

INTERNATIONAL STANDARDIZED PROFILE

**ISO/IEC
ISP
12071-1**

First edition
1997-04-15

**Information technology — International
Standardized Profile FCG-nnn — Computer
Graphics Metafile interchange format —**

iTeh STANDARD PREVIEW

Part 1:

**(FCG11—Basic Scientific and Technical
graphics (BST))**

ISO/IEC ISP 12071-1:1997

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da96147463d9/iso-iec-isp-12071-1-1997](https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997)

*Technologies de l'information — Profil normalisé international FCG-nnn —
Format d'échange de métachier en infographie —*

Partie 1: FCG11 — Graphiques de base scientifiques et techniques (BST)



Reference number
ISO/IEC ISP 12071-1:1997(E)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

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An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or a set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.
<https://standards.iteh.cat/catalog/standards/SIS/54b8d943-99cd-4655-b504-da96147463d9/iso-iec-isp-12071-1-1997>

International Standardized Profile ISO/IEC ISP 12071-1 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 12071 consists of the following parts, under the general title *Information technology — International Standardized Profile FCG-nnn — Computer Graphics Metafile interchange format*:

- *Part 1: FCG11 — Basic Scientific and Technical graphics (BST)*
- *Part 2: FCG23 — Advanced Scientific and Technical graphics (AST)*
- *Part 3: FCG32 — Basic Presentation and Visualization — Model Profile*
- *Part 4: FCG33 — Advanced Presentation and Visualization (APV)*

Introduction

ISO/IEC ISP 12071 is defined within the context of Functional Standardization in accordance with the principles specified in ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles".

This part of ISO/IEC ISP 12071 was developed within EWOS (Structured Multimedia Group) with input from OIW through the Regional Workshop Coordination Committee (RWS-CC). RWS-CC requested AOW to explicitly or tacitly support the progression of the work. Input to the process was also made by JTC1/SC24 who provided CGM expertise. The work was harmonized at a meeting in June 1994 prior to PDISP ballot.

iTeh STANDARD PREVIEW
This part of ISO/IEC ISP 12071 provides a profile suitable for basic scientific and technical graphics, for example storage of simple line diagrams, graphs etc.

[standards.iteh.ai](https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997)
[ISO/IEC ISP 12071-1:1997](https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997)

Information technology — International Standardized Profile FCG-nnn — Computer Graphics Metafile interchange format —

Part 1:

FCG11 - Basic Scientific and Technical graphics (BST)

1 Scope

1.1 General

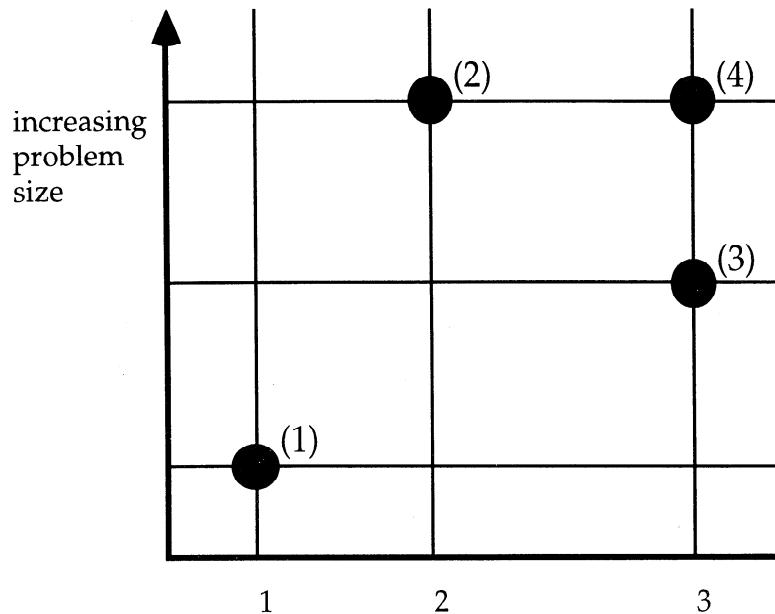
The Computer Graphics Metafile provides a file format suitable for the storage and retrieval of picture information. The file format consists of a set of elements that can be used to describe pictures in a way that is compatible between systems of different architectures and devices of differing capabilities and design.

