|  |  |
| --- | --- |
| HANGE REQUEST | |
| Meeting ID:\* | TDE 43.3 |
| Source:\* | Bob Flynn (Convida wireless); bob.flynn@chordant.io |
| Date:\* | 2020-02-04 |
| Reason for Change/s:\* | HAIM Test Purposes |
| CR against: Release\* | Rel-3 |
| CR against: WI\* | Active <Work Item number>  MNT maintenance / < Work Item number(optional)>  Is this a mirror CR? Yes  No  mirror CR number: (Note to Rapporteur - use latest agreed revision)  STE Small Technical Enhancements / < Work Item number (optional)>  Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0013 v3.0.0 |
| Clauses \* |  |
| Type of change: \* | Editorial change  Bug Fix or Correction  Change to existing feature or functionality  New feature or functionality  Only ONE of the above shall be ticked |
| Other TS/TR(s) impacted | None |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES  NO  This CR may break backwards compatibility with the last approved version of the TS? YES  NO |
| Template Version: January 2019 (do not modify) | |

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# Introduction

This contribution attempts to create new test objectives for the HAIM models defined in TS-0023.

Four test objectives are defined:

TD/M2M/NH/01 – Create HAIM Light Device Model

TD/M2M/NH/02 – Read status of a light device

TD/M2M/NH/03 – Turn the Light Device ON/OFF

TD/M2M/NH/04 – Toggle the Light Device

R01

Add reference. [X]

Nodn abbreviation, IPE, HAIM

### -----------------------Start of new text 1-------------------------------------------

#### 8.5 HAIM Device Model

#### 8.5.1 HAIM Light Device Creation

| **Interoperability Test Description** | | | |
| --- | --- | --- | --- |
| **Identifier:** | | | TD\_M2M\_NH\_01 |
| **Objective:** | | | AE1 creates a HAIM Light Device Model |
| **Configuration:** | | | M2M\_CFG\_10 |
| **References:** | | | oneM2M TS-0023 [14], clause 5.5.27 |
|  | | | |
| **Pre-test conditions:** | | | * AE1 has created an application resource <AE> on registrar CSE |
| **Test Sequence** | | | |
| **Step** | **RP** | **Type** | **Description** |
| 1 |  | Stimulus | AE1 sends a request to create a <flexContainer> for deviceLight |
| 2 | Mca | PRO Check Primitive | * op = 1 (Create) * to = {CSEBaseName}/URI of <AE1> resource * fr = AE-ID * rqi = (token-string) * ty = 28 (flexContainer) * pc = Serialized representation of <flexContainer> resource with proper *containerDefinition* |
| 3 |  | IOP Check | Check if possible that the <flexContainer> resource is created in registrar CSE. |
| 4 | Mca | PRO Check Primitive | * rsc = 2001 (CREATED) * rqi = (token-string) same as received in request message * pc = Serialized representation of <flexContainer> resource |
| 5 |  | IOP Check | AE indicates successful operation |
| 6 |  | Stimulus | AE1 sends a request to create a <flexContainer> for binarySwitch |
| 7 | Mca | PRO Check Primitive | * op = 1 (Create) * to = {CSEBaseName}/URI of <AE1> resource/resource name of deviceLight * fr = AE-ID * rqi = (token-string) * ty = 28 (flexContainer) * pc = Serialized representation of <flexContainer> resource with proper *containerDefinition* |
| 8 |  | IOP Check | Check if possible that the <flexContainer> resource is created in registrar CSE. |
| 9 | Mca | PRO Check Primitive | * rsc = 2001 (CREATED) * rqi = (token-string) same as received in request message * pc = Serialized representation of <flexContainer> resource |
| 10 |  | IOP Check | AE indicates successful operation |
| Note | | Optional: Repeat steps 5-10 for additional deviceLight Modules | |
| IOP Verdict | |  | |
| PRO Verdict | |  | |

