

draft-ietf-lpwan-schc-yang-data-model-04

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What's new from -03

- Nothing, same model
- Given at the end of the draft
- Goal :
 - Define a way to uniquely refers to an ID
 - Field ID
 - MO, CDA
 - Fragmentation parameter
 - Define a structure for rules
 - Inter exchange (see architecture draft)
 - Not internal representation
- Don't focus on size, this is an abstract representation:
 - CORECONF will help to reduce this size

Identifiers

Identifier definition logic

```
// -- RCS algorithm types

identity RCS-algorithm-base-type {
    description "identify which algorithm is used to compute RSC.
    The algorithm defines also the size of the RSC field.";
}

identity RFC8724-RCS {
    description "CRC 32 defined as default RCS in RFC8724.";
    base RCS-algorithm-base-type;
}

typedef RCS-algorithm-type {
    type identityref {
        base RCS-algorithm-base-type;
    }
}
```

Id types:

- **field-id-type:** IPv6, UDP, CoAP, OSCORE, ICMPv6 (56 values)
- **field-length-type:** union int64 and identityref (2 values)
- **direction-indicator-type:** 3 values
- **matching-operator-type:** 4 values
- **comp-decomp-action-type:** 8 values
- **RCS-algorithm-type:** 1 value
- **fragmentation-mode-type:** 3 values
- **ack-behavior-type:** 3 values
- **all1-data-type:** 3 values

Field id

```
identity /field-id-base-type/fid-icmpv6-checksum
identity /field-id-base-type/fid-icmpv6-code
identity /field-id-base-type/fid-icmpv6-identifier
identity /field-id-base-type/fid-icmpv6-sequence
identity /field-id-base-type/fid-icmpv6-type
identity /field-id-base-type/fid-ipv6-appiid
identity /field-id-base-type/fid-ipv6-appprefix
identity /field-id-base-type/fid-ipv6-deviid
identity /field-id-base-type/fid-ipv6-devprefix
identity /field-id-base-type/fid-ipv6-flowlabel
identity /field-id-base-type/fid-ipv6-hoplimit
identity /field-id-base-type/fid-ipv6-nextheader
identity /field-id-base-type/fid-ipv6-payloadlength
identity /field-id-base-type/fid-ipv6-trafficclass
identity /field-id-base-type/fid-ipv6-trafficclass-ds
identity /field-id-base-type/fid-ipv6-trafficclass-ecn
identity /field-id-base-type/fid-ipv6-version
identity /field-id-base-type/fid-udp-app-port
identity /field-id-base-type/fid-udp-checksum
identity /field-id-base-type/fid-udp-dev-port
identity /field-id-base-type/fid-udp-length
```

Field id: coap

```
identity /field-id-base-type/fid-coap-code
identity /field-id-base-type/fid-coap-code-class
identity /field-id-base-type/fid-coap-code-detail
identity /field-id-base-type/fid-coap-mid
identity /field-id-base-type/fid-coap-option-accept
identity /field-id-base-type/fid-coap-option-block1
identity /field-id-base-type/fid-coap-option-block2
identity /field-id-base-type/fid-coap-option-content-format
identity /field-id-base-type/fid-coap-option-etag
identity /field-id-base-type/fid-coap-option-if-match
identity /field-id-base-type/fid-coap-option-if-none-match
identity /field-id-base-type/fid-coap-option-location-path
identity /field-id-base-type/fid-coap-option-location-query
identity /field-id-base-type/fid-coap-option-max-age
identity /field-id-base-type/fid-coap-option-no-response
identity /field-id-base-type/fid-coap-option-observe
identity /field-id-base-type/fid-coap-option-oscore-flags
identity /field-id-base-type/fid-coap-option-oscore-kid
identity /field-id-base-type/fid-coap-option-oscore-kidctx
identity /field-id-base-type/fid-coap-option-oscore-piv
identity /field-id-base-type/fid-coap-option-proxy-scheme
identity /field-id-base-type/fid-coap-option-proxy-uri
identity /field-id-base-type/fid-coap-option-size1
identity /field-id-base-type/fid-coap-option-size2
identity /field-id-base-type/fid-coap-option-uri-host
identity /field-id-base-type/fid-coap-option-uri-path
identity /field-id-base-type/fid-coap-option-uri-port
identity /field-id-base-type/fid-coap-option-uri-query
identity /field-id-base-type/fid-coap-tkl
identity /field-id-base-type/fid-coap-token
identity /field-id-base-type/fid-coap-type
identity /field-id-base-type/fid-coap-version
```

- Removed « payload marker »
- Added OSCORE
- Exhaustive list of options:
 - Do not reserve space for future options
 - Anticipate upcoming options

Mandate a way for CoAP to define new options ?

