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AMENDMENT 1
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Information processing systems — Computer graphics — Metafile for the storage and transfer of picture description information —

Part 3 :
Binary encoding

AMENDMENT 1

Systèmes de traitement de l'information — Infographie — Métafichier de stockage et de transfert des informations de description d'images —

Partie 3: Codage binaire

AMENDEMENT 1

Reference number
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Foreword

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AMENDMENT 1

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Add the following at the end of table 1:

Abstract symbol	Parameter construction from	Octets per parameter: symbol and value	Parameter range: symbol and value
N	SI at integer precision (np)	BN {=np/8}	NR {-2**(np-1) to 2**(np-1)-1}
VC	I or R	BVC {=BI} or BVC {=BR}	VCR {=IR} {see note 13} or VCR {=RR}
VP	(VC,VC)	BVP {=2*BVC}	VCR {see notes 1,13,14}

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Add the following to the additional description ("notes") for table 1:

13 The abstract parameter type VC, a single VC value, is either a real or an integer, depending on the declaration of the picture descriptor element DEVICE VIEWPORT SPECIFICATION MODE. When DEVICE VIEWPORT SPECIFICATION MODE is 'fraction of display surface', the value is real. When DEVICE VIEWPORT SPECIFICATION MODE is 'millimetres with scale factor' or 'physical device coordinates', the value is integer. Subsequent tables use a single set of values, VC, BVC and VCR, recognising that they are computed differently depending on DEVICE VIEWPORT SPECIFICATION MODE.

14 The abstract parameter type VC is a single value; a viewport point, VP, is an ordered pair of VC.

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Add the following at the end of table 2:

8 Segment Control and Segment Attribute elements

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Add the following at the end of table 3:

Element class 0	Element Id	Parameter type	Parameter list length	Parameter range	Default
BEGIN SEGMENT	6	N	BN	NR	n/a
END SEGMENT	7	n/a	0	n/a	n/a
BEGIN FIGURE	8	n/a	0	n/a	n/a
END FIGURE	9	n/a	0	n/a	n/a

Code Description

6 BEGIN SEGMENT: has 1 parameter:

P1: (name) segment identifier

7 END SEGMENT: has no parameters

8 BEGIN FIGURE: has no parameters

9 END FIGURE: has no parameters

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Add the following at the end of table 4:

Element class 1	Element Id	Parameter type	Parameter list length	Parameter range	Default
NAME PRECISION	16	N	BN	8,16,24,32	16
MAXIMUM VDC EXTENT	17	2P	2BP	VDCR	VDC EXTENT
SEGMENT PRIORITY EXTENT	18	2I	2BI	IR	0, 255

Code Description

16 NAME PRECISION: has 1 parameter:

P1: (name) name precision: 8, 16, 24 or 32 are the only valid values

17 MAXIMUM VDC EXTENT: has 2 parameters:

P1: (point) first point
P2: (point) second point

18 SEGMENT PRIORITY EXTENT: has 2 parameters:

P1: (integer) minimum segment priority value
P2: (integer) maximum segment priority value

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Add to the note P2 of METAFILE ELEMENT LIST:

version-2 set	(-1,2)
extended-primitives set	(-1,3)
version-2-gksm set	(-1,4)

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Add to the end of the note P2 for SCALING MODE:

NOTE - This parameter is always encoded as Floating Point, regardless of the value of the fixed/floating flag of REAL PRECISION. If a REAL PRECISION (floating, n, m) has preceded, then the precision used is n,m. If a REAL PRECISION element for floating point has not preceded, then the default precision is used.

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Add the following at the end of table 5:

Element class 2	Element Id	Parameter type	Parameter list length	Parameter range	Default
DEVICE VIEWPORT	8	2VP	2BVP	VCR	see below
DEVICE VIEWPORT SPECIFICATION MODE	9	E,R(FP)	BE+BFP	{0,1,2},FPR	0,-
DEVICE VIEWPORT MAPPING	10	3E	3BE	{0,1} {0,1,2} {0,1,2}	1 0 0
LINE REPRESENTATION	11	2IX, (VDC or (BVDC or R),CO	2BIX+ ++VDCR or BR)+BCO	+IXR,IXR, ++RR,COR	n/a
MARKER REPRESENTATION	12	2IX, (VDC or (BVDC or R),CO	2BIX+ ++VDCR or BR)+BCO	+IXR,IXR, ++RR,COR	n/a
TEXT REPRESENTATION	13	2IX, E, 2R,CO 2BR+BCO	2BIX+ BE+	+IXR, {0,1,2}, +RR,RR,COR	n/a
FILL REPRESENTATION	14	IX, E,CO, 2IX	BIX+ BE+BCO+ 2BIX	+IXR, {0..4},COR, IXR,+IXR	n/a
EDGE REPRESENTATION	15	2IX, (VDC or (BVDC or R),CO	2BIX+ ++VDCR or BR)+BCO	+IXR,IXR, ++RR,COR	n/a

