ETSI TS 103 410-15 V1.1.1 (2026-05)



TECHNICAL SPECIFICATION

Data Solutions (DATA);
Extension to SAREF;
Part 15: Device Management Domain

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Data Solutions (DATA).

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The present document is part 15 of a multi-part deliverable covering Data Solutions (DATA); Extension to SAREF, as identified below:

Part 1: "Energy Domain";

Part 2: "Environment Domain";

Part 3: "Building Domain";

Part 4: "Smart Cities Domain";

Part 5: "Industry and Manufacturing Domains";

Part 6: "Smart Agriculture and Food Chain Domain";

Part 7: "Automotive Domain";

Part 8: "eHealth/Ageing-well Domain";

Part 9: "Wearables Domain";

Part 10: "Water Domain";

Part 11: "Lift Domain";

Part 12: "Smart Grid Domain";

Part 13: "Maritime Domain";

Part 14: "Thermal Energy Storage Systems Domain";

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Part 15: "Device Management Domain".

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1 Scope

The present document presents SAREF4DMGT, the SAREF extension for Device Management.

Device Management (DM) refers to the remote administration of devices by operators, such as service providers or manufacturers, to ensure proper functioning, configuration, and support, especially as the scope has expanded with the rise of IoT.

The architecture of device management for operators typically involves DM clients embedded in devices, which expose management functions, and DM servers operated by service providers, which coordinate and execute commands to manage and configure devices remotely.

The emergence of numerous heterogeneous IoT devices and proprietary, siloed management solutions has created a new problem: the need for federating multiple device management systems to achieve interoperability across diverse protocols and device capabilities.

In the Device Management domain, federation refers to the ability to coordinate and execute commands across multiple heterogeneous systems.

To achieve this federation, the current scope of the Ontology comprises three items:

- The representation of the device management capabilities of a device, with their associated functions and commands.
- The representation of the information needed to select which command to execute on a device for a targeted function.
- The representation of the information retrievable from the device and exposed by the DM server.

The proposed ontology defines the required entities, extending the concepts from the SAREF v4.1.1 ontology.

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2 References

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2.1 Normative references

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

[1] ETSI TS 103 264: "SmartM2M; Smart Applications; Reference Ontology and oneM2M Mapping".

[2] ETSI TS 103 548: "SmartM2M; SAREF reference ontology patterns".

[3] ETSI TS 103 673: "SmartM2M; SAREF Development Framework and Workflow, Streamlining the Development of SAREF and its Extensions".

[4] BBF TR-069 Amendment 6 Corrigendum 1: "Broadband Forum, CPE WAN Management Protocol".

[5] BBF TR-181 Issue 2 Amendment 20 Corrigendum 1: "oneM2M TR-181 Device Data Model for CWMP Endpoints and USP Agents".

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[6] BBF TR-369 Issue 1 Amendment 4 Corrigendum 2: "Broadband Forum, The User Services Platform".

[7] OMA-TS-LightweightM2M_Core-V1_2_2-20240613-A: "Lightweight Machine to Machine Technical Specification: Core".

[8] oneM2M TS-0001 (v4.24.0): "Functional Architecture".

[9] oneM2M TS-0005 (v4.0.3): "Management Enablement (OMA)".

[10] oneM2M TS-0006 (v4.0.1): "Management Enablement (BBF)".

[11] oneM2M TS-0014: (v4.0.1) "LwM2M Interworking".

[12] oneM2M TS-0023 (v5.7.0): "SDT based Information Model and Mapping for Vertical Industries", (section 5.8 Device Management).

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The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

[i.1] Open Mobile Alliance: "LwM2M Registries, objects and resources".

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3 Definition of terms, symbols and abbreviations

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3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 103 673 [3] and the following apply:

ontology: formal specification of a conceptualization, used to explicit capture the semantics of a certain reality

3.2 Symbols

Void.

3.3 Abbreviations

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

API	Application Programming Interface
BBF	BroadBand Forum
CWMP	Customer Premises Equipment Wide Area Network Management Protocol
DM	Device Management
IoT	Internet of Things
IRI	Internationalized Resource Identifier
LwM2M	LightWeight Machine-to-Machine
OMA	Open Mobile AllianceOWL Web Ontology Language
OWL-DL	Web Ontology Language Description Logics
SAREF	Smart Applications REFerence ontology
SAREF4DMGT	SAREF extension for Device Management

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