

ICC.2 amendment: CICIP type and tag

This amendment is to ICC.2:2019, and adds the CICIP tag and type already included in ICC.1:2022. The CICIP tag supports HDR workflows by enabling standard video encoding parameters to be encoded as metadata in an ICC profile.

1.1.1.1 Normative References

Recommendation ITU-T H.273 (12/2016), Coding-independent code points for video signal type identification, <https://www.itu.int/rec/T-REC-H.273/en> (also published as ISO/IEC 23091-2)

1.1.1.2 Abbreviated terms

CICIP Coding-independent code points for video signal type identification

1.1.1.3 cicpTag

Tag signature: 'cicp' (63696370h)

Permitted tag type: cicpType

This tag defines Coding-independent code points for video signal type identification (CICIP).

The colour encoding specified by the CICIP tag content shall be equivalent to the data colour space encoding represented by this ICC profile.

NOTE The ICC colour transform cannot match every possible rendering of a CICIP colour encoding.

This tag may be present when the data colour space in the profile header is RGB, YCbCr, or XYZ, and the profile class in the profile header is Input or Display. The tag shall not be present for other data colour spaces or profile classes indicated in the profile header.

1.1.1.4 cicpType

The cicpType specifies Coding-independent code points for video signal type identification. The byte assignment and encoding shall be as given in Table 1.

Table 1 — cicpType encoding

Byte position	Field length (bytes)	Content	Encoded as
0 to 3	4	'cicp' (63696370h) type signature	
4 to 7	4	Reserved, shall be set to 0	
8	1	ColourPrimaries	uint8Number
9	1	TransferCharacteristics	uint8Number
10	1	MatrixCoefficients	uint8Number
11	1	VideoFullRangeFlag	uint8Number

The fields ColourPrimaries, TransferCharacteristics, MatrixCoefficients, and VideoFullRangeFlag shall be encoded as specified in ISO/IEC 23091-2 (based on Recommendation ITU-T H.273). ISO/IEC 23091-2 provides detailed descriptions of the code values and their interpretation.

Widely used code point combinations are specified in Supplement 19 to ITU-T H-series Recommendations (10/2019) - Usage of video signal type code points.

When the data colour space in the profile header is RGB or XYZ, MatrixCoefficients shall be 0 (zero).

When the data colour space in the profile header is YCbCr, MatrixCoefficients shall be non-zero.

NOTE When the data colour space in the profile header is YCbCr, a MatrixCoefficients value representing a color difference encoding can be used.

EXAMPLES:

Examples for RGB colour encodings.

When the data colour space in the profile header is RGB, VideoFullRangeFlag is often 1.

Codes	Interpretation
1-1-0-0	RGB narrow range representation specified in Recommendation ITU-R BT.709-6, Item 3.4
1-13-0-1	RGB full range colour encoding specified in IEC 61966-2-1 sRGB
9-14-0-0	R'G'B' narrow range representation specified in Recommendation ITU-R BT.2020-2, Table 5
9-16-0-0	PQ R'G'B' narrow range representation specified in Recommendation ITU-R BT.2100-2, Table 9
9-16-0-1	PQ R'G'B' full range representation specified in Recommendation ITU-R BT.2100-2, Table 9
9-18-0-0	HLG R'G'B' narrow range representation specified in Recommendation ITU-R BT.2100-2
9-18-0-1	HLG R'G'B' full range representation specified in Recommendation ITU-R BT.2100-2
12-13-01	Display P3 encoding specified in ICC Colour Encoding Registry

Examples for narrow-range YCbCr or ICtCp colour encodings.

When the data colour space in the profile header is YCbCr, VideoFullRangeFlag is usually 0 (zero).

Codes	Interpretation
1-1-1-0	YCbCr representation specified in Recommendation ITU-R BT.709-6, Item 3.4
9-14-9-0	Y'Cb'Cr' narrow range representation specified in Recommendation ITU-R BT.2020-2, Table 5
9-16-9-0	PQ Y'Cb'Cr' narrow range representation specified in Recommendation ITU-R BT.2100-2, Table 9
9-16-14-0	PQ ICtCp narrow range representation specified in Recommendation ITU-R BT.2100-2, Table 9
9-18-9-0	HLG Y'Cb'Cr' narrow range representation specified in Recommendation ITU-R BT.2100-2
9-18-14-0	HLG ICtCp narrow range representation specified in Recommendation ITU-R BT.2100-2

Bibliography

ISO/IEC 23091-2 Information technology — Coding-independent code points Part 2: Video

IEC 61966-2-1 + Amd.1, Multimedia systems and equipment – Colour measurement and management – Part 2-1: Colour management – Default RGB colour space – sRGB

Recommendation ITU-R BT.709-6, Parameter values for the HDTV standards for production and international programme exchange

Recommendation ITU-R BT.2020-2, Parameter values for ultra-high definition television systems for production and international programme exchange

Recommendation ITU-R BT.2100-2, Image parameter values for high dynamic range television for use in production and international programme exchange

Supplement 19 to ITU-T H-series Recommendations (10/2019) - Usage of video signal type code points

ICC Colour Encoding Registry <https://www.color.org/chardata/rgb/>