

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

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What's new from -03

- Clarifications
- 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

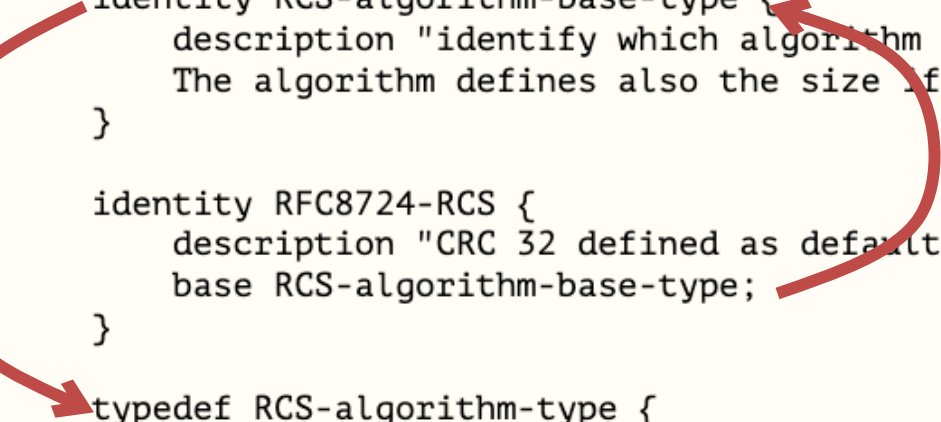
Identifier definition logic

```
// -- 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
- Added ICMPv6

Structures

SCHC Data Model - Frag

```

module: schc
+--rw schc
+--rw version? uint64
+--rw rule* [rule-id rule-length]
+--rw rule-id uint32
+--rw rule-length uint8
+--rw (nature)?
+--:(fragmentation)
+--rw direction schc:direction-indicator-type
+--rw dtag-size? uint8
+--rw wsize? uint8
+--rw fc-size uint8
+--rw RCS-algorithm? RCS-algorithm-type
+--rw maximum-window-size? uint16
+--rw retransmission-timer? uint64
+--rw inactivity-timer? uint64
+--rw max-ack-requests? uint8
+--rw maximum-packet-size? uint16
+--rw fragmentation-mode schc:fragmentation-mode-type
+--rw (mode)?
+--:(no-ack)
+--:(ack-always)
+--:(ack-on-error)
+--rw tile-size? uint8
+--rw tile-in-All1? schc:all1-data-type
+--rw ack-behavior? schc:ack-behavior-type
+--:(compression)

```

Not in RFC 8724

Up or down, bi forbidden

Frag header, only FCN is mandatory

Mandatory: 1..max

Optional : 0..max

noAck, AA, AoE

No, Yes, Sender Choice

All0, All1, Always

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

- Draft is stable and has been discussed in interim meetings.
- Ready for Working Group Last Call