM2M-Core]        | “Core Technical Specification for LightweightM2M Enabler”, Version 1.1, Open Mobile Alliance™, OMA-TS-LightweightM2M-CORE-V1_1, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>           |
| [LwM2M-Transport]   | “Transport Technical Specification for LightweightM2M Enabler”, Version 1.1, Open Mobile Alliance™, OMA-TS-LightweightM2M-TRANSPORT-V1_1, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a> |
| [RFC2119]           | “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997, URL: <a href="http://www.ietf.org/rfc/rfc2119.txt">http://www.ietf.org/rfc/rfc2119.txt</a>   |
| [SCRRULES]          | “SCR Rules and Procedures”, Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a>  |

Table: 2.1.-1 Normative References

### 2.2. Informative References

|           |  |
|-----------|--|
| [OMADICT] | “Dictionary for OMA Specifications”, Version 2.9, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_9, URL: <a href="http://www.openmobilealliance.org/">http://www.openmobilealliance.org/</a> |
|-----------|--|

Table: 2.2.-1 Informative References

## 3. LwM2M Release Version Overview

### 3.1. Version v1.0 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

### 3.2. Version v1.1 Functionality

Version 1.1 of the LwM2M protocol introduced the following new features:

- Enhancement of the LwM2M bootstrapping capabilities allowing for incremental upgrades.
- Improved support for Public Key Infrastructure (PKI) deployments.
- Introduction of enhanced registration sequence mechanisms by the LwM2M Client to LwM2M Server(s).
- Support for LwM2M over TCP/TLS to better support firewall and NAT traversal.
- Better support of LwM2M over Low Power WANs, including 3GPP CIoT & LoRaWAN.
- Extended LwM2M commands to enable Resource Instance level access.
- Performance improvement for retrieving and updating Resources of multiple objects.
- Support for JSON using SenML with CBOR serialization for compressed payload with highly efficient transmission.
- Addition of new data types.

## 4. Document Listing for LightweightM2M v1.1

| Doc Ref                       | Permanent Document Reference                    | Description   |
|-------------------------------|---|---|
| [LightweightM2M_RD]           | OMA-RD-LightweightM2M-v1_1-20171208-C           | Requirements Document for LightweightM2M Enabler  |
| [LightweightM2M_TS_Core]      | OMA-TS-LightweightM2M-Core-v1_1-20180612-C      | Core Technical Specification for LightweightM2M Enabler   |
| [LightweightM2M_TS_Transport] | OMA-TS-LightweightM2M-Transport-v1_1-20180612-C | Transport Technical Specification for LightweightM2M Enabler  |
| [lwm2m-schema]                | OMA-SUP-XML-LWM2M-v1_1-20180612-C               | LwM2M schema for LwM2M v1.1, file name: LWM2M-v1_1.xsd, path: <a href="http://www.openmobilealliance.org/tech/profiles">http://www.openmobilealliance.org/tech/profiles</a> |

Table: 4.-1 Document Listing for LightweightM2M v1.1



## 5. Publication Considerations

### 5.1. OMNA Considerations

- LWM2M-v1\_1.xsd new LightweightM2M schema for v1.1 protocol.

### 5.2. IANA Considerations

IANA has registered the following media types for use with LwM2M:

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

OMA is requesting IANA to register a new SenML Label for LwM2M object links in the "Sensor Measurement Lists (SenML) Parameters" registry, "SenML Labels" sub-registry:

- Name: Object Link Value
- Label: vlo
- JSON type: String
- XML type: string
- EXI ID: b
- Reference: LwM2M TS v1.1

#### 5.2.1. Publication of [LightweightM2M\_TS\_Core] and [LightweightM2M\_TS\_Transport]

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\_1.zip. The document filename does not contain the date or document status.

##### 5.2.1.1. Action required on publication (IANA)

In addition to the standard publication process, the documents [LightweightM2M\_TS\_Core] and [LightweightM2M\_TS\_Transport] 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-Core-V1\\_1.zip](http://www.openmobilealliance.org/tech/extref/OMA-TS-LightweightM2M-Core-V1_1.zip) or [http://www.openmobilealliance.org/tech/extref/OMA-TS-LightweightM2M-Transport-V1\\_1.zip](http://www.openmobilealliance.org/tech/extref/OMA-TS-LightweightM2M-Transport-V1_1.zip).

### 5.3. Actions Required on Publication of LwM2M v1.1 specifications

- None

## Appendix A. Change History (Informative)

### A.1 Approved Version History

| Reference | Date | Description      |
|-----------|------|------------------|
| n/a       | n/a  | No Prior Version |

Table: A.1-1 Approved Version History