#### 8.5.2 HAIM Light Device Status Read

| **Interoperability Test Description** | | | |
| --- | --- | --- | --- |
| **Identifier:** | | | TD\_M2M\_NH\_02 |
| **Objective:** | | | AE2 reads the status of a HAIM Light Device Model |
| **Configuration:** | | | M2M\_CFG\_10 |
| **References:** | | | oneM2M TS-0023 [14], clause 5.5.27, 5.3.12 |
|  | | | |
| **Pre-test conditions:** | | | * AE2 has created an application resource <AE> on registrar CSE * AE1 has created a HAIM Light Device model |
| **Test Sequence** | | | |
| **Step** | **RP** | **Type** | **Description** |
| 1 |  | Stimulus | AE2 sends a request to retrieve a <flexContainer> for binarySwitch |
| 2 | Mca | PRO Check Primitive | * op = 2 (Retrieve) * to = {CSEBaseName}/URI of <deviceLight> resource/binarySwitch * fr = AE-ID * rqi = (token-string) |
| 3 | Mca | PRO Check Primitive | * rsc = 2000 (OK) * rqi = (token-string) same as received in request message * pc = Serialized representation of <flexContainer> resource |
| 4 |  | IOP Check | AE2 indicates successful operation |
| Note | | Optional: Repeat steps 1-4 for additional deviceLight Modules | |
| IOP Verdict | |  | |
| PRO Verdict | |  | |

#### 8.5.3 HAIM Light Device Update

| **Interoperability Test Description** | | | |
| --- | --- | --- | --- |
| **Identifier:** | | | TD\_M2M\_NH\_03 |
| **Objective:** | | | AE2 turns the binarySwitch of a HAIM Light Device Model “ON” or “OFF” |
| **Configuration:** | | | M2M\_CFG\_10 |
| **References:** | | | oneM2M TS-0023 [14], clause 5.5.27 |
|  | | | |
| **Pre-test conditions:** | | | * AE2 has created an application resource <AE> on registrar CSE * AE1 has created a HAIM Light Device model |
| **Test Sequence** | | | |
| **Step** | **RP** | **Type** | **Description** |
| 1 |  | Stimulus | AE2 sends a request to create a <flexContainer> for deviceLight |
| 2 | Mca | PRO Check Primitive | * op = 3 (Update) * to = {CSEBaseName}/ URI of <deviceLight> resource/binarySwitch * fr = AE-ID * rqi = (token-string) * pc = Serialized representation of <flexContainer> resource with new value for powerState |
| 3 |  | IOP Check | Check if possible that the <flexContainer> resource is updates in registrar CSE. |
| 4 | Mca | PRO Check Primitive | * rsc = 2004 (UPDATED) * rqi = (token-string) same as received in request message * pc = Serialized representation of <flexContainer> resource |
| 5 |  | IOP Check | AE indicates successful operation |
| Note | | Optional: Repeat steps 1-5 for additional device states and settings | |
| IOP Verdict | |  | |
| PRO Verdict | |  | |

#### 8.5.4 HAIM Light Device Toggle Action

| **Interoperability Test Description** | | | |
| --- | --- | --- | --- |
| **Identifier:** | | | TD\_M2M\_NH\_04 |
| **Objective:** | | | AE2 toggles the state of a HAIM Light Device Model |
| **Configuration:** | | | M2M\_CFG\_10 |
| **References:** | | | oneM2M TS-0023 [14], clause 5.5.27 |
|  | | | |
| **Pre-test conditions:** | | | * AE2 has created an application resource <AE> on registrar CSE * AE1 has created a HAIM Light Device model |
| **Test Sequence** | | | |
| **Step** | **RP** | **Type** | **Description** |
| 1 |  | Stimulus | AE2 sends a request to create a <flexContainer> for deviceLight |
| 2 | Mca | PRO Check Primitive | * op = 3 (Update) * to = {CSEBaseName}/ URI of <deviceLight> resource/binarySwitch/toggle * fr = AE-ID * rqi = (token-string) * pc = Serialized representation of <flexContainer> resource for *toggle* action |
| 3 |  | IOP Check | Check if possible that the <flexContainer> resource is updates in registrar CSE. |
| 4 | Mca | PRO Check Primitive | * rsc = 2004 (UPDATED) * rqi = (token-string) same as received in request message * pc = Serialized representation of <flexContainer> resource |
| 5 |  | IOP Check | AE2 indicates successful operation. Check that the powerState of the binarySwitch is updated. |
| Note | | Optional: Repeat steps 1-5 for additional device states and settings | |
| IOP Verdict | |  | |
| PRO Verdict | |  | |