The BST profile, described in this part of ISO/IEC 12071, defines a subset of CGM elements, sets limits and generation and interpretation behaviour according to the rules for profile definition defined in ISO/IEC 8632. The BST profile defines a version 1 CGM suitable for use in basic scientific and technical graphics applications, such as business graphics, simple desktop publishing.

1.2 Position within the taxonomy

BST is one of four core profiles defined within the taxonomy for CGM profiles. These are shown in Figure 1 in diagrammatic form. The diagram uses the following conceptual framework to define profiles:

- 1) CGM version — this is a part of the standard and describes the group of elements available to the profile
- 2) complexity of the problem



CGM Version

Figure 1— The 4 Core Profiles for CGM

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The four core profiles (as indicated in Figure 1) are:

Taxonomy identifier:	Profile Name: ISO/IEC ISP 12071-1:1997 https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997
1 FCG-11	Basic Scientific and Technical graphics (BST) e.g. business presentation graphics, simple desk top publishing
2 FCG-23	Advanced Scientific and Technical graphics (AST) e.g. CAD, mapping, earth sciences
3 FCG-32	Basic Presentation and Visualization — the Model Profile from the CGM standard, e.g. graphics arts, high end desk top publishing
4 FCG-33	Advanced Presentation and Visualization (APV) e.g. imaging, scientific visualization.

This part of ISO/IEC ISP 12071 defines the BST profile.

1.3 User requirements and scenario

This part of ISO/IEC ISP 12071 provides a profile, BST, which has limited capability and is suitable for basic scientific and technical graphics, e.g. business presentation graphics, simple desk top publishing.

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12071. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12071 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintain published editions of its current Recommendations.

ISO/IEC 8632-1:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 1: Functional specification*.

ISO/IEC 8632-2:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 2: Character encoding*.

ISO/IEC 8632-3:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 3: Binary encoding*.

ISO/IEC 8632-4:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 4: Clear text encoding*.

ISO/IEC 8632:1992/Amd.1:1994, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information (all parts) - AMENDMENT 1 - Rules for profiles*.
(iteh.ai)

ISO/IEC TR 10000-1:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework (third edition)*.
<https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364>

ISO/IEC TR 10000-2:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI profiles (fourth edition)*.

3 Definitions

For the purposes of this part of ISO/IEC ISP 12071, the definitions given in ISO/IEC 8632:1992 apply.

4 Abbreviations

For the purposes of this part of ISO/IEC ISP 12071, the abbreviations given in ISO/IEC 8632:1992 apply.

5 Conformance

Conformance of metafiles to ISO/IEC 8632 is defined in terms of conformance to profiles. A metafile conforms to ISO/IEC 8632 if it conforms to a profile. A metafile may conform to ISO/IEC 8632 if it conforms to the BST profile defined in this part of ISO/IEC ISP 12071.

6 Specification of the BST Profile

This clause completes the Profile Pro Forma from ISO/IEC 8632 (Amendment 1) as required by that standard and is detailed in the following tables which are copied, including the table numbers, from that standard. The corrections which have been approved by ISO are marked up on the tables. The references in the pro forma are to ISO/IEC 8632 and to ISO/IEC 8632 Amendment 1.