Code Description

8 DEVICE VIEWPORT: has 2 parameters:

P1: (viewport point) first point
P2: (viewport point) second point

9 DEVICE VIEWPORT SPECIFICATION MODE: has 2 parameters:

P1: (enumerated) VC specifier: valid values are:
- 0 fraction of drawing surface
- 1 millimetres with scale factor
- 2 physical device coordinates

P2: (real) metric scale factor, ignored if P1=0 or P1=2

NOTE - This parameter is always encoded as Floating Point, regardless of the value of the fixed/floating flag of REAL PRECISION. If a REAL PRECISION (floating, n, m) has preceded, then the precision used is n,m. If a REAL PRECISION element for floating point has not preceded, then the default precision is used.

10 DEVICE VIEWPORT MAPPING: has 3 parameters:

P1: (enumerated) isotropy flag: valid values are:
- 0 not forced
- 1 forced

P2: (enumerated) horizontal alignment flag: valid values are:
- 0 left
- 1 centre
- 2 right

P3: (enumerated) vertical alignment flag: valid values are:
0 bottom
1 centre
2 top

11 LINE REPRESENTATION: has 4 parameters:

P1: (index) line bundle index
P2: (index) line type: the following values are standardized:
1 solid
2 dash
3 dot
4 dash-dot
5 dash-dot-dot
negative for private use
P3: (vdc or real) absolute line width or line width scale factor
P4: (colour) line colour: its form depends on COLOUR SELECTION MODE.

NOTE - Line types with values above 5 are reserved for registration.

12 MARKER REPRESENTATION: has 4 parameters:

P1: (index) marker bundle index
P2: (index) marker type: the following values are standardized:
1 dot
2 plus
3 asterisk
4 circle
5 cross
negative for private use
P3: (vdc or real) absolute marker width or marker size scale factor
P4: (colour) marker colour: its form depends on COLOUR SELECTION MODE.

NOTE - Marker types with values above 5 are reserved for registration.

13 TEXT REPRESENTATION: has 6 parameters:

P1: (index) text bundle index
P2: (index) text font index
P3: (enumerated) text precision: valid values are:
0 string
1 character
2 stroke
P4: (real) character spacing
P5: (real) character expansion factor
P6: (colour) text colour; its form depends on COLOUR SELECTION MODE

14 FILL REPRESENTATION: has 5 parameters:

P1: (index) fill area bundle index
P2: (enumerated) interior style: valid values are:
0 hollow
1 solid
2 pattern
3 hatch
4 empty
P3: (colour) fill colour: its form depends on COLOUR SELECTION MODE
P4: (index) hatch index: the following values are standardized:
1 horizontal
2 vertical
3 positive slope
4 negative slope

5 combined vertical and horizontal slant
6 combined left and right slant
negative for private use
P5: (index) pattern index

NOTE - Hatch indices with values above 6 are reserved for registration.

15 EDGE REPRESENTATION: has 4 parameters:

P1: (index) edge bundle index
P2: (index) edge type: the following values are standardized:
1 solid
2 dash
3 dot
4 dash-dot
5 dash-dot-dot
negative for private use
P3: (vdc or real) absolute edge width or line width scale factor
P4: (colour) edge colour: its form depends on COLOUR SELECTION MODE.

NOTE - Edge types with values above 5 are reserved for registration.

