IoT Extensions for Schema.org

Community Teleconference

July 25, 2019

Agenda

- Agenda review
- Admin and community items
- WoT Catalogue
  - Concepts from diverse IoT Standards
- Capability Templates in Markdown
  - Simple submission of iotschema definitions
- One Data Model as a front end to iotschema
  - Conversion of definitions from OneDM to iotschema
- AOB

Updates

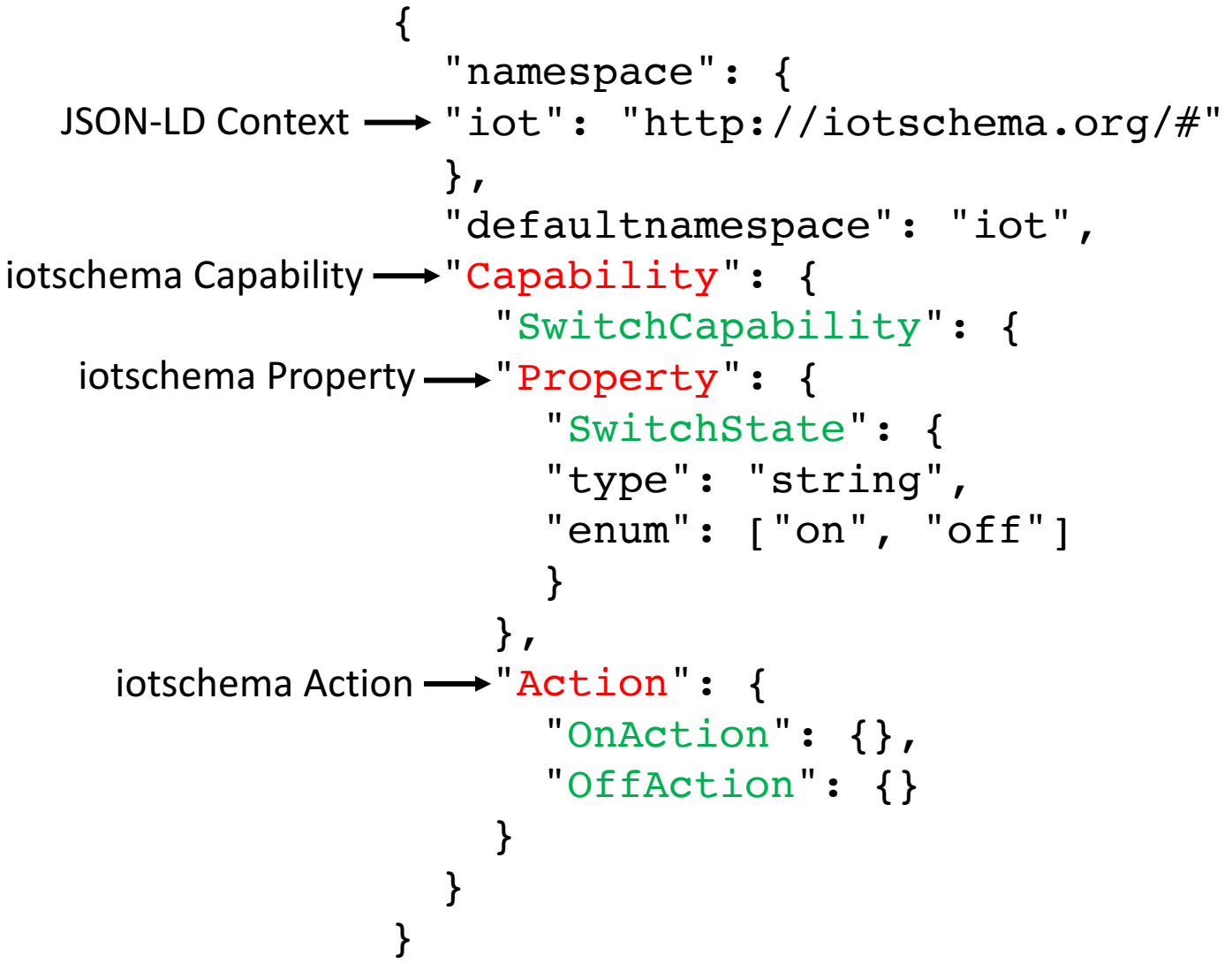
- IETF105 T2TRG/WISHI Hackathon project – Data Model Conversion
  - SDF (One Data Model) to iotschema definition
  - OMA to SDF
  - SDF Schema to CDDL

- Other updates?

