Semantics of Smart Appliances
Available semantics assets for the interoperability of smart appliances. Mapping into a common ontology as an M2M application layer semantics.
SMART 2013/0077
Study team

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The TNO mission

› TNO connects people and knowledge to create innovations that boost the sustainable competitiveness of industry and well-being of society.

We do this by

› Consultancy
› Contract research
› Testing and certification
› Licences
› Performing statutory assignments

TNO is a not-for-profit Research and Technology Organization (RTO)
Context

› ETSI M2M developed functional architecture. Next step is data models. Many are already developed by other organizations. How can they be re-used?

› In 2012, EC hosted a workshop “Roadmap for the Standardization of Smart Appliances (Energy Consuming and Producing Products)

› Present: E2BA, CECED, Eu.bac, ELC, SGTF, ETSI M2M, CENELEC TC59x WG7, HGI, buildingSmart Int., OASIS oBIX, OSGi.

› Main recommendations:

  › High-level semantic model is needed, including common vocabulary for appliances’ product information, commands, signals, feedback.

  › Agree on a common architecture and open repositories with reusable pieces to create a bridge over the communication layer chaos.

  › ETSI created SMART M2M TC as a follow-up on ETSI M2M
The EC “Semantics of Smart Appliances” project

- **Goal:** Support ETSI SMART M2M as an organization. Provide the material needed to define the relevant tools and data models for the collection of devices that helps the EU to reach its 2020 goals regarding the reduction of greenhouse gas emission and buildings’ energy consumption.

- **Tasks:**
  1. Take stock of existing semantic assets and use case assets
  2. Perform a translation exercise of each model or use case to a common ontology language and subsequently a mapping between these models
  3. Propose a common ontology and document it into ETSI M2M architecture

- **Timing:** finished in March 2015

This is what we have just finished
Current status

› Third Interim Study report available for public review: http://sap.etsi.org

Draft Smart Appliances Reference ontology
Currently it is difficult to interconnect Smart Appliances due to siloed approach.
Interconnecting Smart Appliances in the near future

Light provider
Energy provider
Health provider
IoT provider
IoT provider
IoT provider
Relevant deliverables

› May 2014:
  › D-S1 First interim study report: Covering stock-taking activity of Task 1 and related semantic map

› August 2014:
  › D-S2 Second interim study report: Translation of assets to OWL and mapping. Not exhaustive.
  › D-O1 OWL-files of semantic assets on project site

› January 2015:
  › D-S3 Third interim study report: Unified ontology, and how it fits in ETSI M2M architecture
  › Draft version Smart Appliances Reference ontology (SAREF), on project site

› March 2015:
  › D-S4: Final study report: combining and updating previous study reports
  › D-O2 Smart Appliances Unified Ontology, on project site

› April 1st 2015: 1-day Workshop
› LinkedIn group: http://www.linkedin.com/groups/Workshop-Stakeholders-on-Smart-Appliances-7450648

› Website: http://sites.google.com/site/smartappliancesproject

› SAREF ontology: http://ontology.tno.nl/saref.ttl and http://ontology.tno.nl/saref (documentation)

› Review of reports: http://sap.etsi.org