INTERNATIONAL STANDARD

ISO 8613-1

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Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 1 :
Introduction and general principles

Traitement de l'information — Bureautique — Architecture des documents de bureau (ODA) et format d'échange —

Partie 1 : Introduction et principes généraux

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75% approval by the member bodies voting.

International Standard ISO 8613-1 was prepared by Technical Committee ISO/TC 97, *Information processing systems.*

At present, ISO 8613 consists of seven parts:

- part 1, Introduction and general principles;
- part 2, Document structures;
- part 4, Document profile;
- part 5, Office document interchange format (ODIF);
- part 6, Character content architectures;
- part 7, Raster graphics content architectures;
- part 8, Geometric graphics content architectures.

NOTE – At present, there is no part 3.

Further parts may be added to this International Standard.

Development of this International Standard has been in parallel with:

- ECMA–101 : 1985, *Office document architecture;*
- CCITT Recommendation T.73 (1984) : *Document interchange protocol for the telematic services;*
- CCITT Recommendations in the T.410 series (1988) : *Open Document Architecture (ODA) and Interchange Format.*

This part contains five annexes:

- annex A (informative): References to other standards and registers;
- annex B (informative): Relationships with other standards;
- annex C (informative): Correspondance between CCITT Recommendation T.73 (1984) and ISO 8613;
- annex D (informative): Principles for the assignment of ASN.1 object identifier values;
- annex E (informative): Information on CCITT Recommendation T.411 – Annex E.

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Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 1 :
Introduction and general principles

1 Scope

The purpose of ISO 8613 is to facilitate the interchange of documents.

In the context of ISO 8613, documents are considered to be items such as memoranda, letters, invoices, forms and reports, which may include pictures and tabular material. The content elements used within the documents may include graphic characters, geometric graphics elements and raster graphics elements, all potentially within one document.

NOTE – ISO 8613 is designed to allow for extensions, including typographical features, colour, spreadsheets and additional types of content such as sound.

ISO 8613 applies to the interchange of documents by means of data communications or the exchange of storage media.

It provides for the interchange of documents for either or both of the following purposes:

- to allow presentation as intended by the originator;
- to allow processing, such as editing and reformatting.

The composition of a document in interchange can take several forms:

- formatted form, allowing presentation of the document;
- processable form, allowing processing of the document;
- formatted processable form, allowing both presentation and processing.

ISO 8613 also provides for the interchange of ODA information structures used for the processing of interchanged documents.

Furthermore, ISO 8613 allows for the interchange of documents containing one or more different types of content, such as character text, images, graphics and sound.

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This part of ISO 8613

- introduces ISO 8613 as a whole;
- gives the references necessary for all the parts;
- defines terms used in the context of ISO 8613;
- presents the concepts of the document architecture;
- gives an overview of all the parts;
- describes the inter–dependencies of the parts;
- defines conformance to ISO 8613;
- gives rules for defining document application profiles.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8613. 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 8613 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8613 : 1989, *Information processing – Text and office systems – Office Document Architecture (ODA) and Interchange Format –*

Part 2 – Document structures;

Part 4 – Document profile;

Part 5 – Office document interchange format (ODIF);

Part 6 – Character content architectures;

Part 7 – Raster graphics content architectures;

Part 8 – Geometric graphics content architectures.

ISO 8632–1 : 1987, *Information processing systems – Computer graphics – Metafile for the storage and transfer of picture description information – Part 1: Functional specification.*

ISO 8632–3 : 1987, *Information processing systems – Computer graphics – Metafile for the storage and transfer of picture description information – Part 3: Binary encoding.*

ISO 8824 : 1987, *Information processing systems – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1).*

ISO 8879 : 1986, *Information processing – Text and office systems – Standard Generalized Markup Language (SGML).*

ISO 9069 : 1988, *Information processing – SGML support facilities – SGML Document Interchange Format* (SDIF).

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3 Definitions

For the purposes of ISO 8613, the following definitions apply.

3.1 active position: The point at which the action specified by the next character is to be effected.

3.2 aligned around: A tabulation alignment that positions the sequence of character images for a specified character string such that the position point of the character image of the first instance of a specified group of characters within that string is positioned at the tabulation stop.

3.3 aspect ratio: The ratio of the dimension of a pel array in the direction of the pel path to the dimension in the direction of the line progression.

