
**Information technology — Computer
graphics and image processing —
Programmer's Hierarchical Interactive
Graphics System (PHIGS) —**

Part 2:
Archive file format

*Technologies de l'information — Infographie et traitement de l'image —
Interface de programmation du système graphique hiérarchisé (PHIGS) —*

Partie 2: Format de fichier d'archive

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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. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 9592-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 24, *Computer graphics and image processing*.

This second edition cancels and replaces the first edition (ISO/IEC 9592-2:1989), which has been technically revised. It also incorporates Amendment 1:1992.

ISO/IEC 9592 consists of the following parts, under the general title *Information technology — Computer graphics and image processing — Programmer's Hierarchical Interactive Graphics System (PHIGS)*:

- *Part 1: Functional description*
- *Part 2: Archive file format*
- *Part 3: Specification for clear-text encoding of archive file*

Introduction

This part of ISO/IEC 9592 defines an archive file format suitable for the storage and retrieval of PHIGS structure and structure network definitions. The file format consists of a set of elements that represent structure elements in a way that is compatible between systems of different architectures and devices of differing capabilities and design.

The main reasons for producing a standard PHIGS archive file are:

- a) to allow structure definitions to be stored in an organized way on a graphical software system;
- b) to facilitate transfer of structure definitions between different graphical software systems;
- c) to enable structure definitions to be transferred between different computer graphics installations.

To reach these objectives, a number of design principles were adopted:

- d) The archive file should provide a suitable set of elements for the storage of structure definitions.
- e) The archive file should support all elements required by ISO/IEC 9592-1.
- f) The design of the archive file should not preclude extensions at a later stage to cover further facilities provided in future revisions of ISO/IEC 9592-1.
- g) The archive file design should allow formats which address the needs of different application programs that have conflicting requirements for size of archive file, speed of archival and retrieval, readability, editability and ease of transfer through different transport mechanisms.

The following design criteria have been adopted in order to meet the design requirements listed above.

- h) Completeness: The functionality specified by the archive file design should be capable of storing PHIGS structure definitions without recourse to other mechanisms.
- i) Consistency: The elements of the archive file should match the elements of the PHIGS structure one for one.
- j) Extensibility: The ability to add new elements and generality to the archive file design should not be precluded.
- k) Orthogonality: No element in the archive file should depend on other elements to define the functionality being represented.

The PHIGS archive file functionality has been designed so that, although its main usage is anticipated as being completely within a single implementation, it is possible to support multiple archive file formats some of which may be standard formats and some of which may be private formats. It is intended that conversion between formats should be readily possible and may occur off-line from any PHIGS application program. This will allow private formats to be used on-line for greater efficiency with conversion to standard formats off-line for portability. Support for standard formats on-line is not precluded.

The specific mechanisms of archive file generation and retrieval are not described in this part of ISO/IEC 9592, although it does describe the intended result of such processing. The basic set of archive file elements includes the PHIGS capability for the addition of application-dependent data.

The functionality provided by the archive file is separated from the specification of any particular encoding format. This part of ISO/IEC 9592 provides for both standard and private encodings of the structure elements described in ISO/IEC 9592-1 and this part of ISO/IEC 9592. The rules for conformance of private encodings are also specified in this part of ISO/IEC 9592. ISO/IEC 9592-3 (clear text encoding of archive file) defines a standard encoding of the PHIGS archive file format: a clear-text encoding. Other standard encodings may be defined. These encodings are in different forms to support differing requirements for readability, storage efficiency, and processing efficiency.

This part of ISO/IEC 9592 draws extensively for its model of a file format on ISO 8632.

**Information technology – Computer graphics and image processing –
Programmer's Hierarchical Interactive Graphics System (PHIGS) – Part 2:
Archive file format**

1 Scope

This part of ISO/IEC 9592 specifies a file format suitable for the storage and retrieval of PHIGS structure definitions. The file format consists of an ordered set of elements that can be used to describe structures in a way that is compatible between systems of different architectures and implementations supporting different programming languages.

The archive file is defined in such a way that, in addition to sequential access to the whole archive file, random access to individual structure definitions is well-defined; whether this is available in any system that uses this part of ISO/IEC 9592 depends on the medium, the encoding and the implementation.

Clause 4 describes the organization of an archive file.

ISO/IEC 9592-3 specifies a clear-text encoding of the archive file format.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 9592. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9592 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 8632:1992, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information*

- *Part 1 : Functional description*
- *Part 2 : Character encoding*
- *Part 3 : Binary encoding*
- *Part 4 : Clear text encoding*

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