Lightweight M2M – Lock and Wipe Object (LwM2M Object – LockWipe)

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Open Mobile Alliance

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1. Scope

This document defines the technical specification for a Lock and Wipe object, to be used in conjunction with the Lightweight M2M enabler.

2. References

2.1 Normative References

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL: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

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version x.y, Open Mobile Alliance™, OMA-ORG-Dictionary-Vx_y, 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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Full lock	To render the device fully inoperable
Partial lock	To render the device partially inoperable except for functions that aid the recovery of the device
Wipe	To permanently erase data from the device

3.3 Abbreviations

OMA	Open Mobile Alliance

4. Introduction

The document defines the LWM2M Lock and Wipe Object.

There are several use cases in the M2M space that require the functionality provided by this LWM2M Object. E.g. a M2M service provider wants to ensure that a stolen M2M device cannot be used. Furthermore, a M2M service provider wants to remotely erase the memory of a device ensuring that sensitive data does not get into the wrong hands.

4.1 Version 1.0

Version 1.0 defines the following functions:

- Lock the M2M device – partially or fully
- Unlock the M2M device
- Wipe the M2M device – partially or fully
- Report the result of the above operations

5. LWM2M Object: Lock and Wipe

Description

This LWM2M objects provides the resources needed to perform the lock and wipe operations.

Object definition

Name	Object ID	Instances	Mandatory	Object URN
Lock and Wipe	8	Single	Optional	urn:oma:lwm2m:oma:8

Resource definitions

ID	Name	Operations	Instances	Mandatory	Type	Range or Enumeration	Units	Description
0	State	R, W	Single	Mandatory	Integer	0-2		State of the device: 0: unlocked state Normal operation. 1: partially locked state To render the device inoperable the device has been partially locked. The "lock target" resource allows specifying the target(s) for this operation. 2: fully locked state To render the device fully inoperable the device has been fully locked.
1	Lock target	W	Multiple	Mandatory	String			To specify one or several targets for the lock operation. This allows partially locking the device by selecting specific components or interfaces to be locked.
2	Wipe item	R	Multiple	Optional	String			Indicates which data can be wiped from the device. This resource could be e.g. representing a directory.
3	Wipe	E	Single	Mandatory				To permanently erase data from the device.
4	Wipe target	W	Multiple	Mandatory	String			To specify one or several targets for the wipe operation. This allows selecting specific data, or, memory areas for the wipe operation.

ID	Name	Operations	Instances	Mandatory	Type	Range or Enumeration	Units	Description
5	Lock or Wipe Operation Result	R	Single	Mandatory	Integer	0-8		Contains the result of a lock and wipe operation 0: Default 1: Partially Lock operation successful 2: Fully Lock operation successful 3: Unlock operation successful 4: Wipe operation successful 5: Partially Lock operation failed 6: Fully Lock operation failed 7: Unlock operation failed 8: Wipe operation failed This Resource MAY be reported by sending Observe operation.

Lock Considerations

The Lock operation allows rendering the device inoperable from unauthorized usage – either fully or partially.

If the device is fully locked the device might not be recoverable unless a mechanism is used which is outside the scope of this specification.

If a device is fully locked the wipe operation will not work any longer. Thus, if a wipe operation is intended it should be executed before the lock operation.

If the device is partially locked some functions might be active as specified with the lock target resource. E.g. for a stolen device the location tracking function might be excluded from a lock operation.

Wipe Considerations

The Wipe operation allows wipe date from the device – either all data or specific data.

Before performing the wipe operation there might be situations where the server wants to find out first what items can be wiped on the device. This can be achieved by reading the “wipe item” resource instances.

The wipe target resource allows specifying one or several targets for the wipe operation. This allows selecting specific data, or, memory areas for the wipe operation.

If a device is fully locked the wipe operation will not work any longer. Thus, if a wipe operation is intended it should be executed before the lock operation.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-TS-LWM2M_LockWipe-V1_0	04 Jun 2014	All	Agreed document baseline OMA-DM-LightweightM2M-2014-0017R01-INP_Skeleton_TS_for_LockWipe
	08 Aug 2014	5	Incorporated CR: OMA-DM-LightweightM2M-2014-0023-CR_lock_and_wipe_object Editorial changes
	03 Sep 2014	5	OMA-DM-LightweightM2M-2014-0025-CR_LockWipe_update_resource_name OMA-DM-LightweightM2M-2014-0033-CR_lockandwipe_preventing_accidental_use
	22 Sep 2014	4, 5	OMA-DM-LightweightM2M-2014-0041-CR_Lock_wipe_introduction_and_partially_locked_value
	22 Jan 2015	3, 4, 5	OMA-DM-LightweightM2M-2015-0005R01-CR_LOCKWIPE_comments_A001_A002_A003
Candidate Version OMA-TS-LWM2M_LockWipe-V1_0	17 Feb 2015	n/a	Status changed to Candidate by TP TP Ref # OMA-TP-2015-0057-INP_LWM2M_LOCKWIPE_V1_0_RRP_for_Candidate_approval
Draft Version: OMA-TS-LWM2M_LockWipe-V1_0	06 May 2015	5	Incorporated CR: OMA-DM-LightweightM2M-2015-0022-CR_missing_oid_lockwipe Editorial changes
Candidate Version OMA-TS-LWM2M_LockWipe-V1_0	23 Nov 2015	n/a	Status changed to Candidate by TP TP Ref # OMA-TP-2015-0201-INP_LWM2M_LOCKWIPE_V1_0_RRP_for_Notification