



OMA-ORG-
Guidelines_Creation_Registration_LwM2M_Objects_Resources
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1. Scope

This informative document provides a guideline for designing and registering LwM2M Objects, which comply with the OMA LwM2M v1.0 enabler.

2. References

- [LWM2M10] “Lightweight Machine to Machine Technical Specification”, Open Mobile Alliance™, OMA-TS-LightweightM2M-V1_0, [URL: http://www.openmobilealliance.org/release/LightweightM2M/](http://www.openmobilealliance.org/release/LightweightM2M/)
- [OMADICT] “Dictionary for OMA Specifications”, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_9, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

3. Terminology and Conventions

3.1 Conventions

This is an informative document, which is not intended to provide testable requirements to implementations.

3.2 Definitions

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

3.3 Abbreviations

OMA Open Mobile Alliance

4. Introduction

This document describes the best practice on how to create and register OMA LwM2M Objects with Open Mobile Naming Authority, (OMNA).

OMNA acts as the unique reference for OMA data structure. Any LwM2M Object submitted to OMNA for registration will be subject to four weeks review. During this review time, individual members of the OMA Device Management Working Group, (OMA DM WG), may submit comments to assist the submitter to improve the definition of her Objects or Resources. OMA Members will mainly check if the object is correctly constructed. Although, comments related the semantics of the Object/Resource may also be provided.

The document is structured in sections that provides a high-level overview of what is an OMA LwM2M Objects, its types, how to create and register an LwM2M Object.

Section 5 – Introduction to LwM2M Objects & Resources

Section 6 – Object Compliance with LwM2M Schema

Section 7 – Objects and Resources Registration with OMNA

Section 8 – LwM2M Editor Tool

5. LwM2M Objects & Resources

5.1 Introduction

The LwM2M Enabler [\[LWM2M10\]](#) defines a simple resource model where each piece of information made available by the LwM2M Client is a Resource. Resources are logically organized into Objects, and each Resource is given a unique identifier within that Object.

Figure 1 illustrates this structure, and the relationship between Resources, Objects, and the LwM2M Client. The LwM2M Client may have any number of Resources, each of which belongs to an Object; for example the Firmware Update Object contains all the Resources used for firmware update purposes.

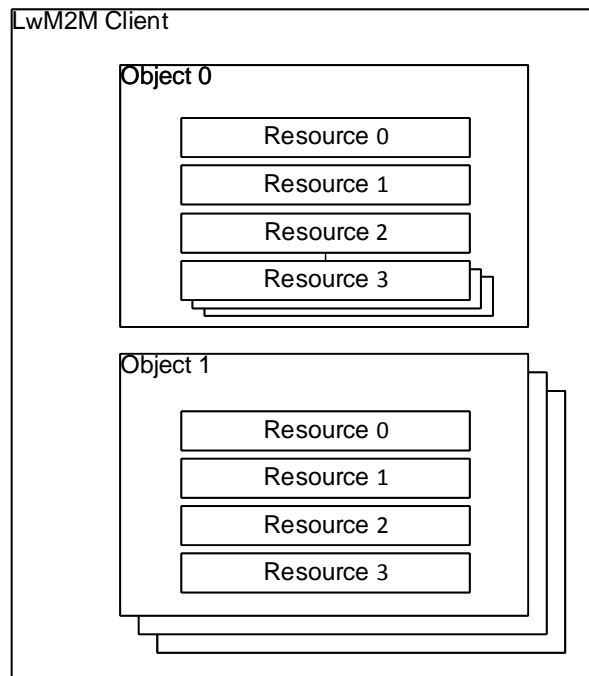


Figure 1: Relationship between LwM2M Client, Object, and Resources

Each Object, defined for the LwM2M Enabler, is assigned a unique OMA LwM2M Object identifier allocated and maintained by the OMA Naming Authority ([OMNA](#)). The LwM2M Enabler defines standard Objects and Resources. Further Objects may be added by OMA or other organizations to enable additional M2M Services

The OMA LwM2M Objects and Resources have as a reference the OMA [lwm2m.xsd](#) schema. OMA has also created an [LwM2M Editor Tool](#), which assists end-users in the creation, validation and registration of LwM2M Objects and Resources. As well as a [Registry API](#), which give access to the content inside of the [OMNA](#) registry for LwM2M.

5.2 Object File Name

5.2.1 File Name for an OMA Object Label

The file name of Objects produced by OMA will follow OMA name schema guidelines. E.g.: “OMA-SUP-XML_LWM2M_Device-V1_0_1”. If the object is already registered and it needs a new Object version, the file name must be also updated, e.g.: “OMA-SUP-XML_LWM2M_Device-V1_1”

5.2.2 File Name for an External or Private Object Label

The file name of Objects produced by External or Private parties will follow the following name schema. The file name will be the Object ID number, e.g. Object ID 2048 its file name should be “2048.xml” (for version 1.0). If the same Object requires an update of its Object version, then the file name should be “2048-v1_1.xml”

5.3 LwM2M Objects Structure

OMA LwM2M Objects are divided in three main components:

- **Object Definition part.**
 - Broken down into several elements.
- **Definition of the Resources** (grouped in Items).
 - Each item contains multiple elements.
- **Definition of additional information** (*Description2*).
 - This element stores the additional information contained at the end of the resources table (See [LwM2M Editor](#) in “**Editor**” mode).

Note:

Attribute *ObjectType* is used by the [LwM2M Editor Tool](#) to identify the type of Object. For the purpose of registering and creating objects with the [LwM2M Editor](#) this attribute can be ignored.