One Data Model Update

- One Data Model is a collaboration between device vendors, platform vendors, and SDOs to unify data modeling across industry
- The JSON DSL (SDF) and vocabulary are stable now and examples are being generated
- Examples from OCF, Zigbee, OMA LWM2M, others
- The DSL is a candidate for an easy format to create and maintain iotschema definitions
- Vendor models can be converted to iotschema
- Tools work is in progress
- https://github.com/mjkoster/ODM-Examples

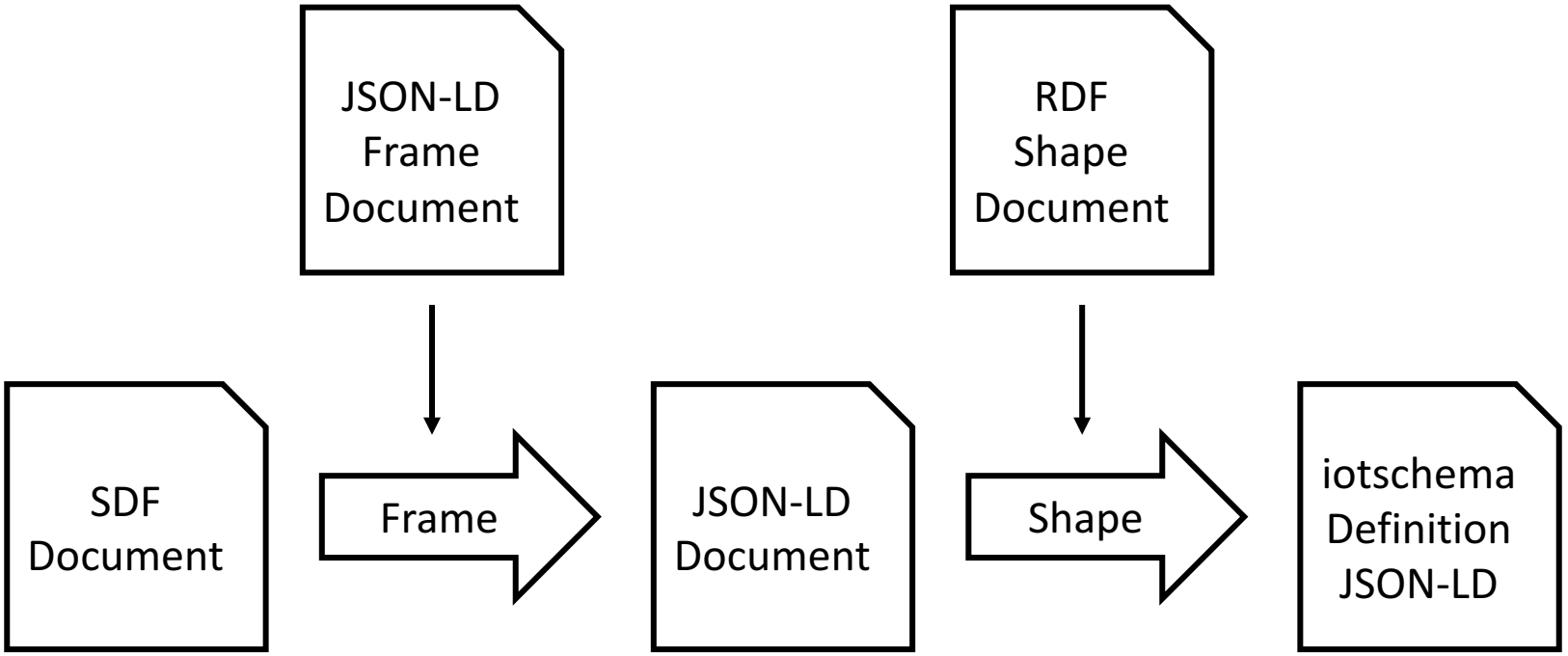
OneDM DSL Example Mapping



Free form Input Format

```
namespace { iot http://iotschema.org/# }
defaultnamespace iot
Capability {
  SwitchCapability {
    Property {
      SwitchState {
        type string
        enum [ on off ]
      }
    }
    Action {
      OnAction {}
      OffAction {}
    }
  }
}
```

Convert an SDF Document to an iotschema Definition



Result (1)

```
{
  "@id": "iot:SwitchCapability",
  "@type": "rdfs:Class",
  "rdfs:label": "SwitchCapability",
  "rdfs:subClassOf": { "@id": "iot:Capability" },
  "iot:providesInteractionPattern": [
    {
    "@id": "st:SwitchState",
    "@id": "st:OnAction",
    "@id": "st:OffAction"
    }
  ]
}
```

Result (2)


```
{
  "@id": "st:SwitchState",
  "@type": "rdfs:Class",
  "rdfs:label": "SwitchStateProperty",
  "rdfs:subClassOf": {
    "@id": "iot:Property"
  },
  "iot:providesOutputData": {
    "@id": "st:SwitchData"
  }
},
{
  "@id": "st:SwitchData",
  "@type": "rdfs:Class",
  "rdfs:label": "SwitchData",
  "rdfs:subClassOf": {
    "@id": "schema:PropertyValue"
  },
  "schema:propertyType": {
    "@id": "schema:String"
  }
}
```

Result (3)


```
{
  "@id": "st:On",
  "@type": "rdfs:Class",
  "rdfs:label": "TurnOnAction",
  "rdfs:subClassOf": {
    "@id": "iot:Action"
  }
},
{
  "@id": "st:Off",
  "@type": "rdfs:Class",
  "rdfs:label": "TurnOffAction",
  "rdfs:subClassOf": {
    "@id": "iot:Action"
  }
}
```

Tools next steps

- Create the tool flow to do this
- Integrate with the submission form

- Experimental area of schema.org?

AOB

- Other items?