3.4 assured reproduction area: The rectangular area that remains on the nominal page after deducting an agreed allowance for edge losses.

3.5 attribute: An element of a constituent of a document that has a name and a value and that expresses a characteristic of this constituent or a relationship with one or more constituents.

3.6 available area: The area determined by the document layout process into which the content portion is formatted by the content layout process.

3.7 basic component: A basic logical or layout object, or an object class from which basic logical or layout objects may be derived.

3.8 basic layout object: An object in the specific layout structure that has no subordinate.

3.9 basic logical object: An object in the specific logical structure that has no subordinate.

3.10 basic measurement unit; BMU (abbreviation): A unit of linear measurement equal to 1/1200 of 25,4 mm.

NOTE – A locally defined scaling factor may be used to map the document to a particular imaging device.

3.11 basic value: An attribute value, a control function parameter value or the value of any other capability that is unconditionally allowed in document interchange in the context of a given document application profile.

3.12 binding: A pair comprising an identifier and a value, where the value may be of any type, may be specified by an expression, and is accessed through use of the binding identifier.

3.13 block: A basic layout component that corresponds to a rectangular area within a frame or a page.

3.14 bottom edge: The edge of the positioning area of a basic layout object that is in the direction of the line progression.

3.15 bottom left corner: The corner of a layout object that is least progressed in the horizontal direction and most progressed in the vertical direction of this layout object.

3.16 bottom right corner: The corner of a layout object that is most progressed both in the horizontal and vertical directions of this layout object.

3.17 centred:

(1) The result of a layout or imaging process that positions the sequence of character images for a line such that the distance from the line home position to the position point of the first character image is approximately equal to the distance from the escapement point of the last character image to the end edge of the positioning area.

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(2) A tabulation alignment that positions the sequence of character images for a specified character string such that the distance from the position point of the first character image to the tabulation stop is approximately equal to the distance from the tabulation stop to the escapement point of the last character image.

NOTE – The term "centred" is also used in the parameter "alignment" of the attribute "position" and in the attribute "block alignment".

3.18 character: A member of a set of elements used for the organization, control and representation of information.

3.19 character base line: A line across a character image, in the horizontal direction when the character image is in its intended viewing orientation.

3.20 character image: The human perceptible rendering of a character on a presentation medium.

3.21 character orientation: The direction of the character baseline relative to the character path.

3.22 character path: The direction of progression of successive character images within a linebox.

3.23 character sequence: A sequence of characters intended to be presented as one or more lines.

3.24 character spacing (for constant spacing fonts only): The distance between the position points of successive character images when the inter–character space equals zero.

3.25 clipped pel array: The actual pel array to be imaged as determined by taking account of all clipping parameters.

3.26 complete generator set: A constituent of a document consisting of a document root object class description and at least one level of subordinate object class descriptions which are used to control the creation and/or modification of the set of object descriptions representing a corresponding specific structure.

3.27 component: An object or an object class.

3.28 composite component: A composite logical or layout object, or an object class from which composite logical or layout objects may be derived.

3.29 composite layout object: An object in the layout structure that has one or more subordinate objects.

3.30 composite logical object: An object in the logical structure that has one or more subordinate objects.

3.31 constant spacing: The characteristic of a font wherein the distance between the position point and the escapement point is the same for all character images.

3.32 constituent: A set of attributes that is one of the following types: a document profile, an object description, an object class description, a presentation style, a layout style or a content portion description.

3.33 content: The information conveyed by the document, other than the structural information, and that is intended for human perception.

3.34 content architecture: Rules for defining the internal structure and representation of the content of basic components in terms of a set of content elements, attributes and control functions, and guidelines for the presentation of the content.

3.35 content architecture class: The rules for defining the internal structure and representation of the content of basic components in one of a set of forms defined for each type of content element.

NOTE – Examples of content architecture classes are formatted form, processable form and formatted processable form in the case of character content elements.

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3.36 content architecture level: An identified subset of the features pertaining to a content architecture class.

3.37 content editing process: The process that creates new content or modifies previous content.

3.38 content element: A basic element of the content of a document.

3.39 content layout process: The process that, interacting with the document layout process, consists of the formatting of content portions into available areas and the determination of the sizes of blocks in accordance with information contained in the presentation styles.

3.40 content portion: The result of partitioning the content of a document according to its logical and/or layout structure.