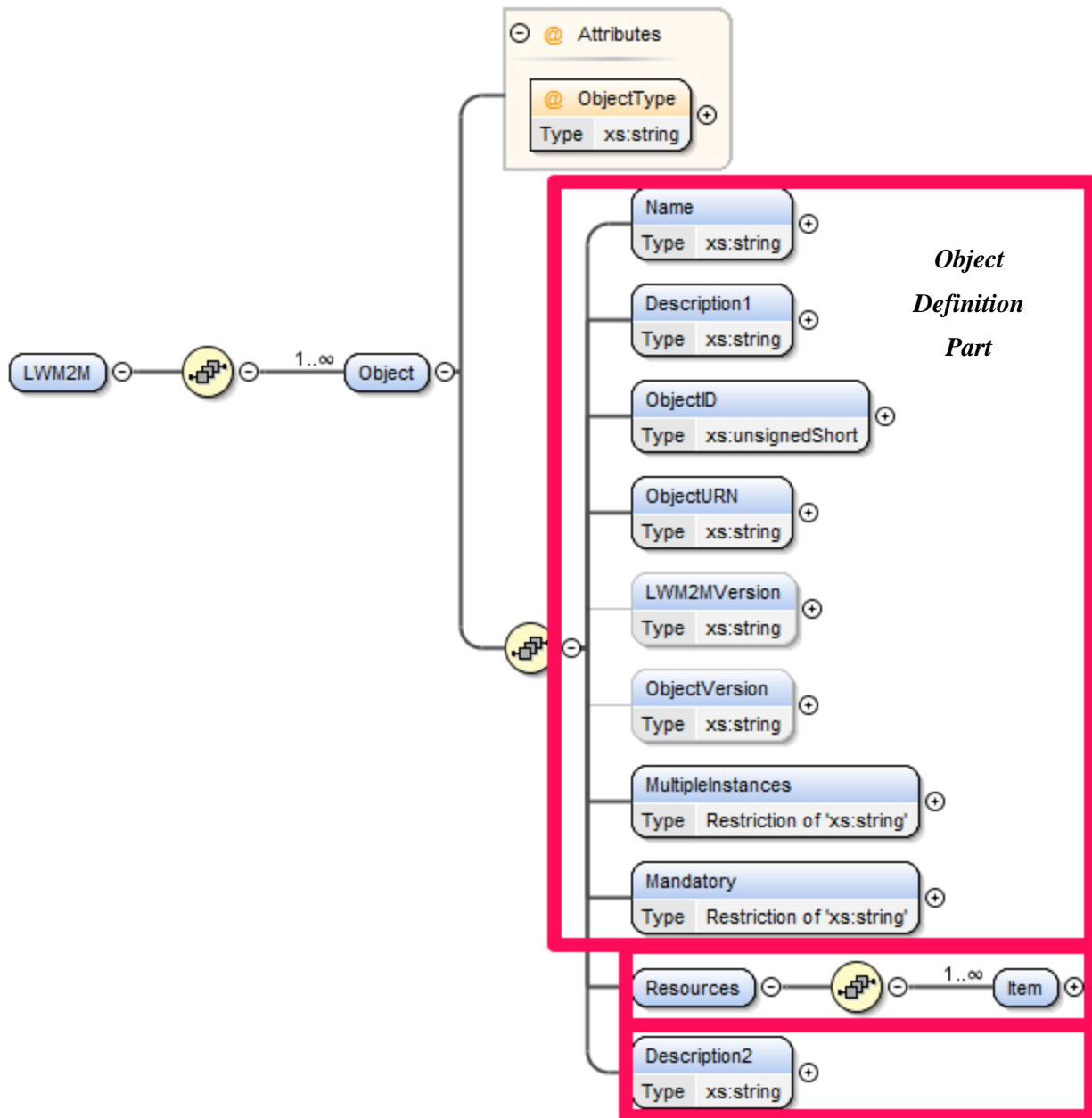


Figure 2: LwM2M Object Structure

5.3.1 The Object Definition Part - Structure & Syntax

5.3.1.1 Structure

The elements that need to be defined in this part of the Object are:

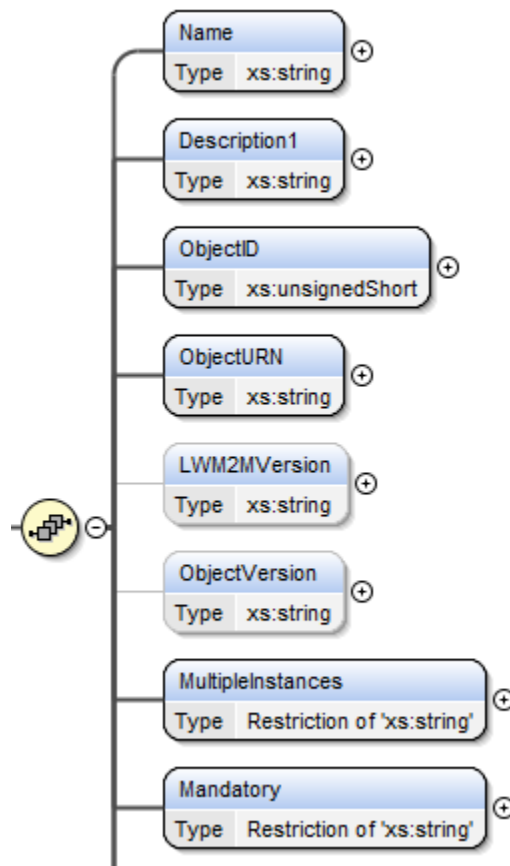


Figure 3: Elements in the Object Definition Part

Note: The definition of all these elements is MANDATORY if the Object is to be registered.

5.3.1.2 Object Syntax

This section describes the syntax of the elements inside of the first portion of the Object.

Note:

Please be aware that for Objects already registered with OMNA, any changes to the elements of this table - with the exception of “*Description1*”- will require the registration of a new version of the Object.

All the elements in this table MUST be defined in order to register an Object with OMNA.

Element Name	Type	TS LwM2M	Value	Description
<i>Name</i>	String		Object name	Defined by the Object creator. It should be short, specific and relevant to the intention of the object.
<i>Description 1</i>	String		Object description	Provides a summary of the Object functionality.
<i>ObjectID</i>	unsignedShort	6.3	Object Identifier	Assigned by OMNA, each Object has a unique <i>ObjectID</i> . Object Ranges: <ul style="list-style-type: none"> • OMA Label Range. (0 – 1023) <ul style="list-style-type: none"> ○ Only used by OMA Working

