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# DEVICE MANAGEMENT & SMART OBJECT FOR IOT WORKING GROUP CHARTER

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## 1. DESCRIPTION AND GOALS

The goal of the Device Management & Smart Object for IoT (DMSO IoT) Working Group is to specify protocols and mechanisms to manage devices, service access, and the applications on connected devices and to define, develop, and evolve specifications and best practices for Smart Objects for the Internet of Things (IoT).

Device management (DM) focuses on the ability to support configuration management, firmware and software updates, remote diagnosis and troubleshooting, monitoring and tracking the device (e.g., location, status, activity), performance monitoring, and the security of the device and data.

Devices of interest to DMSO IoT include (but is not limited) to mobiles, smartphones, Machine-to-Machine (M2M) equipment and in general any device capable to connect to data network.

IoT application layer data models (“IPSO Smart Objects”) will specifically conform to the LwM2M object and resource model. The objectives are to enable semantic interoperability and to reuse data models across IoT application domains by being IoT application agnostic.

The DMSO IoT WG will manage a repository of data models necessary for interoperability and will seek to work with other standards bodies to ensure interoperability. The group covers data model definitions for sensors and actuators as well as associated metadata.

This WG will provide necessary insights via comparison of different transfer protocols and communications frameworks in the form of guidelines and white papers.

Another key challenge for IoT is security and privacy. This WG will provide white papers and guidance on relevant IoT related security and privacy topics based on existing and emerging technologies.

This WG will act as OMASpecWorks’ centralized resource for IoT, enhancing the IoT ecosystem with interoperable protocols and enablers, libraries, repositories, and tools.

## 2. SCOPE

The Working Group’s activities will include:

- Refine use cases and requirements for device/application management & object models.
- Assessing the impact, if any, of the requirements (including new requirements and refined uses cases that may result from the above analysis) on other groups within OMASpecWorks (e.g. Architecture, IOP, and other working groups) and providing feedback where required.
- Defining and participating in sub-working groups to provide an appropriate division of labour.
- With involvement of the other OMASpecWorks Working Groups, performing the detailed technical review of all related technologies, and the work in other standards bodies and consortia to determine applicability to the requirements.
- Liaising with and collaborating with other internal and external standards activities and consortia involved with device management & object data models.
- Generating specifications, recommendations, and best practices documents as needed for the application of device management & object definition.
- Generate and refine interoperability conformance requirements and test cases.
- Maintenance of OMASpecWorks DM and LwM2M protocols, as required.

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- Developing Northbound API for LwM2M

Pertaining to IoT application layer data models, the scope is the following:

- This WG is expected to develop IPSO Smart Objects meeting the needs of IoT application layer data models for selected industry segments and IoT use case domains.
- This WG is expected to deliver guidelines for how to define new IPSO Smart Objects. The guidelines target the IoT industry users.
- This WG is expected to align the IPSO Smart Objects data model with the LwM2M data model.
- This WG is expected to propose extensions to the LwM2M data model, if necessary
- This WG is expected to submit modifications to existing LwM2M Object definitions when existing objects are not sufficient to address the identified needs.
- This WG will develop validation tools for the IPSO Smart Objects.
- This WG will support the IoT developer community using IP Smart Objects.
- This WG will monitor existing standards and practices within the industry and identify opportunities for new work and collaborations.

Pertaining to IoT transfer protocols and communications framework, the scope is the following:

- This WG will evaluate the applicability of existing and emerging protocols and communications frameworks and their use in different IoT solutions.

### 3. CRITERIA FOR SUCCESS

The success of the Working Group is measured by:

- Approval of the specifications, requirements and best practices documentation for the application of device management & service objects.
- Timely publication of release related documents for external consumption.
- Alignment of data models with (e.g. CSA, OneDM, etc)

### 4. LIAISON/COLLABORATION WITH EXTERNAL ORGANISATIONS

The WG will seek for a complete review for all its deliverables, within OMA SpecWorks and across selected industry experts, specifically on topics like interoperability, application development, privacy, and security. Further, invitation for OMASpecWorks review must be issued before each major data model specification transition.

The Working Group may overlap, and desires to cooperate with, many external standards and organizations industry consortia. Examples of each are outlined below:

#### **Standards Organizations:**

There are significant standards organizations that have work efforts or that are involved in device management & object activities relevant to the scope of this charter. OMASpecWorks DMSO IoT has or intends to pursue liaison relationships with these organizations.

#### **Industry Consortia:**

There are significant consortia that have work efforts or that are involved in device management & Smart Objects activities relevant to the scope of this charter. OMASpecWorks DMSO IoT has or intends to pursue liaison relationships with these organizations.

- IETF, IRTF, W3C, OneM2M
- Open Connectivity Foundation, Industrial Internet Consortium, Fairhair Alliance, schema.org

- Wi-SUN Alliance, Thread Group, CSA

## 5. COORDINATION WITH OTHER OMASPECWORKS ACTIVITIES

The DMSO IoT Working Group will interface with all OMASpecWorks Working Groups and subgroups working on external interfaces or exposing services.

## 6. MEETINGS AND COMMUNICATION

The Working Group expects to hold the following:

- Face-to-face meetings, as determined by the group, to progress work. This may require facilities and arrangements to be made through the OMASpecWorks, especially if the meetings are co-located with other specification groups or sub-groups within OMASpecWorks.
- Conference calls to be held at a frequency required to achieve the goals and objectives, using a bridge number provided by the OMASpecWorks. The group will keep minutes of each conference call.
- General communication will be via email exploders with archiving provided by the OMASpecWorks.
- Group progress and processes will be communicated via group web pages provided by the OMASpecWorks staff.
- Documents of work in progress, meeting minutes etc. will be kept in well specified location on the OMASpecWorks portal.
- Policy and Procedures to be developed by the new group including:
  - GitHub
  - Work group procedures
  - Voting
  - Contributions (member vs non member)

## 7. MEMBERSHIP

The Device Management & Smart Objects for IoT Working Group is open to members as specified by OMASpecWorks membership rules and benefits.