3.41 content portion description: A constituent of a document, representing a content portion that consists of content information and attributes to specify the properties of its content information.

3.42 content type: A category of content elements such as graphic characters, raster graphic elements and geometric graphic elements.

3.43 control function: An element of a character set that affects the recording, processing, transmission or interpretation of data, and that has a coded representation consisting of one or more bit combinations.

NOTE – Examples of control functions are Select Graphic Rendition (SGR) in character content architectures and Set Line Type in geometric graphics content architectures.

3.44 current layout position: The identification of a lowest level frame which is maintained during the layout process for each layout stream which occurs.

3.45 data structure: A set of data items and the relationship among them representing the whole or a part of a constituent.

NOTE – The data items constituting a data structure represent attributes of the document, the document profile, the component, the style or the content portion concerned.

3.46 description: A constituent that corresponds to a structural element.

3.47 descriptor: A data structure representing the document profile, an object class description, a layout style, a presentation style or an object description.

3.48 document: A structured amount of information intended for human perception, that can be interchanged as a unit between users and/or systems.

3.49 document application profile: The specification of a combination of features defined in ISO 8613, intended to form a subset to fulfil the requirements of an application.

3.50 document architecture:

(1) Rules for defining the structure of documents, in terms of a set of components and content portions, and the representation of documents in terms of constituents and attributes.

(2) The structural information of a document consisting of the set of one or more of the following structures: specific logical structure, specific layout structure, generic logical structure and/or generic layout structure.

3.51 document architecture class: The rules for defining the structure and representation of documents in formatted form, processable form or formatted processable form.

3.52 document architecture level: An identified subset of the features pertaining to a document architecture class.

3.53 document body: The part of a document that may include a generic logical and layout structure, specific logical and layout structure, layout and presentation styles but excludes the document profile.

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3.54 document class: A set of logical object class descriptions, layout object class descriptions, generic content portion descriptions, styles and a document profile, that specifies a set of documents with common characteristics.

3.55 document class description: The specification of a document class.

3.56 document layout process: The process that creates a specific layout structure in accordance with the generic layout structure and information contained in the specific logical structure, the generic logical structure and the layout styles.

3.57 document layout root: The composite object of the specific layout structure at the highest level of the hierarchy.

3.58 document logical root: The composite object of the specific logical structure at the highest level of the hierarchy.

3.59 document profile: A set of attributes which specifies the characteristics of the document as a whole.

3.60 document profile level: An identified subset of the features pertaining to the document profile.

3.61 editing process: The stage of a document processing that consists of the content editing process and the logical structure editing process.

3.62 end–aligned:

(1) The result of a layout or imaging process that positions the sequence of character images for a line such that the escapement point of the last character image is positioned at the end edge of the positioning area.

(2) A tabulation alignment that positions the sequence of character images for a specified character string such that the escapement point of the last character image is positioned at the tabulation stop.

3.63 end edge: The edge of the positioning area of a basic layout object that is in the direction of the character path.

3.64 escapement point: A reference point associated with a character image that is used for positioning of the next character image.

3.65 external document class: A document class referred to by the document profile of an interchanged document containing no generic structure.

3.66 factor set: One or more object class descriptions which are used to factorise the attributes of object descriptions representing a specific structure.

3.67 filing: The storage of a document according to some defined method in order to facilitate retrieval of the document.

3.68 font: A set of character images normally with a common design and size.

3.69 font size: The height of the character images in a font.

3.70 formatted form: A form of representation of a document that allows the presentation of the document as intended by the originator and that does not support editing and (re)formatting.

3.71 formatted processable form: A form of representation of the document that allows presentation of the document as intended by the originator and also supports editing and (re)formatting.

3.72 formatting: The carrying out of operations to determine the layout of a document.

3.73 frame: A type of composite layout component that corresponds to a rectangular area within a page or another frame.

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3.74 generic content portion: A content portion associated with an object class.

3.75 generic content portion description: A content portion description associated with an object class description.

3.76 generic–document: A structured amount of information intended for the interchange of generic structures, and optionally associated styles and content portions, for use in the processing of interchanged documents.

3.77 generic layout structure: A set of layout object classes and associated generic content portions.

3.78 generic logical structure: A set of logical object classes and associated generic content portions.

3.79 geometric graphics element: A graphic element used to describe an image by geometric graphical means.

NOTE – Geometric graphics elements include those describing primitive geometric shapes such as points, arcs, lines.

