

W3C WoT IG Thing Description

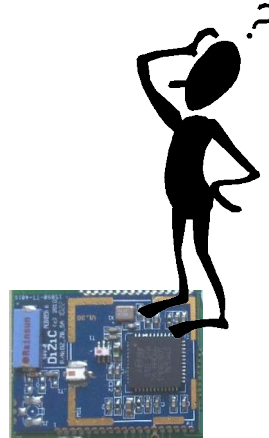
Status Report
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IRTF T2T, Yokohama

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Motivation

What kind of data do you serve?

Who are you?



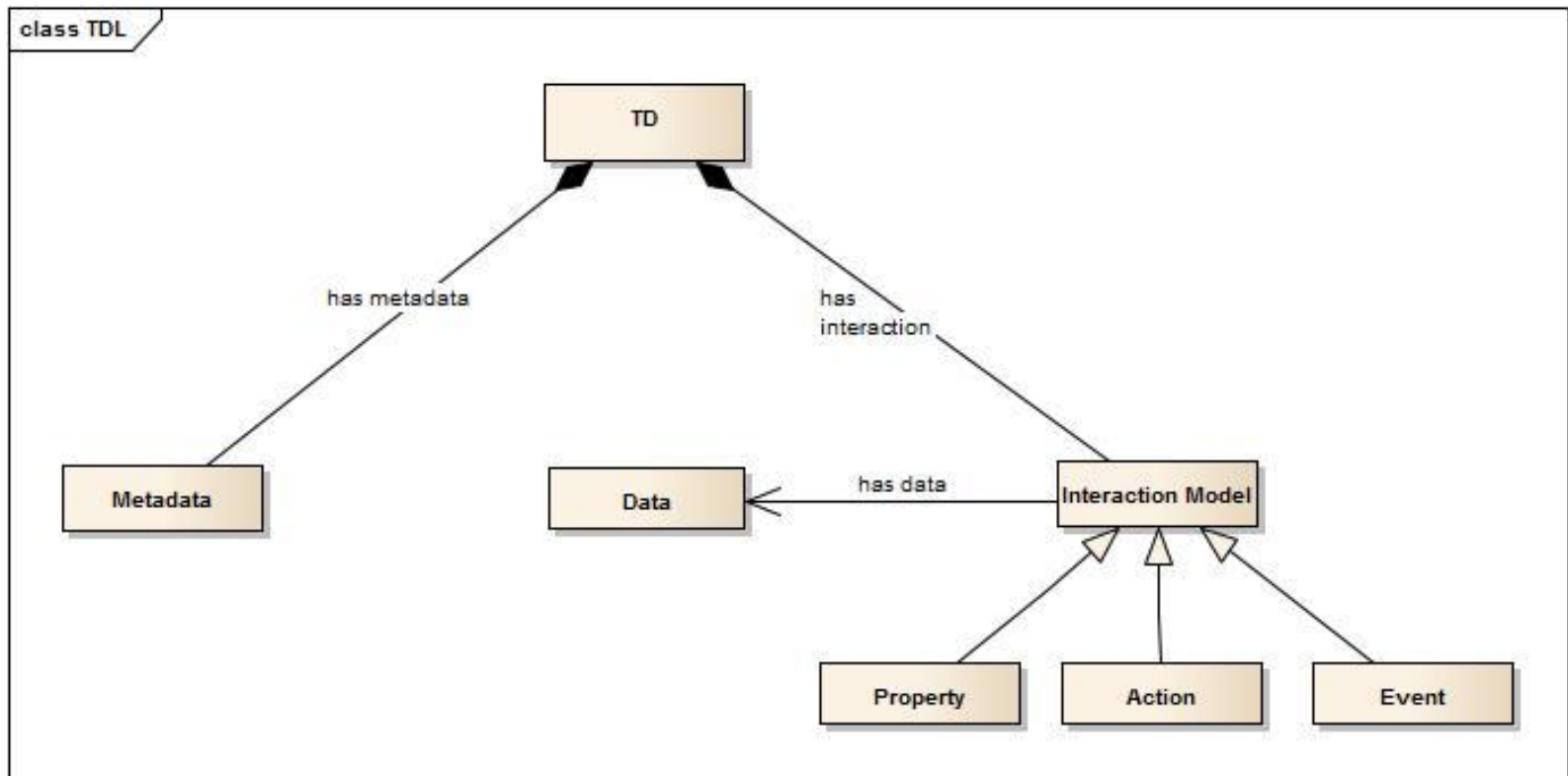
How can I access the data/function?

What kind of function do you have?

Atomic use cases: engineering, discovery / identification, plug & play, monitoring, ...

