



G-PCC:

Extensible attribute descriptions

Current design

The SPS signals attribute descriptions

- Each attribute requires an attribute description to define:
 - Parameters required for decoding
 - Metadata to identify the attribute and any pertinent parameters
- Each description has:
 - attribute_label_four_bytes / known_attribute_label — identifies an attribute
 - attr_instance_id — distinguishes between multiple attributes with same label
 - cicp_* — standardised colour information

Current design

Drawbacks — attribute labels

The four byte attribute label is **unmanaged**

- Even fourcc values in AVI were managed by Microsoft
- Without registration, it is likely that a label such as "rgb_" will have multiple different definitions

(Fortunately information like CICI may lessen that)

Current design

Drawbacks — attribute parameters

Not every attribute needs CICP information

- For some attributes they are meaningless — eg, temperature
- For other attributes they are insufficient — eg, complicated transfer functions

Proposal — Registration identifiers

Use a registered identifiers rather than unregistered

But: managing an RA is a pain

Replace the four byte label with a generic identifier, eg:

- Manufacturer specific (terminal provider oriented) codes (Rec. ITU-T T.35)
- International object identifiers (Rec. ITU-T X.660 | ISO/IEC 9834-1)

Proposal — Registration identifiers

Rec. ITU-T T.35

Per-country national registration authorities

Registration provides a code that may be further extended by the manufacturer

Eg:

B4h 00h XXh YYh ZZh

Is used in HEVC

- But: is this suitable for an ISO/IEC only standard?

Proposal — Registration identifiers

International Object Identifiers (OID) — ISO/IEC 9834-1

A hierarchy of object identifiers with multiple registration authorities for use in ASN.1

Registration provides a code that may be further extended

Eg:

2.16.840.1.113635.1

Represented in DER format as:

06 08 60 86 48 01 86 F7 63 01

Proposal: Replace attribute_label_four_bytes with attribute_label_oid

Proposal — Generalised attribute parameters

Type-length-value

Place attribute parameters into blocks using a type-length-value format

- 8-bit type, 8-bit length

Three types:

- Known types (2—127) : Defined in the standard, eg CICP
- Short per-label types (128—255) : Have a meaning based upon label definition
- Explicit per-label types (1—2) : Explicitly send an identifier (OID/T.35)

