oneM2M

The Global Standards initiative for developing standards to enable **interoperable, secure,** and **simple-to-deploy** services for the IoT ecosystem. oneM2M standards are **open, accessible,** and **internationally recognized**.

oneM2M was launched in 2012 as a global partnership initiative between eight of the world's preeminent standards development organizations: ARIB (Japan), ATIS (U.S.), CCSA (China), ETSI (Europe), TIA (U.S.), TSDSI (India), TTA (Korea), and TTC (Japan) together with industry fora and consortia (Global Platform) to develop specifications that ensure the most efficient deployment of Machine-to-Machine (M2M) communications systems and the Internet of Things (IoT).

By bringing together more than 200 players from many diverse business domains including, oneM2M ensures the global functionality of M2M and prevents the duplication of standardization effort.

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oneM2M envisions a world of **Interoperable** and **Secure IoT services** where market adoption is easy and delivers benefits to society

Visit oneM2M at: **http://www.onem2m.org**

oneM2M defines an architectural framework based on a middleware technology that sits in the horizontal layer between IoT applications and a lower layer of communications networks and connected devices. The middleware layer provides a rich set of functions that developers can use to design, deploy and manage end-to-end IoT systems.
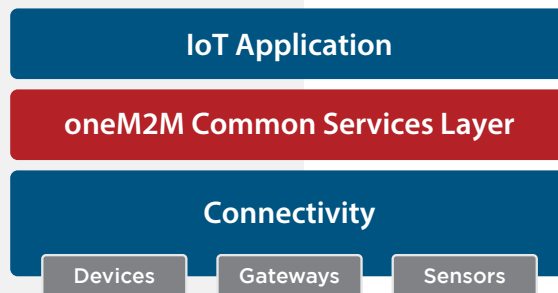
oneM2M is a middleware service layer, that provides a toolkit, similar to the distributed operating systems of the mobile world, for IoT application developers. It provides a growing suite of common service functions (CSFs) that are exposed to applications and to IoT devices via RESTful APIs. Data storage, processing and transport in the connectivity layer normally rides on top of IP. However, oneM2M supports non-IP transport protocols via interworking proxies allowing users to combine open-standard, legacy systems and proprietary technology components.

oneM2M service layer capabilities can reside in field devices and sensors, on gateways and in back-end or cloud applications. This standardizes cooperative intelligence in distributed and federated IoT systems.

