# LwM2M-WoT integration with iot.schema.org semantics

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WISHI 20.9.2018

#### Architecture Vocabularies for semantic annotations 包 **=** iot.schema.org other sources... Standard W3C **WoT Implementations** 8 Store generated TD Where the W3C WoT LwM2M - TD Generator magic happens Thing Directory Retrieve information Retrieve TD about LwM2M clients of LwM2M Client Standard (Leshan) LwM2M Implementations 8 **a** LwM2M CoAP Standard CoAP implementation W3C WoT Application LwM2M Server LwM2M Client (no knowledge of LwM2M needed)

### Eclipse Leshan config file for LwM2M objects

```
"name": "Temperature",
"id": 3303,
"instancetype": "multiple",
"mandatory": false,
"description": "This IPSO object should be used with a
temperature sensor...",
"resourcedefs": [
      "id": 5601.
      "name": "Min Measured Value",
      "operations": "R",
      "instancetype": "single",
      "mandatory": false,
      "type": "float",
      "range": "",
      "units": "Defined by Units resource.",
      "description": "The minimum value measured by
      the sensor since power ON or reset"
"id": 5602,
"name": "Max Measured Value",
(etc.)
```

## Proto config file with LwM2M/IPSO ID -> (iot.schema.org) semantics mapping

```
"3301" : {
    "object": "Illuminance Sensor",
    "semantics": ["iot:IlluminanceSensing"],
    "resources": {
      "5700" : {
        "semantics": ["Property", "iot:Illuminance"]
  "3303" : {
    "object": "Temperature Sensor",
    "semantics": ["iot:TemperatureSensing"],
    "resources": {
      "5700" : {
        "semantics": ["Property", "iot:Temperature"]
(etc.)
```

#### Example generated TD (retrieved from Thing Directory)

```
"@context": "https://w3c.github.io/wot/w3c-wot-td-context.jsonId",
"id": "urn:dev:eid:3881:wishi-lwm2m-ak-foo",
"@type": "Thing",
"name": "wishi-lwm2m-ak-foo",
 "actions": {
  "DeviceReboot": {
   "@type": "Action",
   "forms": [
   { "href": "coap://31.133.155.139:51234/3/0/4",
     "mediaType": "application/octet-stream"
  (etc...) ]
"properties": {
  "DeviceErrorCode": {
  "@type": "Property",
   "forms": [
   { "href": "coap://31.133.155.139:51234/3/0/11",
     "mediaType": "text/plain"
   }],
```

```
"TemperatureSensorValue": {
    "@type": [
        "Property",
        "http://iotschema.org/Temperature"
],
    "forms": [
        {
            "href": "coap://31.133.155.139:51234/3303/0/5700",
            "mediaType": "text/plain"
        }
        ],
        "observable": "true",
        "writable": "false"
        }
}
```