

MQTT

JSON

0.0.1

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-
-
- Topic
-
-



200



TSL Thing Specification Language

TSL JSON TSL

TSL

512 KB
256 KB 256*1024

JSON

TSL

TSL

```
{
  "schema": "URL ",
  "profile": {
    "productKey": "ProductKey "
  },
  "properties": [
    {
      "identifier": " ",
      "name": " ",
      "accessMode": "r rw ",
      "required": "true false ",
      "dataType": {
        "type": "int float double text date String UTC
        bool 0 1 int enum int bool 0 1 struct
```

```

    "min": "int float double",
    "max": "int float double",
    "unit": "int float double",
    "unitName": "int float double",
    "size": "512 array",
    "step": "text enum",
    "length": "10240 text",
    "0": "0 bool",
    "1": "1 bool",
    "item": {
        "type": "array"
    }
}
],
"events": [
{
    "identifier": "post",
    "name": "",
    "desc": "",
    "type": "info alert error",
    "required": "true false",
    "outputData": [
        {
            "identifier": "",
            "name": "",
            "dataType": {
                "type": "int float double text date String UTC
bool 0 1 int enum int bool 0 1 struct
7 specs:[{}] array int double float
text struct",
                "specs": {
                    "min": "int float double",
                    "max": "int float double",
                    "unit": "int float double",
                    "unitName": "int float double",

