

9 Defaults

Parameter precisions for the character-coded graphics encoding:

REAL PRECISION:	largest-real-code — 10 smallest-real-code — -10 default-exponent-for-reals — -10 exponents-allowed — 1 (forbidden)
INTEGER PRECISION:	10
INDEX PRECISION:	10
COLOUR PRECISION:	6
COLOUR INDEX PRECISION:	10
COLOUR VALUE EXTENT:	minimum-colour-value 0,0,0 maximum-colour-value 63,63,63
VDC REAL PRECISION:	largest-real-code — 10 smallest-real-code — -10 default-exponent-for-reals — -10 exponents-allowed — 1 (forbidden)
VDC INTEGER PRECISION:	20
DOMAIN RING	angular resolution factor — 0; ring size for VDC type integer — 1; ring size for VDC type real if smallest-real code (<i>src</i>) < -8 — $2^{(-8-src)}$; ring size for VDC type real if smallest-real code (<i>src</i>) $\geq$ -8 — 1.

 NAME PRECISION : 10

10 Conformance

A metafile conforms to this character-coded encoding if it meets the following requirements:

- Each metafile element described in this part is coded in the manner described.
- Private (non-standard) metafile elements are all coded using the ESCAPE and GDP metafile elements. Opcodes reserved for future standardization are not used to code private (non-standard) metafile elements.
- Private (non-standard) values of index and enumerated parameters are all coded using negative integers. In coding index parameters, a metafile shall not use non-negative integers to represent private values of index parameters.

A conforming metafile may include, within the string parameters of TEXT, RESTRICTED TEXT, and APPEND TEXT elements, as well as string parameters within the data records of GENERALIZED DRAWING PRIMITIVE (GDP) elements (their admissibility here depends upon the particular GDP definition), the ISO 2022 controls for designating and invoking G-sets, but shall not include the escape sequence used to enter the encoding from ISO 2022, except as the first character of the file.

Annex A

Formal grammar

(This annex does not form part of the standard.)

In this encoding scheme, a metafile element always has the form

```
<metafile element> ::= <opcode>
                      <parameter character>*
```

A CGM opcode is encoded as a single-byte, double-byte, or multi-byte character. Single-byte characters are used for Graphical Primitive Elements, except for some of the Circular and Elliptical Output Elements, where double-byte characters have been assigned. Multi-byte opcodes are used to extend the available opcode space. For all other metafile elements, two or more CGM elements share the same primary opcode character, and a secondary opcode indicates the particular element.

The enumerated types are represented by integers. The specific integer values for each enumerated type are listed in clause 8 in the format

```
<integer: 0> {first enumerated element}
| <integer: 1> {second enumerated element}
| <integer: 2> {third enumerated element}
.
```

Negative integers denote private values of the enumerated types.

The other terminal symbols are described in detail in clause 8. A reference to the relevant sections is given here.

```
<integer> ::= <more significant bits>*
            <least significant bits>
```

where the least significant bits contain the sign bit. See 6.3.

```
<real> ::= <integral mantissa>
          <exponent>(o)
```

```
<integral mantissa> ::= <integer>
```

```
<exponent> ::= <integer>
```

where the least significant bits of the integral mantissa indicate whether an exponent follows.

```
<point> ::= <integer> <integer>
            | <real> <real>
```

where a point list is encoded such that the first point is absolute within VDC space and each of the following points is relative to its previous one. See 6.5.

Formal grammar

<vdc value>	::= <integer> <real>
<string>	::= <SOS> <character>* <ST>
<character>	::= a character from the 7-bit or 8-bit code tables, as discussed in 3.1.
<character substitution>	::= <string> as described in clause 7.
<colour index>	::= <integer>
<red green blue>	::= <bits for red> <bits for green> <bits for blue>

The packing of these bits is described in 6.7.