				<p>Groups.</p> <ul style="list-style-type: none"> • External Label Range. (2048 – 10240) <ul style="list-style-type: none"> ○ Used by 3rd party organizations and alliances. This range accepts registration. • Private Label Range <ul style="list-style-type: none"> ○ (10241 – 26240) - Used by vendors or individuals. This range accepts registration. ○ (26241 – 32768) – Used by vendors and individuals. Numbers in this range can be reused, no registration is necessary. ○ (32768 – 42768) – Range used by companies to reserve Objects numbers in bulk. <p>See section 7.2.1 <i>LwM2M Object Ranges of this document</i> for further details.</p>
ObjectURN	String	6.3 6.2	“urn:oma:lwm2m:{oma, ext, x}:ObjectID”[:{version}]	<p>Assigned by OMNA. This is a unique value for each Object.</p> <p>For any Object version other than “1.0”, the version value MUST be added to the URN.</p> <p>For version “1.0” it is not necessary to add the {version} value to the URL.</p> <p>Please refer to Section 6.2 Object Versioning of [LWM2M10] in case you want to create a new version of an already registered Object.</p>
LwM2M Version	String	App. J	Minimum Occurrence = 0	<p>The value of this element indicates the protocol version of LwM2M for which the Object was created.</p> <p>For any LwM2M Version other than “1.0” the value of this element is MANDATORY. For Objects created for LwM2M v1.0 this element is OPTIONAL but it is recommended to be input, i.e. “1.0”.</p> <p>E.g. in an object created for protocol LwM2M v1.1, the value of this element MUST be “1.1”.</p>
Object Version	String	6.2	Minimum Occurrence = 0	<p>The value of this element indicates the version of the Object.</p> <p>For the very first version of an Object, the value of this element is OPTIONAL. Nevertheless, it is recommended to be added, e.g. “1.0”.</p> <p>For future versions of the Object, the version of the Object MUST be added. For instance, if version “1.0” of an existing Object is updated, then the value of this element would be e.g. “1.1”.</p> <p>The following changes to an existing Object or its Resource elements will require a new version of the</p>

				<p>Object:</p> <ul style="list-style-type: none"> - Definition of the Object <ul style="list-style-type: none"> o <i>Name, MultiInstances, or Mandatory</i> o Changes to the <i>Description</i> of the Object doesn't require a new revision of the Object. - Definition of the Resource <ul style="list-style-type: none"> o Changes to any of these Resource elements will require a new Object version: <i>ID, Name, Operations, MultiInstances, Mandatory, Type, Range</i> or <i>Enumeration, or Units</i> o Changes to the Resource <i>Description</i> doesn't require a new version of the Object.
<i>MultipleInstances</i>	String		<p>"Multiple" "Single"</p>	<p>It indicates if the Object has a "Single" or "Multiple" instantiation.</p> <p>This element is MANDATORY.</p>
<i>Mandatory</i>	String		<p>"Mandatory" "Optional"</p>	<p>It indicates whether the Object is "Mandatory" or "Optional".</p> <p>This element is MANDATORY.</p>

Table 1: LwM2M Object Syntax

5.3.2 LwM2M Resource Structure & Syntax

5.3.2.1 Resource Structure

This portion of the Object contains the following elements, which need to be defined:

- Attribute *ID*
 - o Unique identifier of the Resource within the Object.
 - o Resources can be Common or Reusable, see section 7.3 *Reusable Resource Registration* of this document for further information.
- Elements inside of the *Item* element:
 - o *Name, Operations, MultipleInstances, Mandatory, Type, RangeEnumeration, Units, Description.*

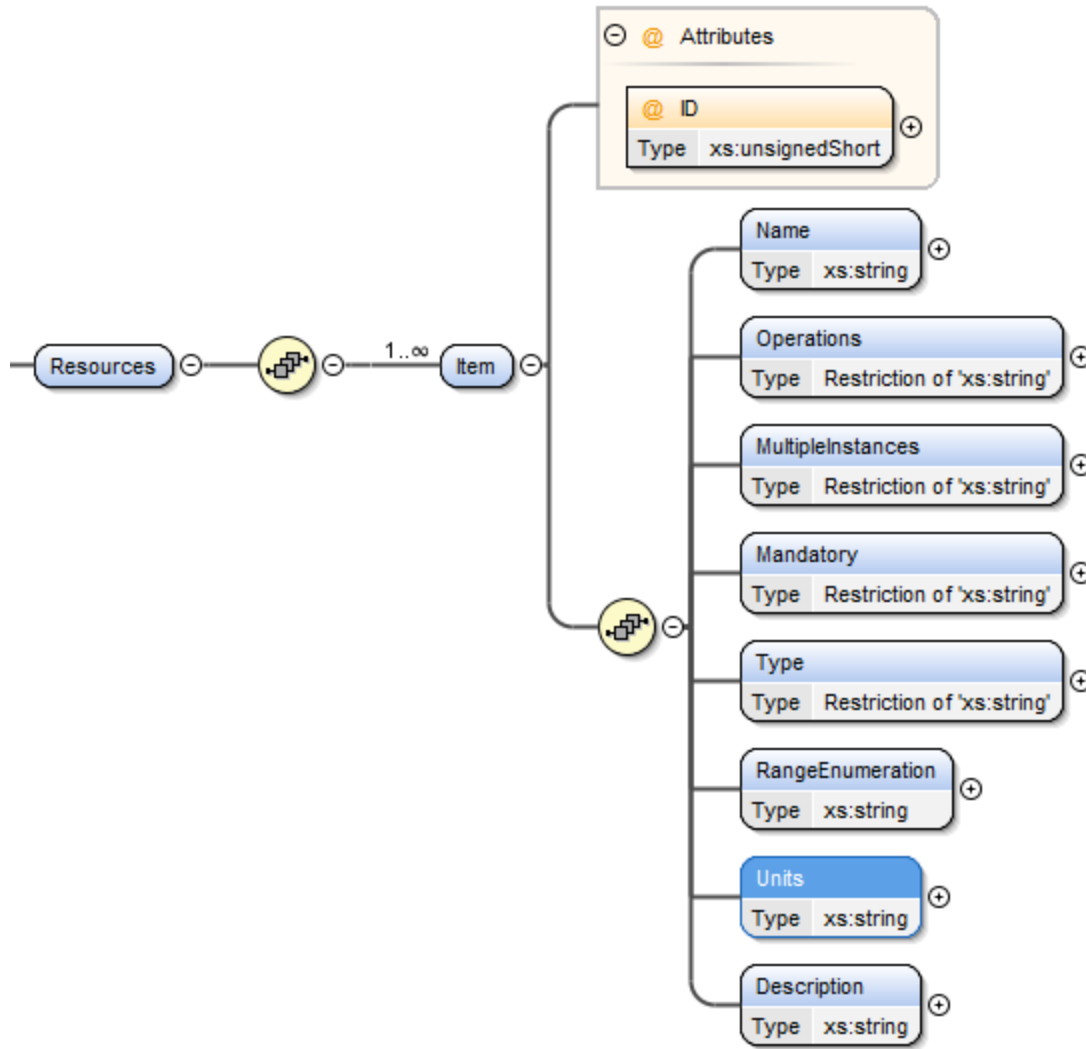


Figure 4: Attributes and Elements in the Resource Definition Part

5.3.2.2 Resource Syntax

This section describes the syntax of the elements inside of the Resource portion of the Object.

