LPWAN WG

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Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

BCP 9 (Internet Standards Process)
BCP 25 (Working Group processes)
BCP 25 (Anti-Harassment Procedures)
BCP 54 (Code of Conduct)
BCP 78 (Copyright)
BCP 79 (Patents, Participation)
https://www.ietf.org/privacy-policy/ (Privacy Policy)
Reminder:

Minutes are taken *
This meeting might be recorded **
Presence is logged ***

* Scribe; please contribute online to the minutes at: https://etherpad.tools.ietf.org/p/lpwan
** Recordings and Minutes are public and may be subject to discovery in the event of litigation.
*** From the Webex login
Agenda bashing

17:05  Opening, agenda bashing (Chairs)  10mn
  • Note-Well, Scribes, Agenda Bashing
  • Last time todos
  • Status of drafts
  • IETF 104

17:15  Data model for SCHC (Laurent)  20mn

17:35  Preparation of IETF 104  10mn

17:45  AOB  15mn
### Milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 2019</td>
<td>Submit CoAP compression mechanism to the IESG for publication as a Proposed Standard</td>
</tr>
<tr>
<td></td>
<td>draft-ietf-lpwan-coap-static-context-hc</td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td>Submit IP/UDP compression and fragmentation mechanism to the IESG for publication as a Proposed Standard</td>
</tr>
<tr>
<td></td>
<td>draft-ietf-lpwan-ipv6-static-context-hc</td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td>Submit LPWAN specification to the IESG for publication as an Informational Document</td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td>Adopt CoAP compression mechanism as a WG item</td>
</tr>
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<td>Adopt IP/UDP compression and fragmentation mechanism as a WG item</td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td>Adopt LPWAN specifications as WG item</td>
</tr>
</tbody>
</table>
Tentative schedule

- **February 15th**
  - Recharter – *Waiting for IOT Directorate Review*
    - Carsten reviewed Compression, working on Fragmentation

- **By IETF 104 cutoff:**
  - All SCHC over foo docs refreshed - **DONE**
  - ICMP / management draft? - ?
# IETF 104 Meeting

<table>
<thead>
<tr>
<th>Time</th>
<th>Session II</th>
</tr>
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<tbody>
<tr>
<td>16:10-18:10</td>
<td>Tuesday Afternoon session II</td>
</tr>
<tr>
<td>M</td>
<td>Karlin 3</td>
</tr>
<tr>
<td>M</td>
<td>Grand Ballroom</td>
</tr>
<tr>
<td>LL</td>
<td>Congress Hall 1</td>
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<tr>
<td>M</td>
<td>Karlin 1/2</td>
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<tr>
<td>LL</td>
<td>Congress Hall 3</td>
</tr>
<tr>
<td>LL</td>
<td>Congress Hall 2</td>
</tr>
<tr>
<td>L</td>
<td>Berlin/Brussels</td>
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<tr>
<td>L</td>
<td>Athens/Barcelona</td>
</tr>
</tbody>
</table>
Data Model

Laurent Toutain

Interim, March 13th, 2019
Why a data model

- draft-ietf-lpwan-ipv6-static-context-hc-18 focuses on compression and fragmentation mechanisms.
  - Rules are defined in an “abstract” manner
- Data model to represent the rules:
  - Cover draft-ietf-lpwan-ipv6-static-context-hc-18 and coap
    - Compression
    - Fragmentation
  - Easily extendable:
    - New fields, new MO, new CDA,…

- Yang and COREConf:
  - Study the impact on CBOR of Yang choices.
Interim, March 13th, 2019

**ruleID** => value/length

### Compression

- **Globally unique field ID:**
  - IPv6.version
  - Length in bits
  - Integer, String Array
  - Keywords + parameters