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Add the following at the end of table 6:

Element class 3	Element Id	Parameter type	Parameter list length	Parameter range	Default
LINE CLIPPING MODE	7	E	BE	{0,1,2}	0
MARKER CLIPPING MODE	8	E	BE	{0,1,2}	0
EDGE CLIPPING MODE	9	E	BE	{0,1,2}	0
NEW REGION	10	n/a	0	n/a	n/a
SAVE PRIMITIVE CONTEXT	11	N	BN	NR	n/a
RESTORE PRIMITIVE CONTEXT	12	N	BN	NR	n/a

7 LINE CLIPPING MODE: has 1 parameter:

P1: (enumerated) clipping mode: valid values are:
0 locus
1 shape
2 locus then shape

8 MARKER CLIPPING MODE: has 1 parameter:

P1: (enumerated) clipping mode: valid values are:
0 locus
1 shape
2 locus then shape

9 EDGE CLIPPING MODE: has 1 parameter:

P1: (enumerated) clipping mode: valid values are:
0 locus
1 shape
2 locus then shape

10 NEW REGION: has no parameters

11 SAVE PRIMITIVE CONTEXT: has 1 parameter:

P1: (name) context name

12 RESTORE PRIMITIVE CONTEXT: has 1 parameter:

P1: (name) context name

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Add the following at the end of table 7:

Element class 4	Element Id	Parameter type	Parameter list length	Parameter range	Default
CIRCULAR ARC CENTRE REVERSED	20	P,4VDC, VDC	BP+4BVDC+ BVDC	VDCR,VDCR, ++VDCR	n/a
CONNECTING EDGE	21	n/a	0	n/a	n/a

Code Description

20 CIRCULAR ARC CENTRE REVERSED: has 6 parameters:
P1: (point) centre of circle
P2: (vdc) delta X for start vector
P3: (vdc) delta Y for start vector
P4: (vdc) delta X for end vector
P5: (vdc) delta Y for end vector
P6: (vdc) radius of circle

21 CONNECTING EDGE: has no parameters

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Add the following at the end of table 8:

Element class 5	Element Id	Parameter type	Parameter list length	Parameter range	Default
PICK IDENTIFIER	36	N	BN	NR	0

Code Description

36 PICK IDENTIFIER: has 1 parameter:
P1: (name) pick identifier

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Sub-clause 7.7: Add the following note after code 1 LINE TYPE:

NOTE - Line types with values above 5 are reserved for registration.

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Sub-clause 7.7: Add the following note after code 6 MARKER TYPE:

NOTE - Marker types with values above 5 are reserved for registration.

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Sub-clause 7.7: Add the following note after code 24 HATCH INDEX:

NOTE - Hatch indices with values above 6 are reserved for registration.

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Sub-clause 7.7: Add the following note after code 27 EDGE TYPE:

NOTE - Edge types with values above 5 are reserved for registration.

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Add the following after 7.9:

7.10 Segment control and segment attribute elements

Table 11 - Encoding of segment control and segment attribute elements

Element class 8	Element Id	Parameter type	Parameter list length	Parameter range	Default
COPY SEGMENT	1	N,4R, 2VDC, E	BN+4BR+ 2BVDC + BE	NR,RR, VDCR, {0,1}	-,0
INHERITANCE FILTER	2	nE,E	(n+1)BE	{0..69},{0,1}	-,1
CLIP INHERITANCE	3	E	BE	{0,1}	0
SEGMENT TRANSFORMATION	4	N,4R, 2VDC	BN+4BR+ 2BVDC	NR,RR, VDCR	n/a,1,0,0,1 0,0
SEGMENT HIGHLIGHTING	5	N,E	BN+BE	NR,{0,1}	n/a,0
SEGMENT DISPLAY PRIORITY	6	N,I	BN+BI	NR,IR	n/a, see below
SEGMENT PICK PRIORITY	7	N,I	BN+BI	NR,IR	n/a, see below

Code Description

1 COPY SEGMENT: has 3 parameters:

P1: (name) segment identifier
P2: The next 6 values are components of a transofrmation matrix consisting of a scaling and rotation portion (2 x 2 R) and a translation portion (2 x 1 VDC). In the binary encoding this is expressed as a 2 x 3 matrix of the form:

a11: (real) x scale component
a12: (real) x rotation component
a21: (real) y rotation component
a22: (real) y scale component
a13: (vdc) x translation component
a23: (vdc) y translation component

P3: (enumerated) segment transformation application: valid values are:
0: no
1: yes

2 INHERITANCE FILTER: has two parameters. The first is a list of up to 70 attribute or group designators. The second is a single setting value.
P1: (enumerated list) list of one or more of:
0 line bundle index
1 line type
2 line width
3 line colour
4 line clipping mode
5 marker bundle index
6 marker type