At present, oneM2M specifications cover fourteen such functions. Developers can use these functions progressively for their applications, beginning with he most frequently required ones such as device management, registration and security. More complex applications can incorporate features to support semantic interoperability and location services, for example.
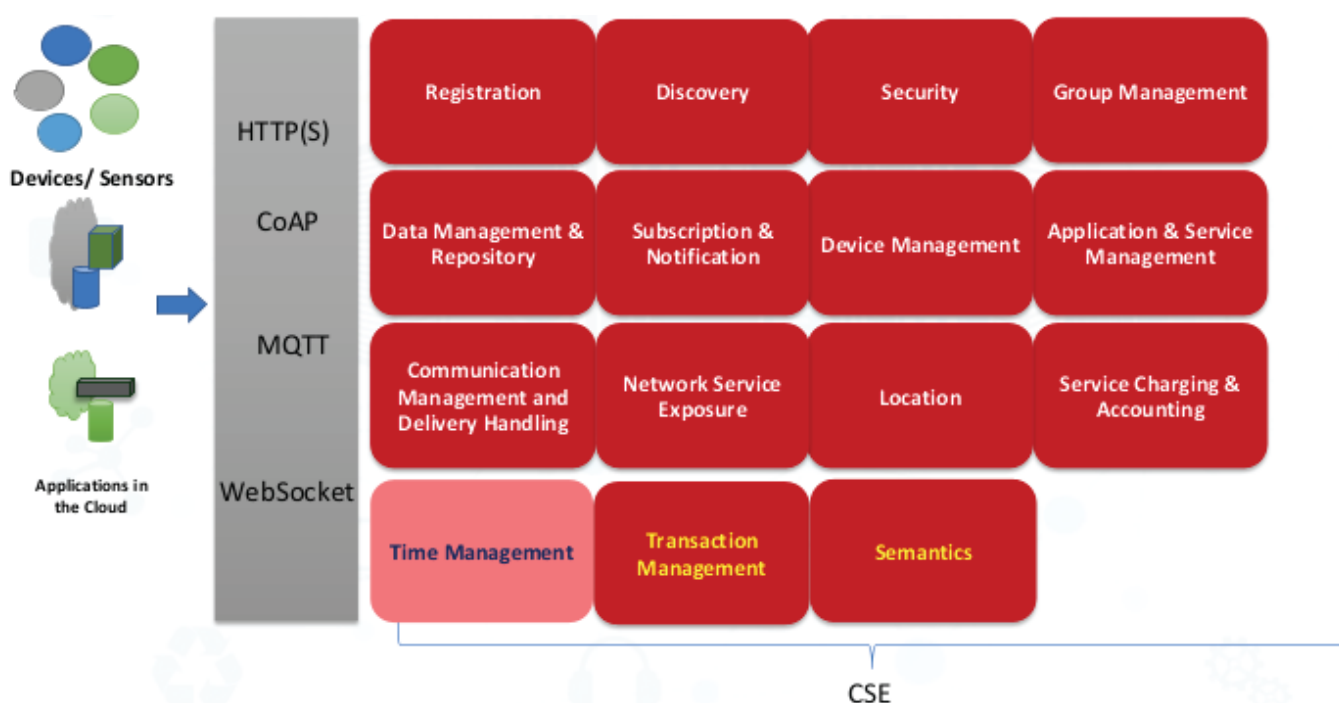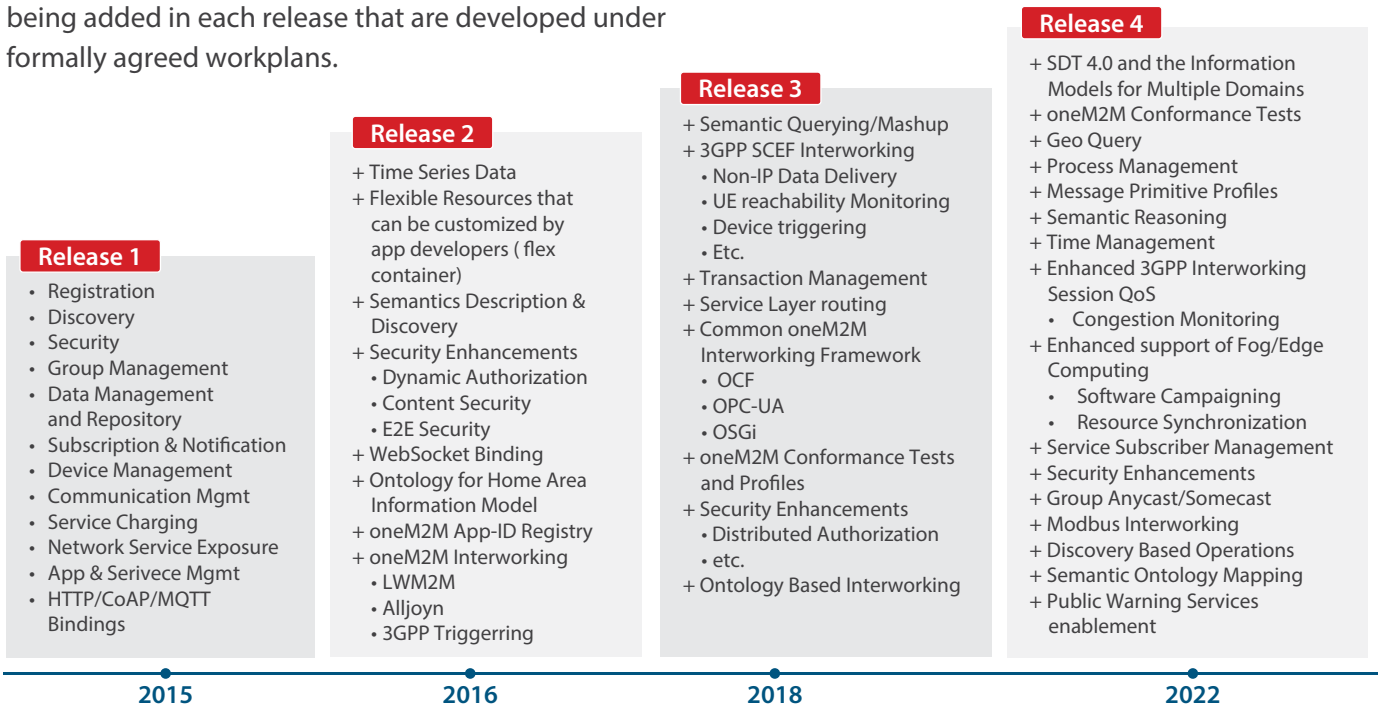

oneM2M follows a modular standards development approach. This allows for future IoT requirements and the addition of new common service functions in its standardization roadmap through new releases.

oneM2M's technical activities are carried out through 3 Working Groups

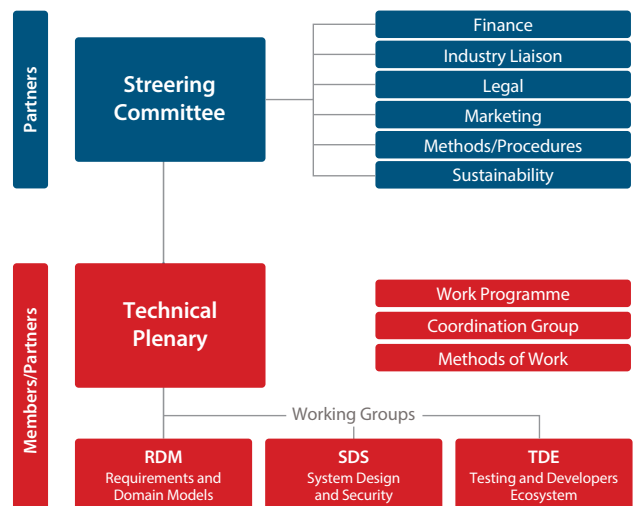| The Requirements and Domain	The System Design and Security (SDS) Working Group	The Testing and Developers Ecosystem (TDE) Working Group
Being the first step in the standardization sequence, RDM focuses on the future roadmap. It collates and specifies domain-specific and cross-domain use cases; service and system requirements, including interworking aspects; information and data models and ontologies to support harmonisation and interworking with vertical domains and to enable cross domain data exchange.	This group is responsible for definition of oneM2M system architecture and management including device management aspects; protocol aspects and security framework; and development of specifications for the same.	Defines test requirements for oneM2M Systems and related services, which include conformance test specifications, interoperability tests, and developers guides. TDE members also supervise interoperability test events and developer outreach activities such as and developer tutorials. TDE supports the oneM2M Certification Program in collaboration with the Global Certification Forum.