<integer prec value>	::= <integer> See 8.2.
<real prec value>	::= <integer>(4) See 8.2
<index prec value>	::= <integer> See 8.2.
<colour prec value>	::= <integer> See 8.2.
<colour index prec value>	::= <integer> See 8.2.
<vdc integer prec value>	::= <integer> See 8.4.
<vdc real prec value>	::= <integer>(4) See 8.4
<colour list>	::= <indexed colour list> <direct colour list>
<indexed colour list>	::= <indexed normal colour list> <indexed bitstream colour list> <indexed runlength colour list> <indexed runlength bitstream colour list>
<direct colour list>	::= <direct normal colour list> <direct bitstream colour list> <direct runlength colour list> <direct runlength bitstream colour list>
<indexed normal colour list>	::= <integer: 0> <basic format>+
<indexed bitstream colour list>	::= <integer: 1> <bitstream: concatenation of colour indexes>
<indexed runlength colour list>	::= <integer: 2> <indexed run>+
<indexed run>	::= <integer: colour index> <integer: number of repetitions>



Publications referred to

See national foreword.

BS 6945 : Part 2 : 1988

ISO 8632-2 : 1987

This British Standard, having been prepared under the direction of the Information Systems Technology Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 December 1988.

© British Standards Institution, 1988

ISBN 0 580 16609 0

The following BSI references relate to the work on this standard:
Committee references IST/21 Draft for comment DD 107 : Part 2

British Standards Institution. Incorporated by Royal Charter, BSI is the independent national body for the preparation of British Standards. It is the UK member of the International Organization for Standardization and UK sponsor of the British National Committee of the International Electrotechnical Commission.

In addition to the preparation and promulgation of standards, BSI offers specialist services including the provision of information through the BSI Library and Standardline Database; Technical Help to Exporters; and other services. Advice can be obtained from the Enquiry Section, BSI, Milton Keynes MK14 6LE, telephone 0908 221166, telex 825777.

Copyright. Users of British Standards are reminded that copyright subsists in all BSI publications. No part of this publication may be reproduced in any form without the prior permission in writing of BSI. This does not preclude the free use, in the course of

implementing the standard, of necessary details such as symbols and size, type or grade designations. Enquiries should be addressed to the Publications Manager, BSI, Linford Wood, Milton Keynes MK14 6LE. The number for telephone enquiries is 0908 220022 and for telex 825777.

Contract requirements. A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Revision of British Standards. British Standards are revised, when necessary, by the issue either of amendments or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

Automatic updating service. BSI provides an economic, individual and automatic standards updating service called PLUS. Details are available from BSI Enquiry Section at Milton Keynes, telephone 0908 221166, telex 825777.

Information on all BSI publications is in the *BSI Catalogue*, supplemented each month by *BSI News* which is available to subscribing members of BSI and gives details of new publications, revisions, amendments and withdrawn standards. Any person who, when making use of a British Standard, encounters an inaccuracy or ambiguity, is requested to notify BSI without delay in order that the matter may be investigated and appropriate action taken.

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Information Systems Technology Standards Committee (IST/-) to Technical Committee IST/21, upon which the following bodies were represented:

Association for Payment Clearing Services
British Computer Society Ltd.
British Gas plc
British Telecommunications plc
Business Equipment Trade Association
Computing Services Association
Department of Trade and Industry (Alvey Directorate)
Department of Trade and Industry (Information Technology Division)

Department of Trade and Industry (National Physical Laboratory)
Electronic Engineering Association
Institute of Chartered Secretaries and Administrators
Institution of Electrical Engineers
Inter-universities Computing Committee
Joint Academic Network
Joint Network Team
Ministry of Defence
National Health Services
Post Office
Telecommunication Engineering and Manufacturing Association (TEMA)
United Kingdom Atomic Energy Authority

Amendments issued since publication

Amd. No.	Date of issue	
6945	4.11.92	SSmith

British Standards Institution · 2 Park Street London W1A 2BS · Telephone 01-629 9000 · Telex 266933



Documents

Document Sharing Hub

IST/21



Implementation of Amendment 1
published and effective from 30 August 1991
to BS 6945 : Part 2 : 1988 (ISO 8632-2 : 1987)

Specification for computer graphics: metafile for the
storage and transfer of picture description information
(CGM)

Part 2. Character encoding

AMD 6354

ISO 8632-2 : 1987/

Amd. 1 : 1990

AMD 6354
August 1991

National foreword

In line 3, after 'encoding', insert ',including Amendment 1,'.

AMD 6354
August 1991

ISO text

Insert the attached as appropriate.