

SenML Data Value Content-Format Indication

draft-ietf-core-senml-data-ct-01

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Examples

```
{ "n": "nfc-reader", "vd": "gmNmb28YKg", "ct": "60" }
```

```
{ "n": "nfc-reader-42",  
  "vd": "H4sIAA+dmFwAAzMx0jEZMAQALnH8Yn0AAAA",  
  "ct": "text/csv@gzip" }
```

Feature objective: extensibility

- `ct` is generally ignorable (like any new SenML field)
- But we would like to also have a “must understand” version, `ct_`
- Issue: Interaction between the two (`bct`, `bct_`) and resolved records
- Would prefer to have specific information (in record) override base
- But now, that happens only separately, within the thread for each field name!

RFC 8428: “Must understand” and “_”?

- »Extensions that are **mandatory** to understand to correctly process the Pack MUST have a label name that ends with the "_" character.«
- »Applications MUST ignore any JSON **key-value pairs** that they do not understand unless the key ends with the "_" character, in which case an error MUST be generated.«
(12.3.1 for senml+json, equivalent text for other representations)
- So a receiver is free to ignore a **key-value combination** if it doesn't understand the key **or** if it doesn't understand the combination
- Note that foo and foo_ are not related in any way, except if by their definition (~~maybe~~ a good convention, anyway)

RFC 8428: ct, ct_, bct, bct_

- Resolving algorithm can be performed without understanding field semantics: no inter-field interaction
 - Fields do define how base value and given value for that field mix
 - »A future specification that defines new base fields needs to specify how the field is resolved.«
- Resolving is not influenced by unrelated fields (ct vs. ct_): It happens **separately** for ct and for ct_
- The rules applying to a record are applied **after** resolving
- But we need to look at examples having some of these four and see whether what we built makes sense

Solution option #1

- Do not apply base value (bct or bct_) if a current value (ct or ct_) exists in the record
- Not supported by RFC 8428
 - Would require using new version/feature for SenML

Solution option #2

- Future specification need to specify semantics of the "safe-to-ignore" and "must understand" versions of the same field in the same record
 - ct_ is the first registration of "must understand" fields
 - Can be handled as DE guidance and clarified in SenML-bis?
- Easy to avoid: don't mix the two variants in the Packs
 - but also need to enable combining packs easily
- For ct draft: if both exist in the same Record, ct_ overrides ct (i.e., ignore/remove "safe-to-ignore" version)
- Not perfect, but we don't know better without new SenML version

Mixing b and _ fields: what are the resolution rules?

1)

```
[
  {"bfoo_": 42, "n": "t1", "v": 1},
  {
    "n": "t2", "v": 2},
  {"foo": 1, "n": "t3", "v": 3}
]
```

2)

```
[
  {"bfoo_": 42, "n": "t1", "v": 1},
  {
    "n": "t2", "v": 2},
  {"foo_": 1, "n": "t3", "v": 3}
]
```

3)

```
[
  {"bfoo": 42, "n": "t1", "v": 1},
  {
    "n": "t2", "v": 2},
  {"foo_": 1, "n": "t3", "v": 3}
]
```

4)

```
[
  {"bfoo": 42, "n": "t1", "v": 1},
  {
    "n": "t2", "v": 2},
  {"foo": 1, "n": "t3", "v": 3}
]
```


Mixing b and _ fields: resolved

1)

```
[  
  {"bfoo_": 42, "n": "t1", "v": 1},  
  {"n": "t2", "v": 2},  
  {"foo": 1, "n": "t3", "v": 3}  
]
```

```
[  
  {"foo_": 42, "n": "t1", "v": 1},  
  {"foo_": 42, "n": "t2", "v": 2},  
  {"foo": 1, "foo_": 42, "n": "t3", "v": 3}  
]
```

Mixing b and _ fields: resolved

2)

```
[  
  {"bfoo_": 42, "n": "t1", "v": 1},  
  {"n": "t2", "v": 2},  
  {"foo_": 1, "n": "t3", "v": 3}  
]
```

```
[  
  {"foo_": 42, "n": "t1", "v": 1},  
  {"foo_": 42, "n": "t2", "v": 2},  
  {"foo_": 1, "n": "t3", "v": 3}  
]
```

Mixing b and _ fields: resolved

3)

```
[  
  {"bfoo":42,   "n":"t1",  "v":1},  
  {  
    "n":"t2",  "v":2},  
  {"foo_": 1,   "n":"t3",  "v":3}  
]
```

```
[  
  {"foo":42,   "n":"t1",  "v":1},  
  {"foo":42,   "n":"t2",  "v":2},  
  {"foo_": 1,  "foo":42,   "n":"t3",  "v":3}  
]
```

Mixing b and _ fields: resolved

4)

```
[  
  {"bfoo":42,    "n":"t1",  "v":1},  
  {  
    "n":"t2",  "v":2},  
  {"foo": 1,    "n":"t3",  "v":3}  
]
```

```
[  
  {"foo":42,    "n":"t1",  "v":1},  
  {"foo":42,    "n":"t2",  "v":2},  
  {"foo": 1,    "n":"t3",  "v":3}  
]
```