```

```

        "size": "uint8_t[512] array[uint8_t] ",
        "step": "uint8_t text[] enum[uint8_t] ",
        "length": "uint8_t[10240] text[uint8_t] ",
        "0": "0uint8_t bool[uint8_t] ",
        "1": "1uint8_t bool[uint8_t] ",
        "item": {
            "type": "uint8_t array[uint8_t] "
        }
    }
}

},

"method": "uint8_t[10240] identifier[uint8_t] "
}

],

"services": [
{
    "identifier": "uint8_t[10240] set/get[uint8_t] accessMode[uint8_t] ",
    "name": "uint8_t ",
    "desc": "uint8_t ",
    "required": "uint8_t[10240] true[uint8_t] false[uint8_t] ",
    "callType": "async[uint8_t] sync[uint8_t] ",
    "inputData": [
        {
            "identifier": "uint8_t ",
            "name": "uint8_t ",
            "dataType": {
                "type": "uint8_t : int[uint8_t] float[uint8_t] double[uint8_t] text[uint8_t] date[] String[] UTC
uint8_t bool[] 0[] 1[] int[uint8_t] enum[] int[uint8_t] bool[uint8_t] 0[] 1[uint8_t] struct
uint8_t[10240] 7[uint8_t] "specs":[{}][uint8_t] array[uint8_t] int[] double[] float
[] text[] struct[] ",
                "specs": {
                    "min": "uint8_t int[] float[] double[uint8_t] ",
                    "max": "uint8_t int[] float[] double[uint8_t] ",
                    "unit": "uint8_t int[] float[] double[uint8_t] ",
                    "unitName": "uint8_t int[] float[] double[uint8_t] ",
                    "size": "uint8_t[10240] 512[] array[uint8_t] ",
                    "step": "uint8_t text[] enum[uint8_t] ",
                    "length": "uint8_t[10240] text[uint8_t] ",
                    "0": "0uint8_t bool[uint8_t] ",

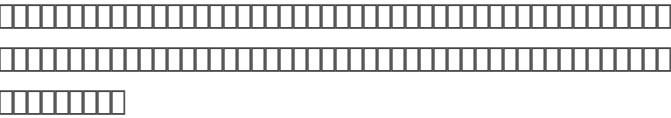
```

```

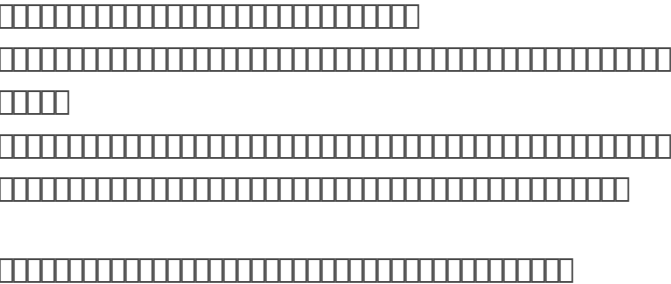
        "1": "1" bool false,
        "item": {
            "type": "array"
        }
    }
},
"outputData": [
    {
        "identifier": " ",
        "name": " ",
        "dataType": {
            "type": "int float double text date String UTC
bool 0 1 int enum int bool 0 1 struct
"specs":[{ }] array int double float
text struct ",
        "specs": {
            "min": " int float double ",
            "max": " int float double ",
            "unit": " int float double ",
            "unitName": " int float double ",
            "size": " 512 array ",
            "step": " text enum ",
            "length": " 10240 text ",
            "0": "0" bool false,
            "1": "1" bool false,
            "item": {
                "type": "array"
            }
        }
    }
},
"method": " identifier "
}
],
// TSL
"functionBlockId": " ID ",
"functionBlockName": " ",

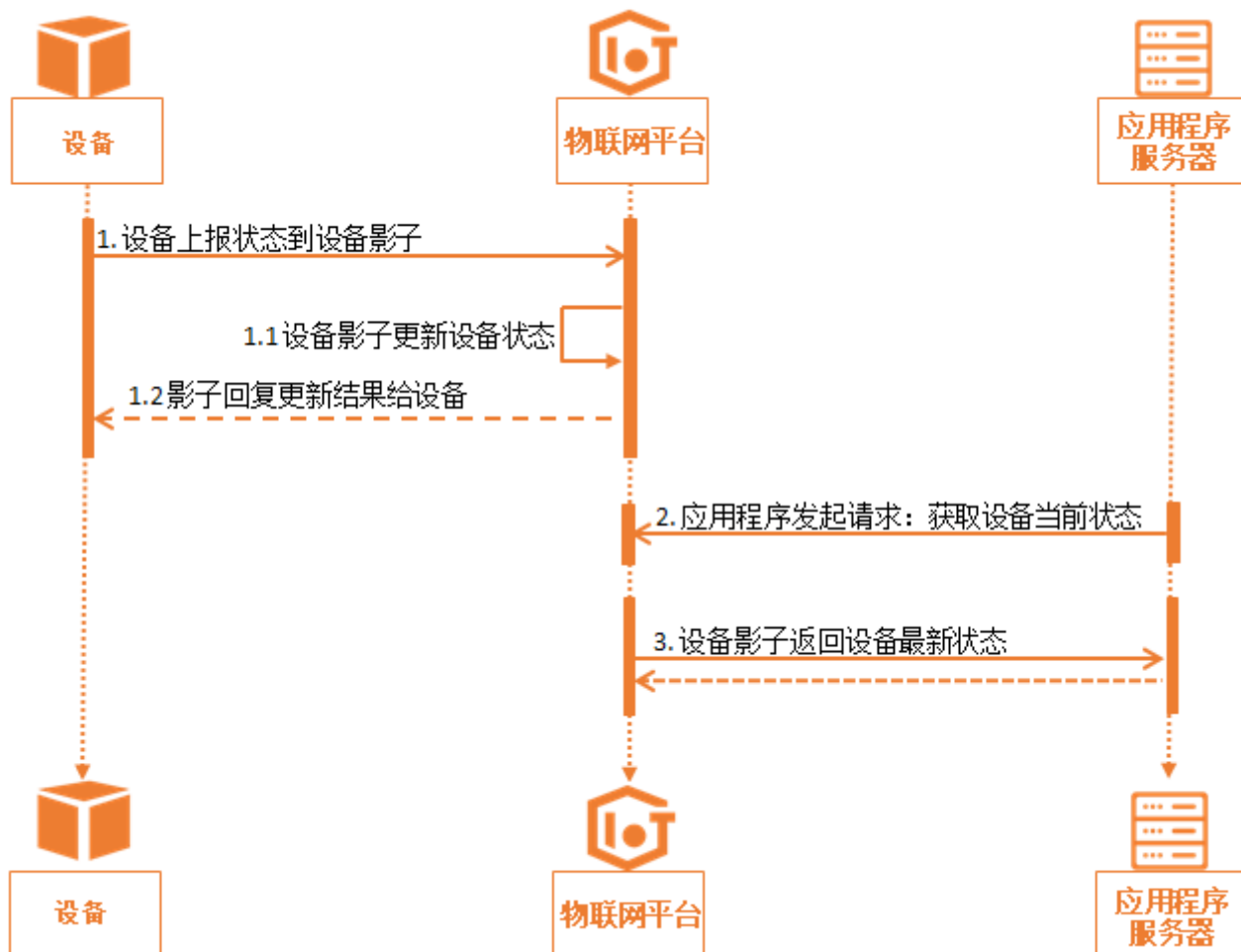
```