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da96147463d9/iso-iec-isp-12071-1-1997](https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997)

Table 13 - Metafile rules

Functionality	Specifications - PPF	Specifications - Model Profile
T.13.1 Encodings	Same as Model Profile <input checked="" type="checkbox"/> Select 1 or more encodings: Binary <input type="checkbox"/> Character <input type="checkbox"/> Clear text <input type="checkbox"/> iTEN STANDARD PNEW	Select 1 or more encodings: Binary <input checked="" type="checkbox"/> Character <input checked="" type="checkbox"/> Clear text <input checked="" type="checkbox"/>
T.13.2	Same as Model Profile <input checked="" type="checkbox"/> Number of pictures permitted in a metafile: minimum (≥ 0)? <input checked="" type="checkbox"/> ITEC ISP 12071-1:1997 maximum ≥ 0 or no limit? <input checked="" type="checkbox"/> Other: <i>None.</i>	Number of pictures permitted in a metafile: minimum (≥ 0)? <i>I.</i> maximum (≥ 0 or no limit)? <i>No limit.</i> Other: <i>None.</i>
T.13.3 Empty pictures	Same as Model Profile <input checked="" type="checkbox"/> Are pictures allowed which have no graphical primitives? (yes/no) Other:	Are pictures allowed which have no graphical primitives? (yes/no) <i>Yes.</i> Other: <i>None.</i>
T.13.4 Metafile size	Same as Model Profile <input checked="" type="checkbox"/> Any restrictions on metafile size? Other:	Any restrictions on metafile size? <i>None.</i> Other: <i>None.</i>

Table 14 - Multi-element rules

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.1	<p>Same as Model Profile <input checked="" type="checkbox"/></p> <p>Select which rule applies to each metafile (choose 1):</p> <p>Either all colours or none shall be defined. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>All colours (shall) be defined. <input type="checkbox"/></p> <p>No colours shall be defined.</p> <p>ISO/IEC 1SP 12071-1:1997</p> <p>Are colour indexes allowed to be redefined within a picture or metafile? (yes/no) No.</p> <p>Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) None.</p> <p>Are conformance categories defined? (yes/no) Yes. If yes, specify. 3 categories: monochrome, greyscale, and colour.</p> <p>Other: None.</p>	<p>Select which rule applies to each metafile (choose 1):</p> <p>Either all colours or none shall be defined. <input checked="" type="checkbox"/></p> <p>All colours shall be defined.</p> <p>No colours shall be defined.</p> <p>Are colour indexes allowed to be redefined within a picture or metafile? (yes/no) No.</p> <p>Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) None.</p> <p>Are conformance categories defined? (yes/no) Yes. If yes, specify. 3 categories: monochrome, greyscale, and colour.</p> <p>Other: None.</p>
T.14.2	<p>Same as Model Profile <input checked="" type="checkbox"/></p> <p>Geometric degeneracies are:</p> <p>Permitted <input type="checkbox"/> Prohibited <input type="checkbox"/></p> <p>If permitted, graphical meaning of the degeneracy: <i>If permitted, graphical meaning of the degeneracy: A line primitive element, whose entire locus is a single point, denotes a graphical dot which is a filled circle, with diameter equal to the current line width and colour equal to the current line colour.</i></p> <p>Other:</p>	<p>Geometric degeneracies are:</p> <p>Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/></p> <p>If permitted, graphical meaning of the degeneracy: <i>If permitted, graphical meaning of the degeneracy: A line primitive element, whose entire locus is a single point, denotes a graphical dot which is a filled circle, with diameter equal to the current line width and colour equal to the current line colour.</i></p> <p>Other: None.</p>

