

# Converting interaction models between SDF and Matter

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# Matter

## Introduction

- IP-based connectivity standard
- Designed for the smart home
- **Main goal:** increase compatibility

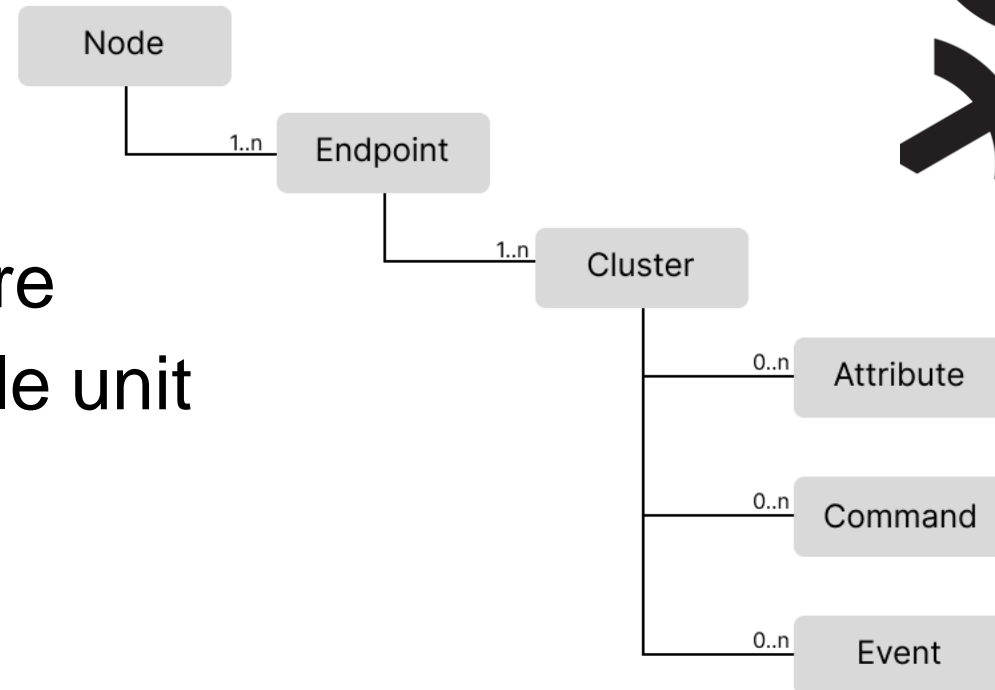


# Matter

Data model

→ Hierarchical structure

→ Nodes as adressable unit



# Mapping between SDF and the Matter data model

→ Direct and indirect mapping

Matter data model	Semantic Definition Format
Node	SDF model
Endpoint	sdfThing
Cluster	sdfObject
Attribute	sdfProperty
Command	sdfAction
Event	sdfEvent

