W3C WoT IG
Thing Description

Status Report
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Motivation

Who are you?

What kind of data do you serve?

How can I access the data/function?

What kind of function do you have?

Atomic use cases: engineering, discovery / identification, plug & play, monitoring, ...
TD-TF Scope

- Clarify and define what the TDL can be used for
- Clarify and define what aspects of a Thing can be described
- Agreement on the three building elements:
  - What is a suitable data model underlying TDL
  - How would a vocabulary used in thing descriptions look like
  - What is an appropriate syntax / serialization format of TDL which is feasible for the Things (may be synchronized with the AP task force)
Web Meetings

- begin: 13th of May 2015; weekly meetings
- 10 x web meetings so far
- participants: 4 – 13 (average 7)
- 10 presentations / contributions
Technical Landscape

Data Model & Vocabulary & TD model
OpenIoT, Semantic Sensor Network (SSN); Spatial Data on the Web Working Group (SDWWG), IPSO, WoT Label

Representation
JSON(-LD), RDF/EXI

Data Type Description
SenML, XSD

Functional Description
Hydra, Functional Semantics for WoT Devices

More details see:
https://www.w3.org/WoT/IG/wiki/Thing_Description
TD Model (Draft)

class TDL

- Property
  - has properties: 1..*
- Data
  - has data: 1..*
  - has resources: 1..*
- Resource
  - has data

has data
Example (LED Lamp)

- **Properties**
  - Name: MyLED123
  - Description: 'Control LED lamp'
  - ContextType: #lampActuator
  - Location: Room 10

- **Data**
  - Name: ColorTemperatureType (simpleType)
    - Type: short
    - Unit: K
  - Name: RGBValuesType (complexType)
    - Name: R Type: byte
    - Name: G Type: byte
    - Name: B Type: byte

- **Resources**
  - Name: colorTemperature
    - ResourceType: writable-stream
    - DataType: ColorTemperatureType
  - Name: rgbValues
    - ResourceType: writable-stream
    - DataType: RGBValuesType
Example for REST with CoAP

- each Thing has a fix resource to retrieve its TD
- depending on the application, subset of the TD can be retrieved (e.g., for discovery: "/.well-known/td/prop"
- a returning link would be also possible
JSON-LD (Snippet)

```json
{
  "@context": "http://w3c.org/wot/td.jsonld",
  "prop": {
    "@context": {
      "name": "http://w3c.org/wot#name",
      "description": "http://w3c.org/wot#description",
      "contextType": {
        "@id": "@type"
      }
    },
    "@id": "http://myled.org/ledThing1/prop",
    "name": "MyLED123",
    "description": "Control LED lamp",
    "contextType": "#lampActuator",
    "location": "room10",
    ...
  },
  "data": ...
}
```
Serialization Size (LED Example)

- **JSON-LD**: 1,8 kBytes
  - plain-text representation

- **EXI/RDF**: 460 Bytes
  - binary representation
Plans for Breakout & Expectations

- Refinement of the TD model and define basic vocabulary
- How to define data types that is served or consumed by a Thing
- Use Cases / Examples using the TDL
- Gap analysis
- Plans for implementations
Questions?