3.80 graphic character: A member of a set of graphic symbols used for the representation of information.

NOTE – Graphic characters include simple alphanumeric characters (for example, accented letters) and pictorial characters (for example, mosaics).

3.81 graphic element: A content element that is capable of having a visual representation.

NOTE – Three types of graphic elements are distinguished in ISO 8613: graphic characters, geometric graphics elements and raster graphics elements.

3.82 hard line terminator: A line terminator that is intended not to be removed in a re–formatting process.

3.83 horizontal direction (of a layout object): The direction in a layout object relative to which content architectures may define attributes determined using the horizontal axis of the page.

3.84 imaging order: The order of precedence of layout objects for imaging in the layout object to which they are immediately subordinate.

3.85 imaging process: The process of producing a document on a presentation medium in human–perceptible form, making use of the document profile, specific and generic layout structures, presentation styles and content portions.

3.86 indentation: The result of a layout or imaging process that causes the sequence of character images for a line to begin at a distance from the line home position in the direction of the character path.

3.87 initial point:

(1) The point associated with a basic layout object relative to which all line boxes imaged within that basic layout object are positioned (character content architectures ISO 8613–6).

(2) The point associated with a basic layout object relative to which all pels imaged within that basic layout object are positioned (raster graphics content architectures ISO 8613–7).

3.88 interchange: The process of transferring a document from an originating system to a receiving system.

3.89 interchange data element: A data structure representing a constituent of a document.

3.90 interchange format: The rules for representing a document for the purpose of interchange.

3.91 interchange format class: A form of interchange format suitable to a specific application.

NOTE – In ISO 8613, the defined classes differ by the ordering of the interchange data elements or by the coding.

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3.92 inter–character space: An additional amount of spacing that is included between adjacent character images.

3.93 intersection: The common area of two or more layout objects that overlap each other partially or fully on the presentation medium.

3.94 item identifier: A string of characters preceding the first line of characters in a content portion that is used to identify the subsequent text.

3.95 justified: The result of a layout or imaging process that varies the width of the space character and/or the inter–character space to produce a simultaneously start–aligned and end–aligned presentation of the text.

3.96 kern: The part of a character which extends beyond its position point or escapement point.

3.97 layout category: The association of basic logical objects with lowest level frames such that the content of these basic logical objects is placed in the appropriate frames.

3.98 layout object: An element of the specific layout structure of a document, for example, page, block.

3.99 layout object class: An element of the generic layout structure from which a set of layout objects with common characteristics may be derived, for example, pages with common headers and footers.

3.100 layout process: The stage of a document processing that consists of the document layout process and the content layout process.

NOTE – This is also referred to as formatting.

3.101 layout stream: A set of basic logical objects pertaining to the same layout category.

3.102 layout structure:

(1) The result of dividing and subdividing the content of a document into increasingly smaller parts, on the basis of the presentation, for example, into pages, blocks.

(2) All layout objects and associated content portions forming the layout hierarchy of a document.

3.103 layout style: A constituent of the document, referred to from a logical component, that guides the creation of a specific layout structure.

3.104 leading edge: The edge of a frame or block that is orthogonal to the direction of the layout path and that is met first, from the outside of the frame or the block, in the opposite direction of the layout path.

3.105 left hand edge: The edge of a frame or block that is parallel to the direction of the layout path and that is met first, from the outside of the frame or the block, in the direction at an angle of 270° counterclockwise relative to the direction of the layout path.

3.106 line box: A rectangular area within which a sequence of character images are positioned.

3.107 line home position: The point within a line box that is used for positioning that line box.

3.108 line progression:

(1) The direction of progression of successive line boxes within a basic layout object (character content architectures ISO 8613–6).

(2) The direction of progression of successive lines of pels within a basic layout object (raster graphics content architectures ISO 8613–7).

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3.109 line spacing:

(1) The distance between two adjacent reference lines within a basic layout object (character content architectures ISO 8613–6).

(2) The distance between two adjacent lines of pels within a basic layout object (raster graphics content architectures ISO 8613–7).

3.110 line terminator: A control function or combination of control functions that indicates the end of a line or the end of a character sequence.

3.111 logical object: An element of the specific logical structure of a document which may have a meaning that is significant to the application or user, for example, chapter, section, paragraph.