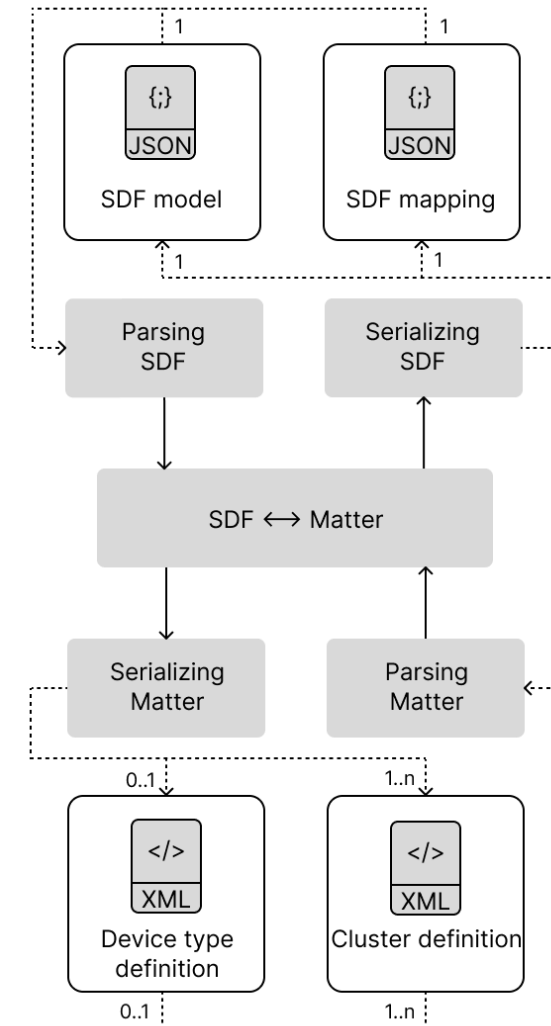
# Conversion tool

→SDF

- SDF model and mapping

→Matter

- Device type and Cluster definitions



# Example conversion

```
"sdfObject": {  
  "Switch": {  
    "sdfProperty": {  
      "value": {  
        "description":  
"The state of the switch; false for off and true for on.",  
        "type": "boolean"  
      }  
    },  
    "sdfAction": {  
      "on": {  
        "description":  
"Turn the switch on; equivalent to setting value to true."  
      },  
      "off": {  
        "description":  
"Turn the switch off; equivalent to setting value to false."  
      },  
      "toggle": {  
        "description":  
"Toggle the switch; equivalent to setting value to its complement."  
      }  
    }  
  }  
}
```



```
<?xml version="1.0"?>  
<cluster xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="types types.xsd cluster cluster.xsd"  
  id="0" name="Switch" revision="1">  
  <attributes>  
    <attribute id="0" name="value" summary="The state of the switch; false for off and true for on." type="bool">  
      <optionalConform />  
    </attribute>  
  </attributes>  
  <commands>  
    <command id="2" name="toggle" summary="Toggle the switch; equivalent to setting value to its complement."  
      direction="commandToServer" response="N">  
        <optionalConform />  
      </command>  
    <command id="1" name="off" summary="Turn the switch off; equivalent to setting value to false."  
      direction="commandToServer" response="N">  
        <optionalConform />  
      </command>  
    <command id="0" name="on" summary="Turn the switch on; equivalent to setting value to true."  
      direction="commandToServer" response="N">  
        <optionalConform />  
      </command>  
  </commands>  
</cluster>
```

# Semantic Definition Format

## Evaluation

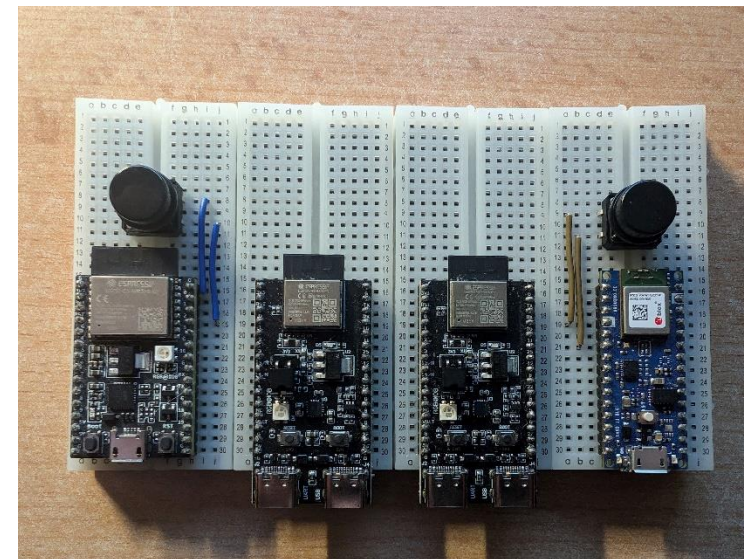
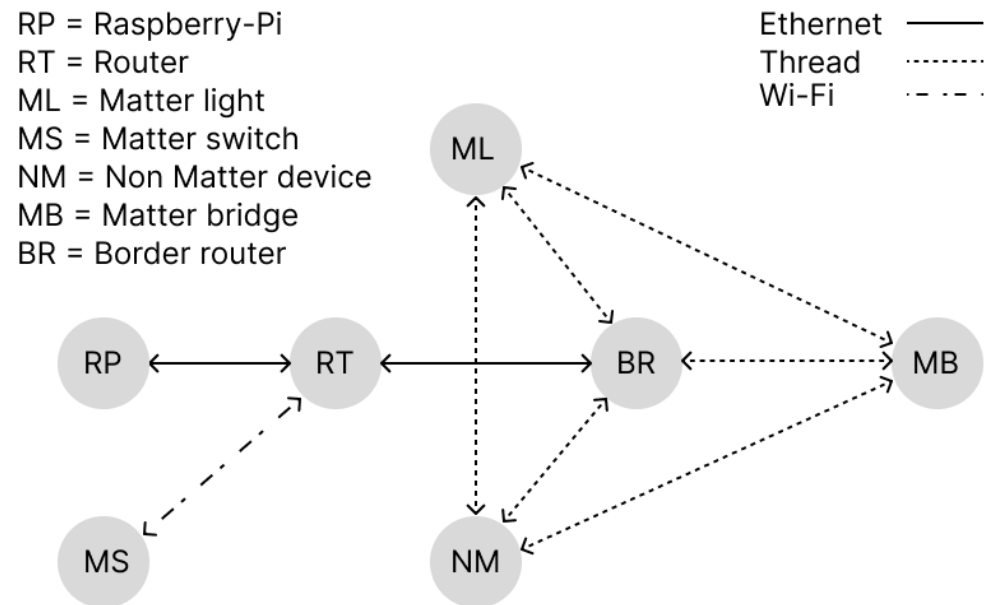
- **SDF extension**: Mapping
  - Enabled a comprehensive mapping
- Successful implementation of a converter
- Integration into a Matter bridge

# Integration into a Matter bridge

→ Matter  SDF  LwM2M  
→ Bidirectional communication



# Integration into a Matter bridge



## Further information

- **Repository:** sdf-matter-converter
  - Including a demonstrator
- Soon to be released bachelor thesis