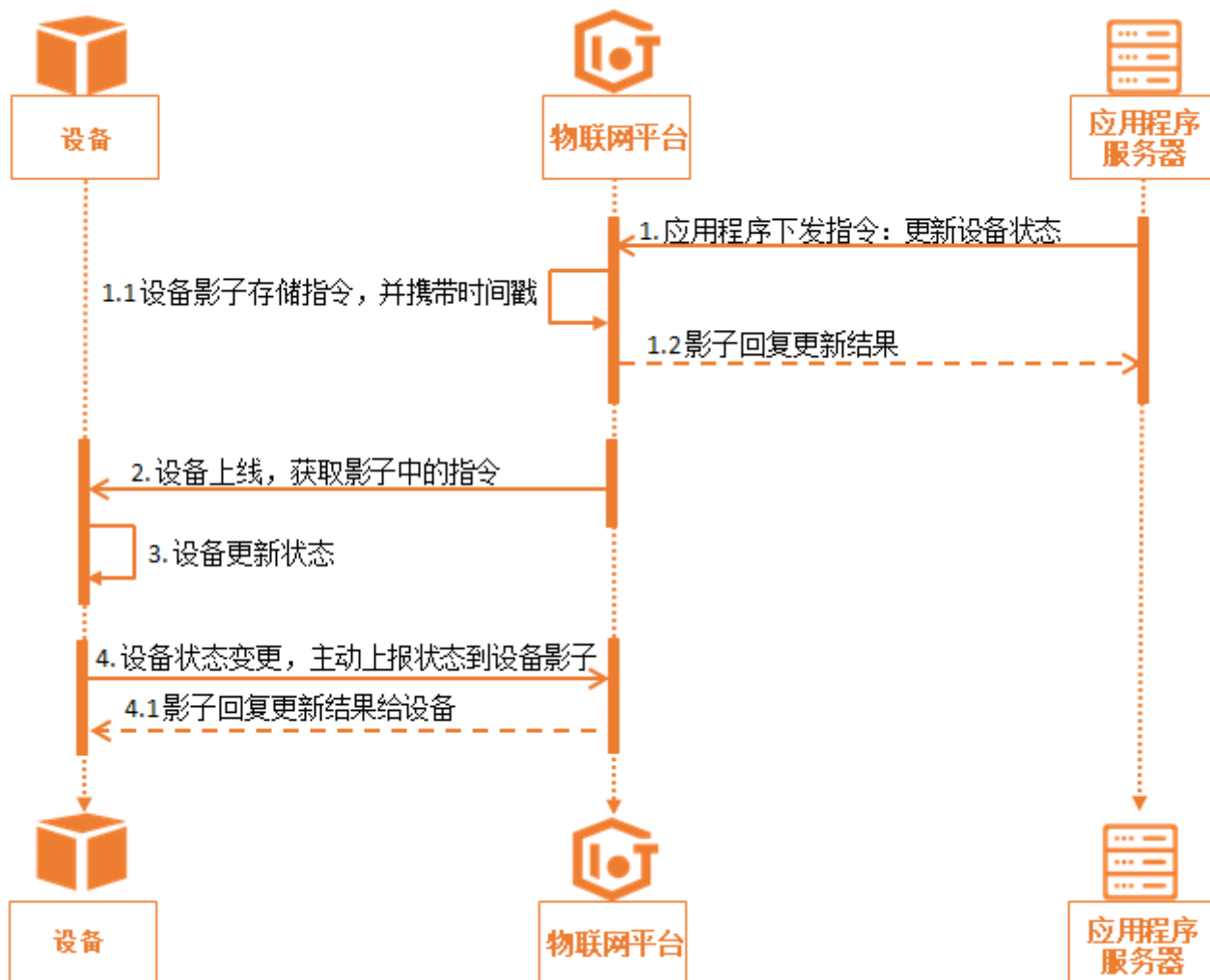
[illegible]



