

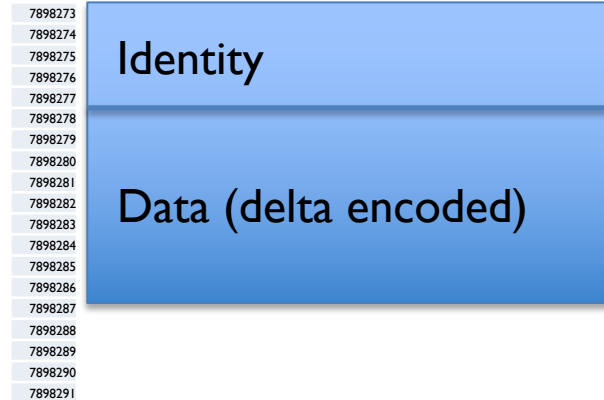
SID Allocation

Authors:

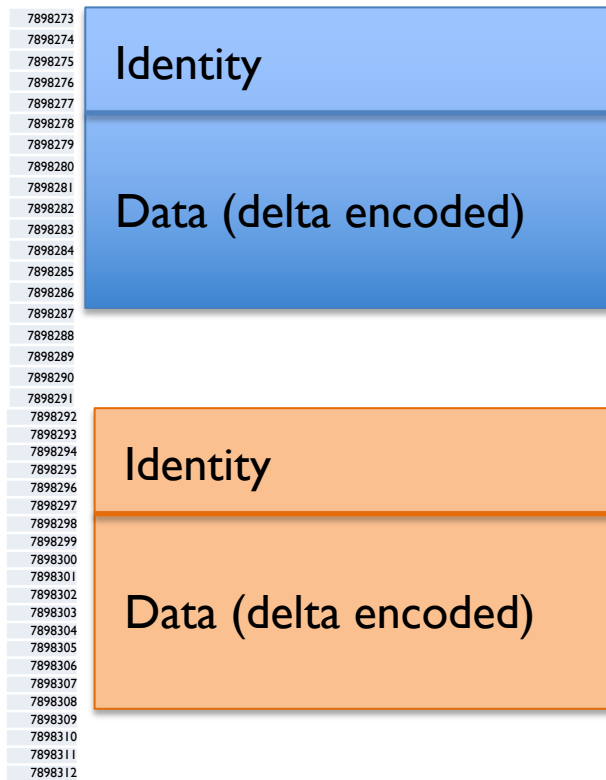
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From YANG Data Model to SIDs



From YANG Data Model to SIDs



-24< Δ < 23: 1 byte
-256< Δ <255 : 2 bytes
...

SID Management

- SCHC DM will be augmented
- SCHC WG ask for a SID space at IANA:
 - Hypothesis: 5000:500
 - Produce a SID allocation file for each WG YANG DM
 - Proposition:
 1. Regroup Identity and Data
 2. Minimize delta by inserting as much space (23) as possible between list SIDs
 3. Fill gap with leaf SIDs

-24	5000
-23	5001
-22	5002
-21	5003
-20	5004
-19	5005
-18	5006
-17	5007
-16	5008
-15	5009
-14	5010
-13	5011
-12	5012
-11	5013
-10	5014
-9	5015
-8	5016
-7	5017
-6	5018
-5	5019
-4	5020
-3	5021
-2	5022
-1	5023 module ietf-schc
0	5024 data /ietf-schc:schc
1	5025
2	5026
3	5027
4	5028
5	5029
6	5030
7	5031
8	5032
9	5033
10	5034
11	5035
12	5036
13	5037
14	5038
15	5039
16	5040
17	5041
18	5042
19	5043
20	5044
21	5045
22	5046
23	5047 data /ietf-schc:schc/rule