TD Model

Current working assumption for WoT plugfest:



Also see: <https://github.com/w3c/wot/blob/master/TF-TD/Tutorial.md>

Metadata

- Metadata is used to provide some generic information which may be not that relevant at runtime
 - Name (e.g., "MyLamp")
 - Protocol (e.g., HTTP, CoAP, XMPP, etc.)
 - Encoding (e.g., JSON, XML, EXI, etc.)

Property

- used to serve properties of a Thing which can be static and/or dynamic
- also observable
 - Name (e.g., "temperatureValue")
 - OutputData (e.g., xsd:float)
 - Writeable (=false/true)
 - Stability (is optional; e.g. "5ms")
















Actions

- invokes actions on a Thing which may or may not result in state change
- typically starts a process for a while (e.g., brew a coffee, turn traffic light to green, etc.)
 - Name (e.g., "turnGreen")
 - InputData
 - OutputData (e.g., "xsd:boolean")

TD Sample in JSON-LD

```
{
  "@context": "http://w3c.github.io/wot/w3c-wot-td-context.jsonld",
  "metadata": {
    "name": "Traffic Light Thing",
    "protocols" : {
      "CoAP" : {
        "uri" : "coap://192.168.1.242:5683",
        "priority" : 1
      }
    },
    "encodings": [
      "JSON"
    ]
  },
  "interactions": [
    {
      "@type": "Property",
      "name": "lightStatus",
      "outputData": "xsd:string",
      "writable": false
    }, {
      "@type": "Action",
      "name": "turnGreen",
      "inputData": "",
      "outputData": ""
    }, {
      "@type": "Action",
      "name": "turnRed",
      "inputData": "",
      "outputData": ""
    }
  ]
}
```

Implementations & Plugfest

 brightnessProximitySensor.jsonld	Darkos Thing Descriptions for Demo
 car.jsonld	Fix json format.
 door.jsonld	* Add 3 new jsonld files in the TD Samples folder from Fraunhofer FOKUS:
 fan.jsonld	Darkos Thing Descriptions for Demo
 fancy_led.jsonld	adjusted action to accept parameter
 led.jsonld	(same as previous)
 led_f.jsonld	Update led_f.jsonld
 led_for_pi.jsonld	Darkos Thing Descriptions for Demo
 led_v02.jsonld	update TD tutorial
 outlet.jsonld	* Add 3 new jsonld files in the TD Samples folder from Fraunhofer FOKUS:
 sensor_I2C.jsonld	Update sensor_I2C.jsonld
 temperatureSensor.jsonld	Darkos Thing Descriptions for Demo
 traffic light.jsonld.exi	rename
 traffic_light.jsonld	traffic light thing descriptions in plain Json-LD and EXI format
 weather.jsonld	* Add 3 new jsonld files in the TD Samples folder from Fraunhofer FOKUS:

Also see: <https://github.com/w3c/wot/tree/master/TF-TD/TD%20Samples>

TD Interpreter & Client

ThingClient

LED (local) demo.jsonld demo.jsonld.exi

coap://localhost:5683/thingsMyLED (APPLICATION_JSON)

Properties

Get all

colorTemperature:

xsd:unsignedShort

Get

Observe

Put

rgbValueRed:

xsd:unsignedByte

Get

Observe

rgbValueGreen:

xsd:unsignedByte

Get

Observe

rgbValueBlue:

xsd:unsignedByte

Get

Observe

Actions

ledOnOff:

xsd:boolean

Start 'ledOnOff'

fadeIn:

xsd:unsignedByte

Start 'fadeIn'

fadeOut:

xsd:unsignedByte

Start 'fadeOut'

Events (TODO)

colorTemperatureChanged:

Add more "Things" ...

Add JSON-LD File

Add JSON-LD URI

Bindings

- First ideas of bindings for HTTP/CoAP
(also see <https://github.com/w3c/wot/blob/master/TF-TD/Tutorial.md>)

- E.g.,

Request:

GET coap://192.168.1.242:5683/lightStatus

Response:

{"value": "green"}

- Open discussions: HATEOAS

Breakout

- Feedback of the Plugfest
 - What is missing in TD?
 - What should be changed?
- TD optimization
 - even small (valid) TD reach already 100-1000 bytes
 - check a binary equivalent with the W3C EXI group
- How to enrich TD with further context?
 - Domain context (e.g., building automation, smart grid, etc.)
 - Topics from SDW WG

Next

- Security consideration in TD
- Collect more example of non REST-based approaches
- Setup concrete binding guide for different kind of protocols
- Setup plans for next plugfest (e.g. T2T interaction?)
- Exchange with SDW WG
- ...