Note:

All the elements inside the “*Item*” element, with the exception of “*Range or Enumeration*” and “*Units*” MUST be defined when the object is registered with OMNA.

Element Name	Type	TS LwM2M	Value	Description
<i>ID</i> (attribute)	unsignedShort	6.3	Resource Identifier	There are different types and ranges for the Resource <i>ID</i> . <ul style="list-style-type: none"> • Common Resources: Free range, it can be reused without registration • Reusable Resources: Defined once and then reused everywhere.

				<p>Resources in this range MUST be registered with OMNA.</p> <p>See section 7.3.1 <i>LwM2M Resource Ranges</i> of this document.</p> <p>Note:</p> <p>When entering the Reusable Resource number in this element, the LwM2M Editor Tool will automatically populate the Reusable Resource information for you.</p> <p>Also, note that the corresponding Reusable Resource software license will be added, automatically, to the window in the License Editor. Each Reusable Resource license will indicate the resource ID.</p>
Name	String		Resource name	Indicates the name of the Resource.
Operations	String	5.4, 8.2.5	“R” – Read “W” – Write “RW” – Read, Write “E” – Execute “” - blank	Indicates the type of operations that can be executed in the Resource. Note: the value “blank” is correctly represented by the editor as: <code><operations></operations></code> without leaving a blank space between tags. Note: When editing the document outside of the LwM2M Editor make sure don’t leave a blank/white space. Otherwise, the Object will fail validation according to the LwM2M schema.
MultipleInstances	String		“Multiple” “Single”	Indicates if that particular Resource has a “Single” instantiation or “Multiple”
Mandatory	String		“Mandatory” “Optional”	Indicates if the Resource is “Mandatory” or “Optional”.
Type	String	6.4	“String” “Integer” “Float” “Boolean” “Opaque” “Time” “Objlnk” “” - blank	Choose from one of the listed options. The way to represent a blank value in this field is by not leaving a white space inside of the tag. A empty value in this field is correctly represented as: <code><Type></Type></code> Note: When editing the Object file outside of the LwM2M Editor make sure don’t leave a blank/white space. Otherwise, the Object will fail validation according to the LwM2M schema .
Range or Enumeration	String			OPTIONAL value. It should be provided when it is relevant. Indicates the range of the parameter.
Units	String			OPTIONAL value.

				It should be provided when it is relevant. It indicates the measurement units for the field.
<i>Description</i>	String	6.3.2	Resource description	Be concise and describe how to interpret the resource. Note: If you are using a Reusable Resource please follow the guidelines provided in section 6.3.2 Reusable Resource of [LWM2M10] document. <i>The content of the Description of a Reusable Resource can be modified from the original description provided by the LwM2M Editor but the change MUST be in alignment with the intention of the original description.</i>

Table 2: LwM2M Resource Syntax

5.3.3 Object Additional Information

5.3.3.1 Structure

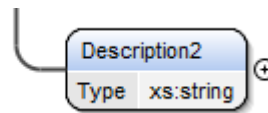


Figure 5: Object Additional Information

5.3.3.2 Syntax

Element Name	Type	TS LwM2M	Value	Description
Description 2	String	Appendix K		This is an OPTIONAL description that goes at the bottom of the Resource table. See LwM2M Editor Tool in Editor mode. To edit this description click “ Edit Additional Definition ” button of the LwM2M Editor Tool . It is located at the bottom of the Resources table.

Table 3: LwM2M Additional Information Syntax

6. Object Compliance with LwM2M Schema

6.1 Introduction

In order to support the creation and handling of LwM2M Objects and Resources OMA has defined an LwM2M schema (URL: "<http://openmobilealliance.org/tech/profiles/LWM2M.xsd>").

See Appendix K of [LwM2M10].

7. Objects and Resources Registration with OMNA

7.1 Introduction

This section describes in details the process for registering LwM2M Objects and Resources and how to obtain registration feedback.

7.2 Registration of LwM2M Objects

7.2.1 LwM2M Object Ranges

Each Object defined for the LwM2M Enabler, is assigned a unique OMA LwM2M Object identifier. The identifier is allocated by [OMNA](#) (Open Mobile Name Authority).

These identifiers are grouped in different type of ranges, see table below:

Created by	Name/Range	Description	Operations	
OMA	OMA Label Range (<i>oma</i>) 0 - 1023	Objects created by OMA. Only OMA Working Groups can use this range.	View	Internal Registration
Standards Organizations or Alliances	External Label (<i>ext</i>) 2048 - 10240	Objects created by 3 rd party standards organizations or alliances.	View	Register
Companies or Individuals	Private Label (<i>x</i>) 10241 – 26240	Objects created by companies or individuals. Registration is required to use Object numbers in this range.	View	Register
	26241 – 32768	Objects created by Vendors. Numbers in this range can be re-used, no registration is needed.	--	--
	32769 - 42768	This range is used for companies to reserve a bulk of ObjectID 's that can be used internally without registering the Objects. Companies can request a reservation of up to 50 Object numbers by sending an email to OMNA staff at: helpdesk@omaorg.org .	View	Reserve Bulk