23	0	5047 data /ietf-schc:schc/rule
1		5048 data /ietf-schc:schc/rule/rule-id-length
2		5049 data /ietf-schc:schc/rule/rule-id-value
3		5050 data /ietf-schc:schc/rule/rule-nature
4	-20	5051
5	-19	5052
6	-18	5053
7	-17	5054
8	-16	5055
9	-15	5056
10	-14	5057
11	-13	5058
12	-12	5059
13	-11	5060
14	-10	5061
15	-9	5062
16	-8	5063
17	-7	5064
18	-6	5065
19	-5	5066
20	-4	5067
21	-3	5068
22	-2	5069
23	-1	5070 data /ietf-schc:schc/rule/entry
1		5071 data /ietf-schc:schc/rule/entry/comp-decomp-action
2		5072 data /ietf-schc:schc/rule/entry/comp-decomp-action-value
3		5073 data /ietf-schc:schc/rule/entry/comp-decomp-action-value/index
4		5074 data /ietf-schc:schc/rule/entry/comp-decomp-action-value/value
5		5075 data /ietf-schc:schc/rule/entry/direction-indicator
6		5076 data /ietf-schc:schc/rule/entry/field-id
7		5077 data /ietf-schc:schc/rule/entry/field-length
8		5078 data /ietf-schc:schc/rule/entry/field-position
9		5079 data /ietf-schc:schc/rule/entry/matching-operator
10		5080 data /ietf-schc:schc/rule/entry/matching-operator-value
11		5081 data /ietf-schc:schc/rule/entry/matching-operator-value/index
12		5082 data /ietf-schc:schc/rule/entry/matching-operator-value/value
13		5083 data /ietf-schc:schc/rule/entry/target-value
14		5084 data /ietf-schc:schc/rule/entry/target-value/index
15		5085 data /ietf-schc:schc/rule/entry/target-value/value
16		5086
17		5087
18		5088
19		5089
20		5090
21		5091
22		5092
23		5093
46		5094 data /ietf-schc:schc/rule/ack-behavior
47		5095 data /ietf-schc:schc/rule/direction
48		5096 data /ietf-schc:schc/rule/dtag-size
49		5097 data /ietf-schc:schc/rule/fcn-size
50		5098 data /ietf-schc:schc/rule/fragmentation-mode
51		5099 data /ietf-schc:schc/rule/inactivity-timer
52		5100 data /ietf-schc:schc/rule/inactivity-timer/ticks-duration
53		5101 data /ietf-schc:schc/rule/inactivity-timer/ticks-numbers
54		5102 data /ietf-schc:schc/rule/l2-word-size
55		5103 data /ietf-schc:schc/rule/max-ack-requests
56		5104 data /ietf-schc:schc/rule/max-interleaved-frames
57		5105 data /ietf-schc:schc/rule/maximum-packet-size
58		5106 data /ietf-schc:schc/rule/rcs-algorithm
59		5107 data /ietf-schc:schc/rule/retransmission-timer
60		5108 data /ietf-schc:schc/rule/retransmission-timer/ticks-duration

allocation

5300	identity ack-behavior-after-all-0
5301	identity ack-behavior-after-all-1
5302	identity ack-behavior-base-type
5303	identity ack-behavior-by-layer2
5304	identity all-1-data-base-type
5305	identity all-1-data-no
5306	identity all-1-data-sender-choice
5307	identity all-1-data-yes
5308	identity cda-applid
5309	identity cda-base-type
5310	identity cda-compute
5311	identity cda-deviid
5312	identity cda-lsb
5313	identity cda-mapping-sent
5314	identity cda-not-sent
5315	identity cda-value-sent
5316	identity di-base-type
5317	identity di-bidirectional
5318	identity di-down
5319	identity di-up
5320	identity fid-base-type
5321	identity fid-coap-base-type
5322	identity fid-coap-code
5323	identity fid-coap-code-class
5324	identity fid-coap-code-detail
5325	identity fid-coap-mid
5326	identity fid-coap-option
5327	identity fid-coap-option-accept
5328	identity fid-coap-option-block1
5329	identity fid-coap-option-block2
5330	identity fid-coap-option-content-format
5331	identity fid-coap-option-etag
5332	identity fid-coap-option-if-match
5333	identity fid-coap-option-if-none-match
5334	identity fid-coap-option-location-path
5335	identity fid-coap-option-location-query
5336	identity fid-coap-option-max-age
5337	identity fid-coap-option-no-response
5338	identity fid-coap-option-observe
5339	identity fid-coap-option-oscore-flags
5340	identity fid-coap-option-oscore-kid
5341	identity fid-coap-option-oscore-kidctx
5342	identity fid-coap-option-oscore-piv
5343	identity fid-coap-option-proxy-scheme
5344	identity fid-coap-option-proxy-uri
5345	identity fid-coap-option-size1
5346	identity fid-coap-option-size2
5347	identity fid-coap-option-uri-host
5348	identity fid-coap-option-uri-path
5349	identity fid-coap-option-uri-port
5350	identity fid-coap-option-uri-query

Arithmetics

- letf-schc: 136
 - 92 for identity, 2 for features and 42 for data
 - 42->300 with max spreading
 - Identity starts at 5300
- OAM: 10 identity, 1 data
- Access-control: 0 Identity, 4 data
- Compound-ack: 3 identity, 1 data
- RFC8824 update: 9 identity, 0 data

Consideration

- -24/+23 area is limited, must be reserved to the most frequent values in a rule.
- SCHC DM is built to be augmented:
 - Small YANG DM

tests

	million	IETF	IETF	IESG (dream)	JSON
·sor-9363·	·2194·	·1740· (-454)	·1721· (-19)	·1586· (-135)	·15388·
·sor-oam·	·2841·	·2265· (-576)	·2243· (-22)	·2064· (-179)	·19871·
·sor-oam+ac·	·2925·	·2321· (-604)	·2271· (-50)	·2092· (-179)	·20686·

Process

- LPWAN/SCHC working group request IANA for a pool (up to 500)
- A GW RFC with YANG is issued:
 - Publish a SID file with manual allocation.