Atoms
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What are Atoms?

• Building blocks of the IoT

• We compose **Models** from **Atoms**

• Atoms are / should be non-decomposable
Atom Requirements

• Be URL addressable (Linked Data)
• Be clear - intended target is humans!
• Be open ended - you don't know everything Be correct - faithfully represent the world
• Minimize assumptions
IOTDB Atoms

• **iot**: core definitions - types, relationships…

• **iot-purpose**: vocabulary for Things to describe how do they actuate / sense

• **iot-facet**: vocabulary for Things to describe how what they do
CREATE MODEL HueLight WITH
  schema:name = "Hue Light",
schema:description = "Philips Hue colored light",
  iot:facet = iot-facet:lighting.light
ATTRIBUTE on WITH
  schema:name = "on",
  iot:purpose = iot-purpose:on,
  iot:type = iot:type.boolean,
  iot:sensor = true,
  iot:actuator = true
ATTRIBUTE color WITH
  schema:name = "color",
  iot:purpose = iot-purpose:color,
  iot:type = iot:type.string,
  iot:format = iot:format.color
  iot:sensor = true,
  iot:actuator = true
;
"@id": "", 
"@type": "iot:Model",
"schema:name": "Hue Light",
"schema:description": "Philips Hue colored light",
"iot:facet": [
  "iot-facet:lighting",
  "iot-facet:lighting.light"
],
"iot:attribute": [
  {
    "@type": "iot:Attribute",
    "@id": "#on",
    "schema:name": "on",
    "iot:purpose": "iot-purpose:on",
    "iot:type": "iot:type.boolean",
    "iot:read": true,
    "iot:write": true,
    "iot:sensor": true,
    "iot:actuator": true
  },
  {
    "@type": "iot:Attribute",
    "@id": "#color",
    "schema:name": "color",
    "iot:purpose": "iot-purpose:color",
    "iot:type": "iot:type.string",
    "iot:format": "iot:format.color",
    "iot:read": true,
    "iot:write": true,
    "iot:sensor": true,
    "iot:actuator": true
  }
]
• https://iotdb.org/pub
• `iot`: core definitions
• `iot-purpose`: sensor and actuators
• `iot-unit`: units of measure
• `iot-facet`: facets (what does it do)
• GitHub https://github.com/dpjanes/…
• …/vocabulary – source
• …/homestar-hue/models/HueLight.iotql
Related

- There's lots of stuff out there!
- May be reusable in part or in whole
  - `schema.org` - built in!
  - Project Haystack - Smart Buildings
  - SAREF - Smart Appliances
  - SignalK - Marine
  - OGC Sensors
Get in touch!

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