oneM2M Value Proposition

oneM2M specifications are issued as Releases – with new capabilities being added in each release that are developed under formally agreed workplans.

Release 4
+ SDT 4.0 and the Information Models for Multiple Domains
+ oneM2M Conformance Tests
+ Geo Query
+ Process Management
+ Message Primitive Profiles
+ Semantic Reasoning
+ Time Management
+ Enhanced 3GPP Interworking Session QoS
  • Congestion Monitoring
+ Enhanced support of Fog/Edge Computing
  • Software Campaiging
  • Resource Synchronization
+ Service Subscriber Management
+ Security Enhancements
+ Group Anycast/Somecast
+ Modbus Interworking
+ Discovery Based Operations
+ Semantic Ontology Mapping
+ Public Warning Services enablement

Release 3
+ Semantic Querying/Mashup
+ 3GPP SCEF Interworking
  • Non-IP Data Delivery
  • UE reachability Monitoring
  • Device triggering
  • Etc.
+ Transaction Management
+ Service Layer routing
+ Common oneM2M Interworking Framework
  • OCF
  • OPC-UA
  • OSGi
+ oneM2M Conformance Tests and Profiles
+ Security Enhancements
  • Distributed Authorization
  • etc.
+ Ontology Based Interworking

Release 2
+ Time Series Data
+ Flexible Resources that can be customized by app developers (flex container)
+ Semantics Description & Discovery
+ Security Enhancements
  • Dynamic Authorization
  • Content Security
  • E2E Security
+ WebSocket Binding
+ Ontology for Home Area Information Model
+ oneM2M App-ID Registry
+ oneM2M Interworking
  • LWM2M
  • Alljoyn
  • 3GPP Triggerring

Release 1
• Registration
• Discovery
• Security
• Group Management
• Data Management and Repository
• Subscription & Notification
• Device Management
• Communication Mgmt
• Service Charging
• Network Service Exposure
• App & Serivece Mgmt
• HTTP/CoAP/MQTT Bindings

2015   2016   2018   2022

oneM2M Organization

oneM2M is a "global partnership project" that is open to all organizations who can join as members through partner organisations. The project has a steering committee that provides strategic direction and management; and a technical plenary which has total responsibility for the full life-cycle of technical standardization activities spanning industry-needs analysis, technical specifications, interoperability testing and certification.

oneM2M operates a structured governance model with a roadmap for progressive Releases of the standard as well as open and collaborative methods of work.

Partners

Streering Committee
- Finance
- Industry Liaison
- Legal
- Marketing
- Methods/Procedures
- Sustainability

Members/Partners

Technical Plenary
- Work Programme
- Coordination Group
- Methods of Work

Working Groups

RDM	SDS	TDE
Requirements and Domain Models	System Design and Security	Testing and Developers Ecosystem

OneM2M Resources

- **Published Specifications:** http://www.onem2m.org/technical/published-documents
- **Draft specifications:** http://www.onem2m.org/technical/latest-drafts

- **Deploy with oneM2M:** https://www.onem2m.org/using-onem2m/devices-examples
- **oneM2M compliant offerings:** https://www.onem2m.org/using-onem2m/list-of-deployments
- **Develop with oneM2M:** https://www.onem2m.org/using-onem2m/developers
- **Technical Questions:** http://www.onem2m.org/technical/technical-questions
- **Developer Guides:** https://wiki.onem2m.org/index.php?title=Developer_Guides

- oneM2M WiKi
- oneM2M GitLab
- oneM2M Tutorials on GitHub
- oneM2M on StackOverflow
- oneM2M on Hackster.io

- **White Papers:**
  https://www.onem2m.org/resources/white-papers
- **Executive Insights:**
  https://www.onem2m.org/membership/executive-viewpoints

oneM2M membership is a chance to join ranks and collaborate with some of the world's most renowned technology companies that are already building scalable and interoperable IoT systems.

oneM2M members can attend and participate in the oneM2M Technical Plenary and its working groups. Each member has its own vote on contributions. In addition, your membership is your invitation to the Steering Committee, and also to the Technical Committee where we discuss and develop the latest standards in more detail.

For Membership queries, please reach out to:

Secretariat:
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