Table 4: LwM2M Object Ranges

7.2.2 Object Ranges that Can Be Registered

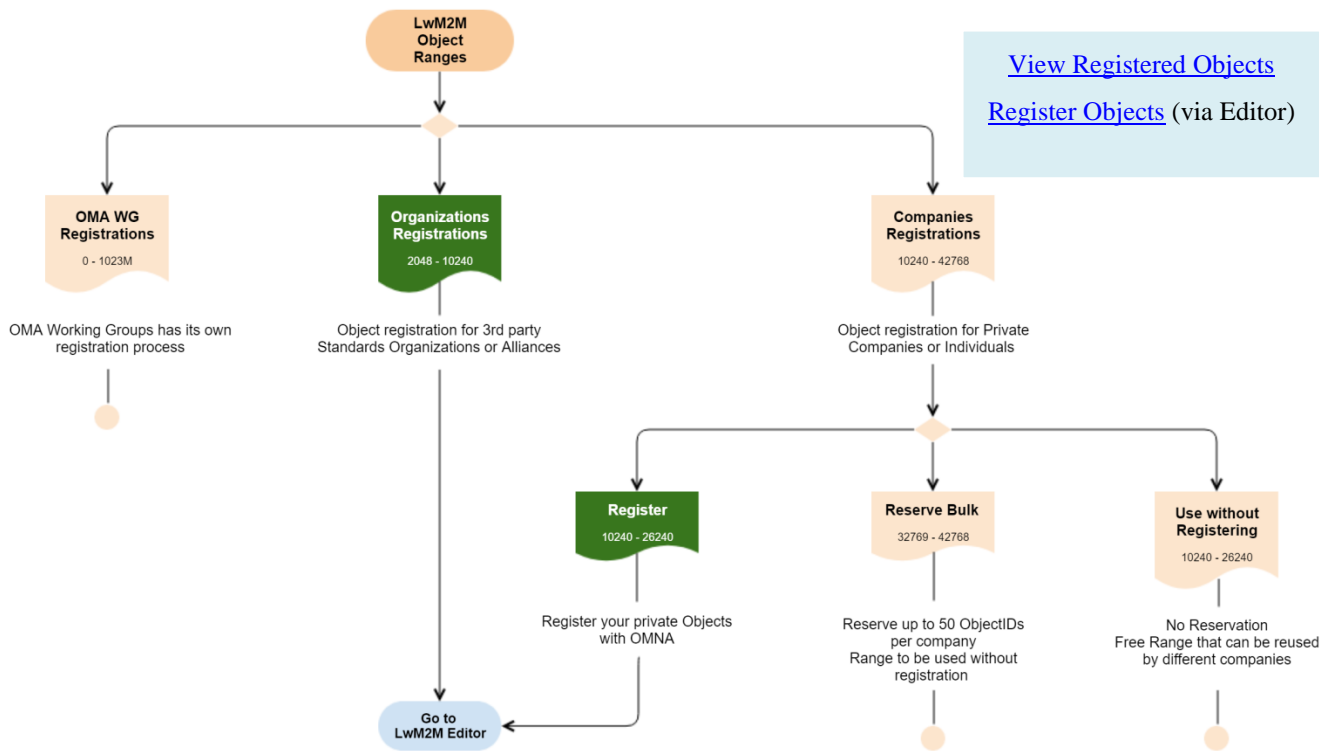


Figure 6: LwM2M Objects that can be Registered

7.2.3 How to Resolve Out of Sync problems with OMA Label Objects

The following rules only apply to Object created by OMA Working Groups:

- **Rule #1:** The information shall not be independently editable across the TS and SUP file.
- **Rule #2:** The TS table shall be generated from the SUP file. - SUP file is the Source, Table shall not be editable. It should be created as a file image, e.g.: SVG file.
- **Rule #3:** This generated information can be done at any time.
- **Rule #4:** The SUP file shall be under GitHub change control.
- **Rule #5:** The submitter of the PR against the SUP file shall validate the XML before submission.
- **Rule #6:** The submitter will create a PR proposing both the changes to the SUP file and the corresponding SVG file for the TS at the same time.

7.2.4 LwM2M Editor - Object Registration Flow

LwM2M Objects that are registered with [OMNA](#) MUST use the [LwM2M Editor Tool](#). The editor facilitates the construction of Objects and Resources, validates the output file to ensure that it is well-formed and valid according to the [LwM2M Schema](#) and provides an easy way to introduce a software license using the License Editor.