### -----------------------End of change 1-------------------------------------------

### -----------------------Start of new text 2-------------------------------------------

#### 7.1.1.3 M2M\_CFG\_10

oneM2M entities model



Note: For HAIM Model tests, clause 8.5, AE1 represents a native oneM2M device that implements the HAIM models or a combined IPE(AE) plus a non-oneM2M device node (nodn) .

### -----------------------End of change 2-------------------------------------------

### -----------------------Start of new text 3-------------------------------------------

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are necessary for the application of the present document.

[1] oneM2M TS-0001: "Functional Architecture- Release 3".

[2] oneM2M TS-0004 "Service Layer Core protocol Specification - Release 3".

[3] oneM2M TS-0008: "CoAP Protocol Binding Release 3".

[4] oneM2M TS-0009: "HTTP Protocol Binding - Release 3".

[5] oneM2M TS-001: "MQTT Protocol Binding - Release 3".

[6] oneM2M TS-0015: "Testing Framework".

[7] oneM2M TS-0011: "Common Terminology".

[8] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[9] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[10] oneM2M TS-0005: "Management Enablement (OMA) - Release 3".

[11] oneM2M TS-0006: "Management Enablement (BBF) - Release 3".

[12] oneM2M TS-0003: "Security Solutions - Release 3".

[13] oneM2M TS-0034: "Semantics Support - Release 3".

[14] oneM2M TS-0023: " Home Appliances Information Model and Mapping – Release 3".

### -----------------------End of change 3-------------------------------------------

### -----------------------Start of new text 4-------------------------------------------

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACP Access Control Policy

AE Application Entity

AE-ID Application Entity Identifier

APP-ID Application Identifier

BBF BroadBand Forum

CFG Configuration

CoAP Constrained Application Protocol

CSE Common Services Entity

CSE-ID Common Service Entity Identifier

DM Device Management

DTLS Datagram Transport Layer Security

DUT Device Under Test

FQDN Fully Qualified Domain Name

HAIM Home Appliances Information Model

HTTP HyperText Transfer Protocol

IN Infrastructure Node

IN-CSE CSE which resides in the Infrastructure Node

IOP Interoperability

IP Internet Protocol

IPE Interworking Proxy Entity

JSON JavaScript Object Notation

LWM2M Lightweight M2M

M2M Machine to Machine

MA Mandatory Announced

Mca Reference Point for M2M Communication with AE

Mcc Reference Point for M2M Communication with CSE

MH Multi Hop

MO Management Object

MQTT Message Queuing Telemetry Transport

NB Non-Blocking

NH No Hop

NODN Non oneM2M Device Node

OMA Open Mobile Alliance

PRO Protocol

PSK Pre-Shared Key

RFC Request for Comments

RP Reference Point

RPC Remote Procedure Calls

RQI Request-ID

SE Security

SH Single Hop

SP Service Provider

SUT System Under Test

TCP [Transmission Control Protocol](https://en.wikipedia.org/wiki/Transmission_Control_Protocol)

TD Test Description

TLS Transport Layer Security

UDP User Datagram Protocol

URI Uniform Resource Identifier

XML eXtensible Markup Language

### -----------------------End of change 4-------------------------------------------