

NIPC update

ASDF working group Interim meeting

Bart Brinckman, Rohit Mohan, Braeden Sanford

25/02/2025

NIPC status since last interim (20250126)

- NIPC repo:

<https://github.com/ietf-wg-asdf/asdf-nipc>

- limited updates to OpenAPI model based on implementation feedback & learnings in the last month
- Sample SDF models
- Working on draft04 text
- A few more updates before publishing draft04

- Open-Source project:

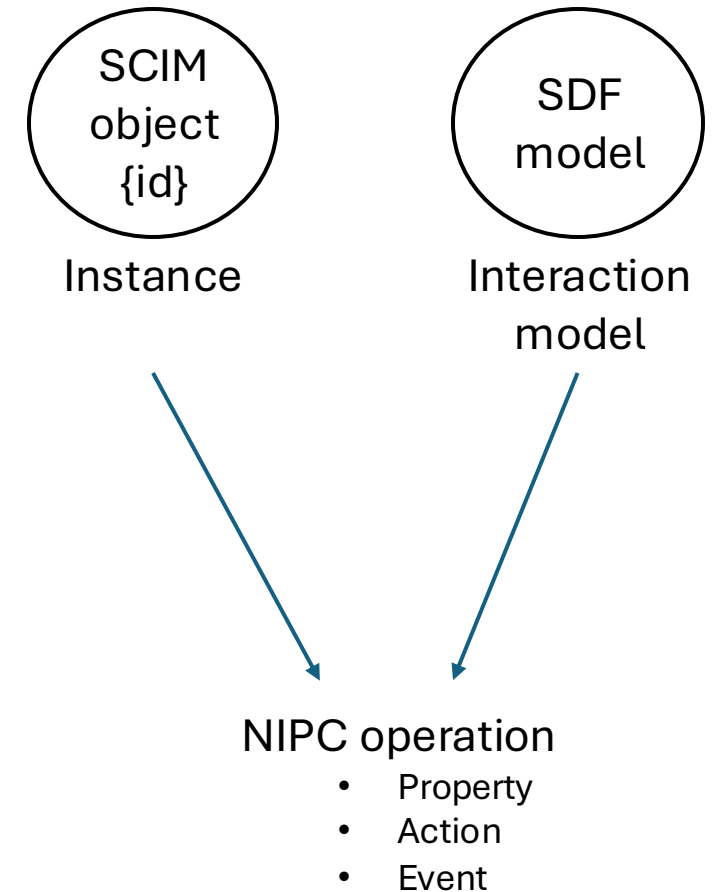
<https://github.com/iot-onboarding/tiedie>

- Contributions & comments welcome!

NIPC Architecture

NIPC operations leverage SCIM objects {id} (device or group id) in the path.

- 1) Registering NIPC properties, actions & events: declare an SDF model with protocol mapping
 - NIPC registration API's: register an SDF model for a device-id or group-id
 - Include a reference in the SCIM object for a group or device
- 2) NIPC operations: properties, actions & events:
 - Operations leverage SDF affordances defined in a registration
 - Optionally protocol mappings can be used directly in NIPC APIs
- 3) NIPC event publishing
 - Pub/sub event interface: Broadcasts, streaming events, connection state
 - CBOR-based (over MQTT or HTTP)



Protocol Mapping in SDF

- Protocol mapping is extensible to new protocols (IANA registration required)
- Available Protocol mappings:
 - Property
 - Event
 - Broadcast
 - Service discovery
 - Protocol specific error codes
- Protocol mapping can be leveraged in SDF, or in a NIPC API.

```
"sdfProperty": {  
  "heartrate": {  
    "description": "The current measured heart rate",  
    "type": "number",  
    "unit": "beat/min",  
    "observable": false,  
    "writable": false,  
    "protocolMap": {  
      "ble": {  
        "serviceID": "12345678-1234-5678-1234-56789abcdef4",  
        "characteristicID": "12345678-1234-5678-1234-56789abcdef4"  
      }  
    }  
  }  
}
```

Next steps

- Finalize implementation
- Finish draft04 text
- Integrate an SDF Reference in SCIM object
- REview draft04 by ASDF working group

Discussion