Table 14 - Multi-element rules (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.3 Filled area primitives - geometric degeneracies References: 7.5.4.4	Same as Model Profile <input checked="" type="checkbox"/>	<p>Geometric degeneracies are: Permitted <input type="checkbox"/> Prohibited <input type="checkbox"/> If permitted, graphical meaning of the degeneracy: FULL STANDARD REVIEW (standards.iteh.ai)</p> <p>Other:</p> <p>ISO/IEC ISP 12071-1:1997 https://standards.iteh.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-da96147463d9/iso-iec-isp-12071-1-1997</p> <p>Geometric degeneracies are: Permitted <input type="checkbox"/> Prohibited <input type="checkbox"/> If permitted, graphical meaning of the degeneracy: A filled-area primitive element, whose entire locus is either a single point or a line has the following meaning:</p> <ul style="list-style-type: none"> - If the locus of a filled-area primitive is a single point, then the meaning is a dot (which is a filled circle). - If the locus of a filled-area primitive is a non-degenerate line segment, then the meaning is a line. <p>The dot or line is displayed with the full colour if EDGE VISIBILITY is 'off', unless INTERIOR STYLE is 'empty', in which case it is not rendered. If EDGE VISIBILITY is 'on', the interior treatment is the dot or line displayed in the fill colour, and then a dot or line superimposed with the current edge attributes.</p> <p>Other: <i>None.</i></p>
T.14.4 Graphical text strings References: 7.5.4.5	Same as Model Profile <input checked="" type="checkbox"/>	<p>Minimum string length (bytes): 0.</p> <p>Maximum string length (bytes): 254.</p> <p>Any restrictions on the use of ISO/IEC 2022 switching controls?</p> <p>Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the Character Set List (defined in this profile). CO control codes (except NUL and ISO/IEC 2022 Other: None. Switching) are prohibited.</p>

Table 14 - Multi-element rules (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.5 Non-graphical text strings References: 7.5.4.6	Same as Model Profile <input checked="" type="checkbox"/> Maximum string length (bytes): for type SF: PREVIEW for type SF within type D: (standards.itech.ai) Format effectors and ESC: Permitted <input type="checkbox"/> Other C0 control codes (except NUL and ISO/IEC 2022 switching) http://are.Prohibited.itech.ai/catalog/standards/sist/54b8db43-c9ed-4633-b364-d396147463d9iso-iec-is-12071-1-1997 Any limits on the set of acceptable character sets?	Maximum string length (bytes): for type SF: 254 . for type SF within type D: 1024 . <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> Format effectors and ESC: Permitted <input checked="" type="checkbox"/> Other C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited. Any limits on the set of acceptable character sets? <i>The permitted character sets are ISO 8859-1 LHS No.1 and ISO 8859-1 RHS No.1.</i> Any restrictions on the use of ISO/IEC 2022 switching controls? <i>Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the character set list (defined in this profile).</i> Other: <i>None.</i>
T.14.6 Data record strings References: 7.5.4.7	Same as Model Profile <input checked="" type="checkbox"/> Maximum string length (bytes) or state "no limit": SDR-coding techniques must be used (see annex C.2.2). Other:	Maximum string length (bytes) or state "no limit": 32767 . SDR-coding techniques must be used (see annex C.2.2). Other: <i>None.</i>

Table 15 - Delimiter elements

Element	Specifications - PPF	Specifications - Model Profile
T.15.1 BEGIN METAFILE END METAFILE [v1] References: 5.2.1 5.2.2 7.5.4.6 T.14.5	Same as Model Profile <input checked="" type="checkbox"/> Element is: Required <input checked="" type="checkbox"/> i ten S TANDARD P REVIEW The <i>metafile identifier</i> shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Other: ISO/IEC ISP 12071-1:1997 https://standards.ieha.ai/catalog/standards/sist/54b88db43-c9ed-4633-b364-d96147463d9/iso-iec-isp-12071-1-1997	Element is: Required <input checked="" type="checkbox"/> The <i>metafile identifier</i> shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Other: <i>None</i> .
T.15.2 BEGIN PICTURE BODY END PICTURE [v1] References: 5.2.3 5.2.4 5.2.5 7.5.4.6 T.14.5	Same as Model Profile <input checked="" type="checkbox"/> Element is: Required <input type="checkbox"/> Permitted <input type="checkbox"/> Prohibited <input type="checkbox"/> The <i>picture identifier</i> shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Number of occurrences of these elements allowed in the metafile: <i>No limit</i> . Other:	Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> The <i>picture identifier</i> shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Number of occurrences of these elements allowed in the metafile: <i>No limit</i> . Other: <i>None</i> .