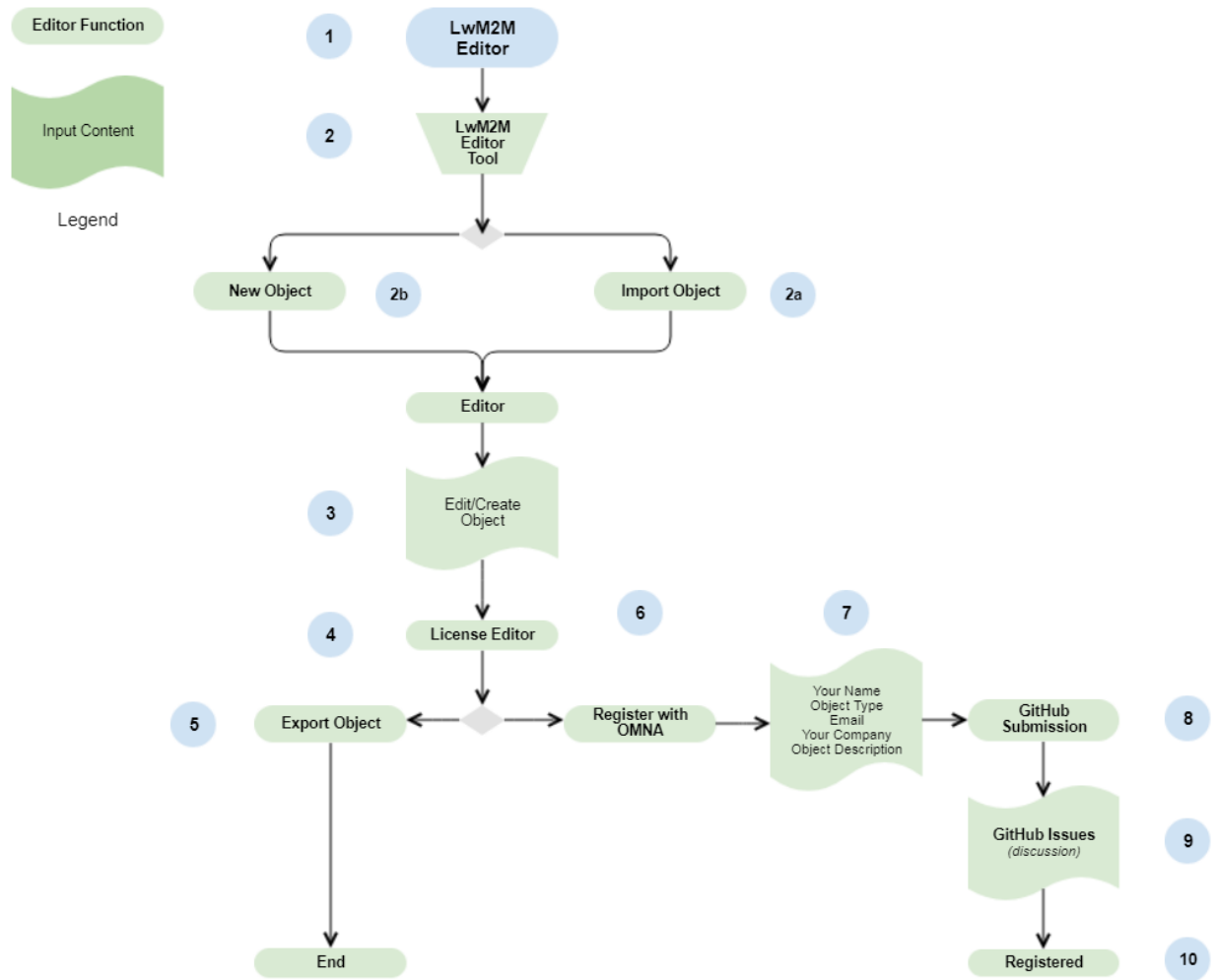


Figure 7: LwM2M Editor - Object Registration Flow

The following table provides an explanation to each step.

N.	Operation	Description
1	Log in OMA LwM2M Editor	The OMA LwM2M Editor Tool was created by OMA to support the creation and registration of OMA LwM2M Objects & Resources with OMNA. <ul style="list-style-type: none"> • LwM2M Editor Guidelines: <ul style="list-style-type: none"> ○ https://wiki.openmobilealliance.org/display/TOOL/eLwM2M+Editor • LwM2M Editor Tool: <ul style="list-style-type: none"> ○ http://devtoolkit.openmobilealliance.org/OEditor/Default
2	2.a Import Object	Click on “ Import ” button on the Editor to import an (xml) object file from your hard drive.
	2.b Create Object	Click “ New Object ” button if you want to create an Object using the editor.
3	Edit/Create Object	Edit Object content. <ul style="list-style-type: none"> • Each field can be edited by clicking in the “Edit” button. • Each change must be saved by clicking in the “Save” button.

		<p>To see how to complete correctly each field, please refer to sections (in this document):</p> <ul style="list-style-type: none"> • 5.2.1 <i>The Object Definition Part – Structure & Syntax</i> • 5.2.2 <i>LwM2m Resource Structure & Syntax</i>, and • 5.2.3 <i>Object Additional Information</i>
4	Edit License	<p>All the LwM2M Objects registered with OMNA MUST be registered with a software license.</p> <ol style="list-style-type: none"> 1. Click the “License Editor” to select one license from the drop-down menu <ul style="list-style-type: none"> • Software licenses need to be completed by inserting details of the company that is registering the Object into the license. See how to complete a Software License. 2. Click “Save” button at the end of the license window in the License Editor in order to save the selected software license. 3. You can export or register the Object from here, see steps (5) and (6).
5	Export Object	Click “ Export ” button to save the object in your hard drive.
6	Register Object with OMNA	Click “ Register to OMNA ” button to open the OMNA Registration Form, then follow with step (7).
7	Input Form Content	<p>The LwM2M Editor tool allows you sending the Object directly to OMNA and the Device Management Working Group for review and registration.</p> <ol style="list-style-type: none"> 1. Fill the fields as indicated in the form. 2. Click the “Register” button to send your Object to OMNA for review & registration. <p>Note:</p> <p>The Object is sent as an Issue to an OMA Repository. If you log in using your GitHub account you will be able to exchange information with the OMA Working Group that oversees the Object registration operation.</p>
8	GitHub Submission	Log with your GitHub account if you want to exchange messages with the Working Group that reviews these registrations. Alternatively, you can see how your registration is progressing at: LwM2M Developers ToolKit - Issues .
9	GitHub Issues	Follow up the discussion of your object registration at: LwM2M Developers ToolKit - Issues .
10	Registered	<p>All the registrations will be subject to a period of review before being approved and published in the OMNA Registry for LwM2M. During this review period, members of the OMA DM WG may provide comments or questions with the aim of improving the registration content.</p> <p>Once all the comments received have been reviewed and resolved the Object will be registered with OMNA at: OMNA LwM2M Registry.</p>

Table 5: Description of Object Registration Flow

7.3 LwM2M Reusable Resource Registration

7.3.1 LwM2M Resource Ranges

Reusable Resources can also be registered with OMNA. If you are considering to use a Resource in multiple Objects, then consider to create and register a Reusable Resource.

Category	Name/Range	Description	Operations	
Common Resources	0 - 2047	Resources defined inside of Objects. The Resource <i>ID</i> 's must be unique, but it can be reused across different Objects.	--	--
Reusable Resources	26241 - 32768	Resources registered by companies, standards organization or alliances. These resources can be re-used in any Object. The final allocation of the Resource <i>ID</i> 's is done by OMNA staff. Private registrations are not allowed.	View	Register
Private Resources	26241 – 32768	This range of Resource <i>ID</i> 's can be used by everyone without having to register the Resource.	--	--