JSON







JSON

JSON 格式

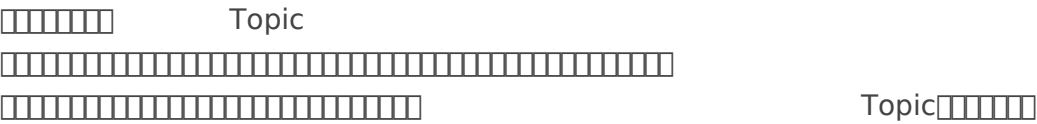
```
{
  "state": {
    "desired": {
      "color": "RED",
      "sequence": [
        "RED",
        "GREEN",
        "BLUE"
      ]
    },
    "reported": {
      "color": "GREEN"
    }
  }
}
```

```
    }
  },
  "metadata": {
    "desired": {
      "color": {
        "timestamp": 1469564492
      },
      "sequence": {
        "timestamp": 1469564492
      }
    },
    "reported": {
      "color": {
        "timestamp": 1469564492
      }
    }
  },
  "timestamp": 1469564492,
  "version": 1
}
```

JSON

desired	<div>desired</div> <div>desired</div>
reported	<div>reported</div> <div>reported</div> <div>reported</div> <div>reported</div>
metadata	<div>metadata</div> <div>Epoch</div>
timestamp	<div>timestamp</div>


```
        "RED"
    ]
}
}
```



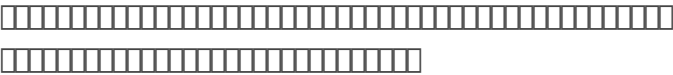
Topic



```
/shadow/update/${YourProductKey}/${YourDeviceName}
```



```
/shadow/get/${YourProductKey}/${YourDeviceName}
```



ProductKey a1PbRCF**** DeviceName lightbulb QoS=1
Topic





1. 设备上报最新状态到影子 Topic /shadow/update/a1PbRCF****/lightbulb
影子回复更新结果给设备端 影子内容JSON持久化到数据库

```
{
  "method": "update",
  "state": {
    "reported": {
      "color": "red"
    }
  },
  "version": 1
}
```

设备上报最新状态到影子 Topic /shadow/update/a1PbRCF****/lightbulb
影子回复更新结果给设备端 影子内容JSON持久化到数据库

state 影子内容JSON持久化到数据库 reported 影子内容JSON持久化到数据库
reported 影子内容JSON持久化到数据库

version 影子内容JSON持久化到数据库
影子内容JSON持久化到数据库

影子内容JSON持久化到数据库 version 影子内容JSON持久化到数据库 -1 影子内容JSON持久化到数据库
影子内容JSON持久化到数据库

0

2. 影子内容JSON持久化到数据库

```
{
  "state": {
    "reported": {
      "color": "red"
    }
  },
}
```

```

"metadata": {
  "reported": {
    "color": {
      "timestamp": 1469564492
    }
  }
},
"timestamp": 1469564492,
"version": 1
}

```

3.

/shadow/get/a1PbRCF****/lightbulb

Topic

• Topic

```

{
  "method": "reply",
  "payload": {
    "status": "success",
    "version": 1
  },
  "timestamp": 1469564576
}

```

• Topic

```

{
  "method": "reply",
  "payload": {
    "status": "error",
    "content": {
      "errorcode": "${errorcode}",
      "errormessage": "${errormessage}"
    }
  },
  "timestamp": 1469564576
}

```

☐ 2.

errorCode	errorMessage
400	Invalid JSON
401	Invalid method
402	Invalid state
403	Invalid version
404	Invalid reported
405	Invalid reported
406	Invalid method
407	Invalid
408	Invalid reported 128
409	Invalid
500	Invalid







4.



Topic





-  _____
-  TSL  _____
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-  _____
-  _____