### Rule N

<table>
<thead>
<tr>
<th>Field 1</th>
<th>FL</th>
<th>FP</th>
<th>DI</th>
<th>Target Value</th>
<th>Matching Operator</th>
<th>Comp/Decomp Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field 2</td>
<td>FL</td>
<td>FP</td>
<td>DI</td>
<td>Target Value</td>
<td>Matching Operator</td>
<td>Comp/Decomp Act</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Field N</td>
<td>FL</td>
<td>FP</td>
<td>DI</td>
<td>Target Value</td>
<td>Matching Operator</td>
<td>Comp/Decomp Act</td>
</tr>
</tbody>
</table>

**Keywords**

- Rule 1

**Integer, String Array**

**Keywords + parameters**

**Fragmentation**
Yang model

pyang --generate-sid-file 60000:100 --list-sid -f
tree simple.yang
Yang tree

module: simple
  +--rw schc-context
    +--rw all-rules* [rule-id]
      +--rw rule-id
      +--rw rule-id-length? uint16
    +--rw (rule-nature)?
      +--:(fragmentation)
        | +--rw dtagsize? uint8
        | +--rw wsize? uint8
        | +--rw fcsize? uint8
        | +--rw (mode)?
          | +--:(no-ack)
          | +--:(ack-always)
          | +--:(ack-on-error)
          | +--:(compression)
            +--rw rule-entries* [field-id field-position direction-indicator]
              +--rw field-id
              +--rw field-length? field-id-generic-type
              +--rw field-position
              +--rw direction-indicator
              +--rw target-value?
              +--rw matching-operator?

Interim, March 13th, 2019
## SID values

<table>
<thead>
<tr>
<th>SID</th>
<th>Assigned to</th>
</tr>
</thead>
<tbody>
<tr>
<td>60000</td>
<td>identity /compression-decompression-action-sid-type</td>
</tr>
<tr>
<td>60001</td>
<td>identity /field-id-sid-type</td>
</tr>
<tr>
<td>60002</td>
<td>identity /field-id-sid-type/field-id-ipv6-version</td>
</tr>
<tr>
<td>60003</td>
<td>identity /field-length-sid-type</td>
</tr>
<tr>
<td>60004</td>
<td>identity /matching-operator-sid-type</td>
</tr>
<tr>
<td>60005</td>
<td>node /schc-context</td>
</tr>
<tr>
<td>60006</td>
<td>node /schc-context/all-rules</td>
</tr>
<tr>
<td>60007</td>
<td>node /schc-context/all-rules/rule-id</td>
</tr>
<tr>
<td>60008</td>
<td>node /schc-context/all-rules/rule-id-length</td>
</tr>
<tr>
<td>60009</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries</td>
</tr>
<tr>
<td>60010</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/compression-decompression-action</td>
</tr>
<tr>
<td>60011</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/compression-decompression-action-value</td>
</tr>
<tr>
<td>60012</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/direction-indicator</td>
</tr>
<tr>
<td>60013</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/field-id</td>
</tr>
<tr>
<td>60014</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/field-length</td>
</tr>
<tr>
<td>60015</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/field-position</td>
</tr>
<tr>
<td>60016</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/matching-operator</td>
</tr>
<tr>
<td>60017</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/matching-operator-value</td>
</tr>
<tr>
<td>60018</td>
<td>node /schc-context/all-rules/rule-nature/compression/rule-entries/target-value</td>
</tr>
<tr>
<td>60019</td>
<td>node /schc-context/all-rules/rule-nature/fragmentation/dtagsize</td>
</tr>
<tr>
<td>60020</td>
<td>node /schc-context/all-rules/rule-nature/fragmentation/fcnsize</td>
</tr>
</tbody>
</table>
Yang tree – rule module:

```mermaid
module: simple
  +--rw schc-context
     +--rw all-rules* [rule-id]
        +--rw rule-id             uint16
        +--rw rule-id-length?      uint8
        +--rw (rule-nature)?
          +--:(fragmentation)
            | +--rw dtagsize?        uint8
            | +--rw wsize?          uint8
            | +--rw fcnsize?        uint8
            | +--rw (mode)?
            |   +--:(no-ack)
            |   +--:(ack-always)
            |   +--:(ack-on-error)
            |   +--:(compression)
        +--rw rule-entries* [field-id field-position direction-indicator]
          +--rw field-id
          +--rw field-length?
          +--rw field-position
          +--rw direction-indicator
          +--rw target-value?
          +--rw matching-operator?
          +--rw matching-operator-value?
          +--rw compression-decompression-action?
```
Yang tree – Field ID module: simple

```yang
module: simple