3.112 logical object class: An element of the generic logical structure from which a set of logical objects with common characteristics may be derived, for example, composite logical objects representing sections with a common internal structure.

3.113 logical structure:

(1) The result of dividing and subdividing the content of a document into increasingly smaller parts, on the basis of the human–perceptible meaning of the content, for example, into chapters, sections, paragraphs.

(2) All logical objects and associated content portions representing the logical hierarchy of a document.

3.114 logical structure editing process: The process that creates a new specific logical structure or modifies a previous specific logical structure and allocates or re–allocates content to basic logical objects.

3.115 mandatory attribute: An attribute which, when applicable to a constituent, must be specified explicitly in that constituent.

3.116 nominal page: A rectangular area which, as assumed by the sender of a document, has the ideal size of the presentation surface.

NOTE – Examples of ideal sizes are given in ISO 216.

3.117 non–basic: A qualifier for attribute values, control function parameter values and other capabilities that are only allowed in document interchange in the context of a given document application profile if their use is declared in the document profile.

3.118 non–mandatory attribute: An attribute which, when applicable to a constituent, need not be specified explicitly; if the attribute is not specified explicitly in a given constituent, the attribute does not apply.

3.119 object: An element of the specific layout structure or of the specific logical structure.

3.120 object class: An element of a generic structure from which objects with common characteristics may be derived.

3.121 object class description: A set of attributes that specify the properties of an object class including its relationships, if any, with other components.

3.122 object description: A set of attributes that specify the properties of an object including its relationships, if any, with other components.

3.123 object type: A property of every component that specifies which attributes are permitted in the description to which it applies and indicates the role of the component in the document architecture.

3.124 Office Document Language; ODL (abbreviation): A Standard Generalized Markup Language (SGML,ISO 8879) application for representing documents conforming to ISO 8613.

3.125 orphan: One or more lines of text that is associated with subsequent text but isolated from it by a page or column boundary.

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3.126 overhang: The result of a layout or imaging process that positions the sequence of character images for a line to begin at a distance from the line home position in the direction opposite to the character path.

3.127 page: A layout component that corresponds to a rectangular area used for presenting the content of the document.

3.128 page coordinate system: An orthogonal coordinate system whose origin is the top left corner of the page; its horizontal axis and its vertical axis coincide with the top edge and the left edge of the page, respectively.

3.129 page set: A composite layout component that represents a collection of pages or further page sets.

3.130 pairwise kerning: The distance between two adjacent character images depending on the combination of the two characters together rather than separately.

3.131 parallel annotation: Two sequential character strings that are presented in parallel, wherein the second string is used to indicate the pronunciation or interpretation of the first string.

3.132 partial generator set: A collection consisting of hierarchically related object class descriptions which are used to guide the creation of hierarchically related corresponding object descriptions but does not fully specify all specific structures that may be created.

3.133 pel array: A two–dimensional array of pels used to represent a pictorial image.

3.134 pel path: The direction of progression of successive pels along a line within a basic layout object.

3.135 pel spacing: The distance between any two successive pels along a line within a basic layout object.

3.136 picture element; pel (abbreviation): The smallest graphic element that can be individually addressed within a picture; (an alternative term for raster graphics element).

3.137 positioning area: The rectangular area within a basic layout object within which the position points and the escapement points of all character images are located.

3.138 position point: The point relative to which the character image is placed i.e. the character is imaged with the position point at the active position.

3.139 presentation: The operation of rendering a document in a form perceptible to a human being.

3.140 presentation medium: The carrier of information in a form perceptible to a human being.

3.141 presentation style: A constituent of the document, referred to from a basic logical or layout component, which guides the format and appearance of the document content.

3.142 presentation surface: A two–dimensional presentation medium (such as paper, film, video display screen) on which the formatted form of a document may be displayed for human viewing.

3.143 processable form: A form of representation of a document that allows editing and formatting.

3.144 processing: The carrying out of operations on a document, including editing, reformatting, presentation, filing and retrieval.

3.145 raster graphics element: An alternative term for a picture element (pel).

3.146 reference area: A rectangular area within a basic layout object, with its sides equal to the pel spacing and the line spacing, within which the main part of a pel is imaged.

3.147 reference line: A line through the line home position and parallel to the character path.

3.148 reference point: The point at the corner of the reference area situated in the opposite direction of both pel path and line progression and which is used for positioning a pel.

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