7.3.2 LwM2M Editor – Reusable Resource Registration Flow

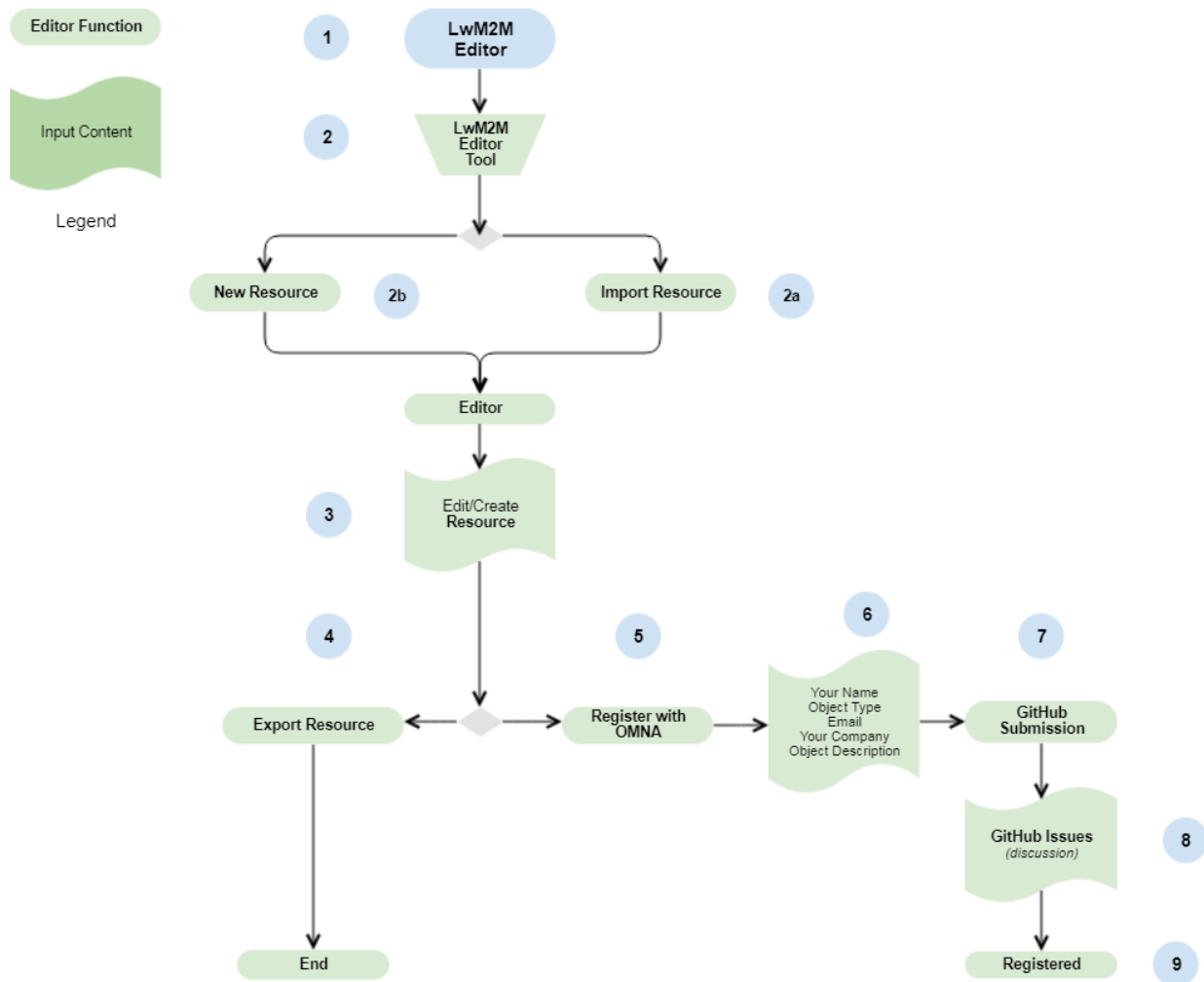


Figure 8: LwM2M Editor – Reusable Resource Registration Flow

LwM2M Reusable Resource Registration Sequence:

N.	Operation	Description
1	Log in OMA LwM2M Editor	The OMA LwM2M Editor Tool was created by OMA to support the creation and registration of OMA LwM2M Objects & Resources: <ul style="list-style-type: none"> • Editor Guidelines: https://wiki.openmobilealliance.org/display/TOOL/eLwM2M+Editor • LwM2M Editor Tool: http://devtoolkit.openmobilealliance.org/OEditor/Default
2	2.a Import Resource	Click “ Import ” button on the Editor to upload an Object from your hard drive that contains the Resource that you want to register.
	2.b Create Resource	Click “ New Resource ” button on the Editor to create a new Resource from scratch.
3	Edit/Create Resource	Edit Resource content. Note: The registration of a new Reusable Resource requires the definition of the following fields:

		<p>Mandatory elements:</p> <ul style="list-style-type: none"> • Resource <i>ID</i>, <ul style="list-style-type: none"> • It will be finally allocated by OMNA. • Resource <i>Name</i>, • Resource <i>Operations</i>, • Resource <i>Type</i>, • Description, <p>Optional elements:</p> <ul style="list-style-type: none"> • <i>RangeEnumeration</i>, • <i>Units</i>, <p>Resource elements that are not necessary for the registration of Reusable Resources:</p> <ul style="list-style-type: none"> • <i>MultipleInstances</i>, and <i>Mandatory</i> elements. • These elements are not added to the Resource Reusable registration table. <p>Note:</p> <p>See section 5.2.2 <i>Reusable Resource Structure and Syntax</i> of this document for further information.</p> <p>Only the value of the MANDATORY and OPTIONAL (if present) elements will be registered with OMNA.</p> <p>Any values allocated to MultipleInstances and Mandatory elements will be ignored for the registration of the Reusable Resource. However, these values may be necessary when the Reusable Resource is used within an Object.</p> <p>It is possible to register multiple Reusable Resources as part of a single registration.</p> <p>For further information, please refer to section 6.3.2 Reusable Resources of [LWM10] document.</p>
4	Export Resource	<p>Click “Export” button to download your Reusable Resource to your hard drive.</p> <p>Note:</p> <p>The Reusable Resource is exported in the same xml file as where an Object is defined. However, the Object definition portion is empty and the Resource definition portion only contains the Reusable Resources to register with the MANDATORY and OPTIONAL elements defined.</p>
5	Register Resource with OMNA	<p>Click “Register to OMNA” button to open the OMNA Registration Form, step (7).</p>
6	Input Form Content	<p>The LwM2M Editor tool allows you to send your Reusable Resource(s) directly to OMNA and the Device Management Working Group for review and registration.</p> <ol style="list-style-type: none"> 1. Complete the fields as indicated in the form. 2. Click “Register” button in the editor to send your Resource to OMNA for review & registration. <p>Note:</p> <p>The Resource is sent as an Issue to an OMA Repository.</p> <p>If you log in using your GitHub account you will be able to exchange information</p>

		with the OMA Working Group that oversees the Resource registration operation. Otherwise, you will be able to see the comments but cannot exchange messages with the DM WG.
7	GitHub Submission	Log with your GitHub account if you want to exchange messages with the Working Group that reviews these registrations. Alternatively, you can see how your registration is progressing at: LwM2M Developers ToolKit - Issues .
8	GitHub Issues	Follow up the discussion of your Resource registration at: LwM2M Developers ToolKit - Issues .
9	Registered	All the registrations will be subject to a period of review before being approved and published in the OMNA Registry for LwM2M . During this review period, members of the OMA DM WG may provide comments or questions with the aim of improving the registration content. Once all the comments received have been reviewed and resolved the Resource will be registered with OMNA at: OMNA LwM2M Registry .