Table 15 - Delimiter elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.15.3 BEGIN SEGMENT END SEGMENT [v2] References: 5.2.6 5.2.7	<p>Same as Model Profile <input type="checkbox"/></p> <p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: 1024.</p> <p>Any limits on the number of elements or restrictions on which elements compose a segment? None.</p> <p>Is there any meaning given to the <i>segment identifier</i> parameter? (Yes/no) No. If yes, specify. (Meaning shall have no graphical effect.)</p> <p>Other:</p> <p><i>When global segments are specified in the Metafile Descriptor, all global segment definitions shall follow all other Metafile Descriptor elements. When segments are specified in the Picture Descriptor, all such segment definitions shall follow all other Picture Descriptor elements.</i></p>	<p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: 1024.</p> <p>Any limits on the number of elements or restrictions on which elements compose a segment? None.</p> <p>Is there any meaning given to the <i>segment identifier</i> parameter? (Yes/no) No. If yes, specify. (Meaning shall have no graphical effect.)</p> <p>Other: <i>When global segments are specified in the Metafile Descriptor, all global segment definitions shall follow all other Metafile Descriptor elements. When segments are specified in the Picture Descriptor, all such segment definitions shall follow all other Picture Descriptor elements.</i></p>
T.15.4 BEGIN FIGURE END FIGURE [v2] References: 5.2.8 5.2.9	<p>Same as Model Profile <input type="checkbox"/></p> <p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> Limits on the number of elements or restrictions on which elements comprise a figure definition:</p> <p>Other:</p>	<p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/> Limits on the number of elements or restrictions on which elements comprise a figure definition: Maximum number of elements = 128. No restrictions on which eligible elements may be included.</p> <p>Other: None.</p>

Table 15 - Delimiter elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.15.5 BEGIN PROTECTION REGION END PROTECTION REGION [v3] References: 5.2.10 5.2.11	<p>Same as Model Profile <input type="checkbox"/></p> <p>Element is: Required <input type="checkbox"/> Permitted <input type="checkbox"/> Prohibited <input checked="" type="checkbox"/></p> <p>iTeh STANDARD PREFVIEW Maximum number of simultaneously defined protection regions: 32.</p> <p>Maximum number of elements within each protection region: 128.</p> <p>Is there any meaning to the <i>region index</i> parameter other than as a https://unique identifier for each protection region? (yes/no) b364- If yes, specify. (Meaning shall have no graphical effect).</p> <p>Other: <i>None.</i></p>	<p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/></p> <p>Maximum number of simultaneously defined protection regions: 32.</p> <p>Maximum number of elements within each protection region: 128.</p> <p>Is there any meaning to the <i>region index</i> parameter other than as a unique identifier for each protection region? (yes/no) No. If yes, specify. (Meaning shall have no graphical effect).</p> <p>Other: <i>None.</i></p>
T.15.6 BEGIN COMPOUND LINE END COMPOUND LINE [v3] References: 5.2.12 5.2.13	<p>Same as Model Profile <input type="checkbox"/></p> <p>Element is: Required <input type="checkbox"/> Permitted <input type="checkbox"/> Prohibited <input checked="" type="checkbox"/></p> <p>Limits on the number of elements and identity of elements comprising a path definition:</p> <p>END COMPOUND LINE</p> <p>Other:</p> <p>References: 5.2.12 5.2.13</p>	<p>Element is: Required <input type="checkbox"/> Permitted <input checked="" type="checkbox"/> Prohibited <input type="checkbox"/></p> <p>Limits on the number of elements and identity of elements comprising a path definition: Maximum number of elements is 128. No restrictions on which eligible elements may be included.</p> <p>Other: <i>None.</i></p>