Number	Name	Reference
0	Reserved	[RFC7252]
1	If-Match	[RFC7252][RFC8613]
2	Unassigned	
3	Uri-Host	[RFC7252][RFC8613]
4	ETag	[RFC7252][RFC8613]
5	If-None-Match	[RFC7252][RFC8613]
6	Observe	[RFC7641][RFC8613]
7	Uri-Port	[RFC7252][RFC8613]
8	Location-Path	[RFC7252][RFC8613]
9	OSCORE	[RFC8613]
10	Unassigned	
11	Uri-Path	[RFC7252][RFC8613]
12	Content-Format	[RFC7252][RFC8613]
13	Unassigned	
14	Max-Age	[RFC7252][RFC8516][RFC8613]
15	Uri-Query	[RFC7252][RFC8613]
16	Hop-Limit	[RFC8768]
17	Accept	[RFC7252][RFC8613]
18-19	Unassigned	
20	Location-Query	[RFC7252][RFC8613]
21-22	Unassigned	
23	Block2	[RFC7959][RFC8323][RFC8613]
24-26	Unassigned	
27	Block1	[RFC7959][RFC8323][RFC8613]
28	Size2	[RFC7959][RFC8613]
29-34	Unassigned	
35	Proxy-Uri	[RFC7252][RFC8613]
36-38	Unassigned	
39	Proxy-Scheme	[RFC7252][RFC8613]
40-59	Unassigned	

/field-id-base-type/coap-option-blabla

/field-id-base-type/coap-option-blabla-sub-field

Structures

SCHC Data Model - Frag

module: schc

Not in RFC 8724

+-rw schc

+-rw version? uint64

+-rw rule* [rule-id rule-length]

+-rw rule-id uint32

+-rw rule-length uint8

+-rw (nature)?

+-:(fragmentation) Up or down, bi forbidden

+-rw direction schc:direction-indicator-type

+-rw dtagsize? uint8

+-rw wsize? uint8

Frag header, only FCN is mandatory

+-rw fcnsz uint8

+-rw RCS-algorithm? RCS-algorithm-type

+-rw maximum-window-size? uint16

+-rw retransmission-timer? uint64 Mandatory: 1..max

+-rw inactivity-timer? uint64 Optional : 0..max

+-rw max-ack-requests? uint8

+-rw maximum-packet-size? uint16

+-rw fragmentation-mode schc:fragmentation-mode-type noAck, AA, AoE

+-rw (mode)?

+-:(no-ack)

+-:(ack-always)

+-:(ack-on-error)

+-rw tile-size? uint8

+-rw tile-in-All1? schc:all1-data-type No, Yes, Sender Choice

+-rw ack-behavior? schc:ack-behavior-type All0, All1, Always

+-:(compression)

SCHC Data Model - Compression

```

+--:(compression)
  +--rw entry* [field-id field-position direction-indicator]
    +--rw field-id          schc:field-id-type
    +-rw field-length       schc:field-length-type
    +--rw field-position    uint8
    +--rw direction-indicator schc:direction-indicator-type
    +-rw target-values* [position]
    | +-rw value?         union
    | +-rw position      uint16
    +--rw matching-operator schc:matching-operator-type
    +--rw matching-operator-value* [position]
    | +-rw value?         union
    | +-rw position      uint16
    +--rw comp-decomp-action schc:comp-decomp-action-type
    +--rw comp-decomp-action-value* [position]
      +-rw value?         union
      +-rw position      uint16
  
```

Optional ?

What's next

- Review wording and descriptions
- Check YANG Model

- Working Group Last Call ?