```
typedef field-id-num-type {
    type enumeration {
        enum ipv6-version { value 1; }
        enum ipv6-diffserv { value 2; }
        enum ipv6-flowlabel { value 3; }
        enum ipv6-length { value 4; }
        enum ipv6-nextheader { value 5; }
        enum ipv6-devprefix { value 6; }
        enum ipv6-deviid { value 7; }
        enum ipv6-appprefix { value 8; }
        enum ipv6-appiid { value 9; }
        enum udp-devport { value 10; }
        enum udp-appport { value 11; }
        enum udp-length { value 12; }
        enum udp-checksum { value 13; }
    }
}

// generic value TV definition

identity field-id-sid-type {
    description "used to extend SCHC default Field ID with SID";
}

Interim, March 13th, 2019
Field ID - extention

module simple-extended {
    yang-version "1";
    namespace "urn:acklio:ietf:lpwan:schc:rule-extended";

    prefix "simple-extended";

    import simple {
        prefix simple;
        revision-date 2016-10-31;
    }

    revision 2019-03-12 {
        description "Initial version.";
    }

    identity field-id-coap-version {
        base simple:field-id-sid-type;
    }
}

Interim, March 13th, 2019
typedef field-length-function-num-type {
    type enumeration {
        enum variable { value -1;}
        enum tokenlenght { value -2;}
    }
}

identity field-length-sid-type {
    description "used to extend field length functions";
}

typedef field-length-type {
    type union {
        type uint8;
        type field-length-function-num-type;
        type identityref {
            base field-length-sid-type;
        }
    }
}

Field Length

Interim, March 13th, 2019
Target Value

typedef target-value-type {
    type union {
        type uint8;
        type uint16;
        type uint32;
        type uint64;
        type string;
    }
}

Type for bitmap?
module: simple

---rw schc-context

---rw all-rules* [rule-id]
  ---rw rule-id               uint16
  ---rw rule-id-length?       uint8
  ---rw (rule-nature)?
    +--:(fragmentation)
    |  ---rw dtagsize?          uint8
    |  ---rw wsize?             uint8
    |  ---rw fcnsize?           uint8
    |  ---rw (mode)?
    |     +--:(no-ack)
    |     +--:(ack-always)
    |     +--:(ack-on-error)
    |     +--:(compression)
  ---rw rule-entries* [field-id field-position direction-indicator]
    ---rw field-id field-id-generic-type
    ---rw field-length?        field-length-type
    ---rw field-position       uint8
    ---rw direction-indicator  direction-indicator-type
    ---rw target-value?        target-value-type
    ---rw matching-operator?   matching-operator-type
    ---rw matching-operator-value?
Next Steps

• Check validity of Yang model
• Study impact of COREconf.
Preparation for IETF
Tentative Agenda

* [16:10] Administrivia [10min]
  Note-Well, Scribes, Agenda Bashing
  Status of drafts
  IETF 104

[16:20] draft-ietf-lpwan-ipv6-static-context-hc (Dominique) [15min]
[16:35] draft-zuniga-lpwan-schc-over-sigfox (Juan-Carlos) [5min]
[16:40] draft-petrov-lpwan-ipv6-schc-over-lorawan (Ivaylo) [5min]
[16:45] draft-minaburo-lpwan-schc-nbiot-hc (Ana) [10min]
[16:55] draft-toutain-lpwan-schc-yang-data-model (Laurent) [10min]
[17:05] draft-gomez-rto-considerations-lpwan (Carles) [10min]
[17:15] raft-ietf-lpwan-coap-static-context-hc (Laurent) [10min]
[17:25] rechartering status and discussion (the Chairs + AD) [QS]
AOB ?