7.4 Registration Feedback

- Follow progress of Objects or Reusable Resources Registrations here: https://github.com/OpenMobileAlliance/OMA_LwM2M_for_Developers/issues
- To Register a new LwM2M Object or Reusable Resource follow this link: <http://devtoolkit.openmobilealliance.org/OEditor/Default>
- Please report any problem with the LwM2M Registry via GitHub Issues to: [OMA LwM2M for Developers](#)
- Any problem with the LwM2M Editor should be reported to: [OMA LWM2M Editor](#).

8. LwM2M Editor Tool

8.1 Introduction

The [LwM2M Editor Tool](#) was developed by OMA to support the creation, registration and handling of LwM2M Object & Resources. It provides the following advantages:

- Import an existing LwM2M Object
- Easily create a LwM2M Object from scratch
- Add a software license to the xml file that contains the Object
- Validate the xml file prior to export or register
- Register the Object with OMNA
- Easily view the details of any Object within the Registry

8.2 Operations with the LwM2M Editor Tool

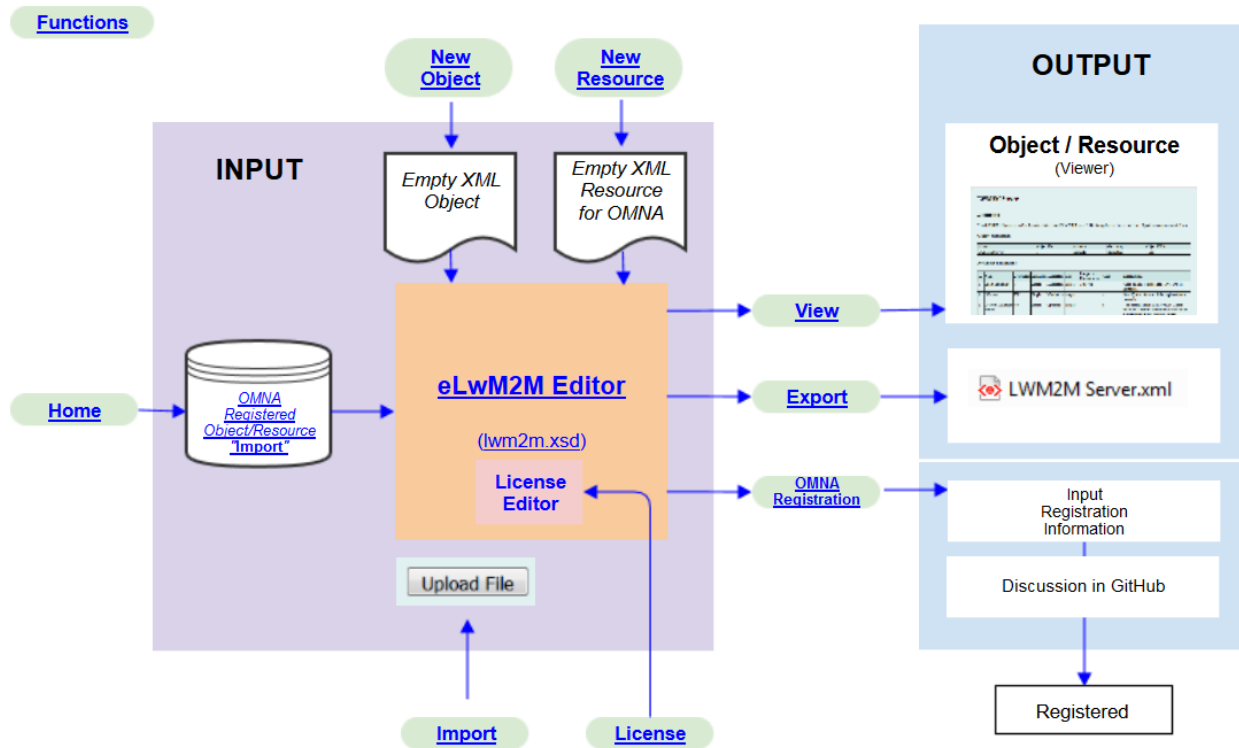


Figure 9: Operations with LwM2M Editor Tool

Functions	Description
<u>Home</u>	This table contains all the LwM2M Objects registered with OMNA. From here it is possible to import and register object into the tool, download the technical specification for that Object or open the definition of this Object in VORTO.
<u>New Object</u>	Function that creates a new Object from scratch. All the content being edited in the tool will be lost after clicking “New Object” function.
<u>New Resource</u>	Function that creates a new Resource from scratch.

	The Resource will be stored in the same file as an Object but the only fields that will be used are those fields required to register a Reusable Resource, see section 7.3.2 <i>LwM2M Editor – Reusable Resource Registration Flow</i> of this document.
<u>Import</u>	This function allows to import a xml file containing an LwM2M Object from your hard drive.
<u>Object/Resource Editor</u>	In this function the user will edit the values for the different elements that compose an Object.
<u>License Editor</u>	This function allows to insert a software license via a drop menu. It is also possible for the end-user to submit its own license.
<u>View</u>	This function permits to view the object without the possibility to do any modification.
<u>Export</u>	The Export function allows to download the Object files (xml) existent in the editor into the hard drive.
<u>Register to OMNA</u>	This function allows to send to OMNA the content of the Object available in the editor.

8.3 Report a Fault with the LwM2M Editor Tool

Please report any problem with the LwM2M Registry via GitHub Issues to: [OMA LwM2M for Developers](#)

Any problem with the LwM2M Editor should be reported to: [OMA LWM2M Editor](#).

Appendix A. Change History

(Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ORG-Guidelines_Creation_Registration_LwM2M_Objects_Resources_V1_0	n/a	First version as a Permanent document created