INTERNATIONAL STANDARD

ISO 17972-2

First edition
2016-05-01

Graphic technology — Colour data exchange format (CxF/X) —

Part 2: Scanner target data (CxF/X-2)

Technologie graphique — Échange des données de couleur en utilisant CxF —

Partie 2: Données cibles du scanner entrantes

Reference number
ISO 17972-2:2016(E)

© ISO 2016



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**

Introduction ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

3.1 Terms 1

3.2 Definitions 2

4 Symbols and abbreviated terms **2**

5 Requirements **3**

5.1 General description of a CxF/X file for data exchange 3

5.2 Requirements of a CxF/X-2 file for ISO 12641 data exchange 3

Annex A (informative) **Colour exchange format mapping to ISO 28178** **5**

Annex B (informative) **CxF3 schema** **10**

Annex C (informative) **Example file** **11**

Bibliography **12**

© ISO 2016 – All rights reserved

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 130, *Graphic technology*.

ISO 17972 consists of the following parts, under the general title *Graphic technology — Colour data exchange format (CxF/X)*:

— *Part 1: Relationship to CxF3 (CxF/X)*

— *Part 2: Scanner target data (CxF/X-2)*

— *Part 3: Output target data (CxF/X-3)*

— *Part 4: Spot colour characterisation data (CxF/X-4)*

© ISO 2016 – All rights reserved

Introduction

ISO 17972 defines methods for the use of CxF3 to exchange measurement data and associated metadata within the graphic arts industry and for the exchange of these files between graphic arts users. It is a multi-part document where each part is intended to respond to different workflow requirements. The goal throughout the various parts of ISO 17972 has been to maintain the degree of flexibility required while minimizing the uncertainty of the data exchanged.

ISO 17972-1 defines the use of the publicly available Colour Exchange Format, version 3 (CxF3), for prepress data exchange and verification.

This part of ISO 17972 covers the use of CxF when exchanging data from ISO 12641. This part of ISO 17972 is not designed to replace ISO 12641, but to define an updated, verifiable, method of data exchange using CxF, acting as a supplement to ISO 12641:1997, 4.6 and 4.7. X-Rite Inc., the original creator of the CxF file format, claims no intellectual property rights to the materials used in this part of ISO 17972.

Scanner targets are one of the earliest defined data exchange use cases in the graphic arts and continue to be used for calibration and characterization of scanners and other devices. Traditionally, data has been provided in ACSII format using a keyword file. The direct mapping of existing data to the updated CxF/X-2 encoding was one of the primary concerns in writing this part of ISO 17972.

The following files are part of this part of ISO 17972, and are included as electronic inserts:

— CxF3_Core.xsd;

— CxF3_Schema_Diagram.pdf;

— Scannertarget CxF/X-2.cxf;

— Scannertarget.txt.

© ISO 2016 – All rights reserved

Graphic technology — Colour data exchange format (CxF/X) —

Part 2:
Scanner target data (CxF/X-2)

1 Scope

This part of ISO 17972 defines an exchange format for target input values, colour and process control data relating to scanner targets (and the associated metadata necessary for its proper interpretation) in electronic form. This part of ISO 17972 includes the use of a CustomResource element within the CxF framework to define a minimum set of data for exchange and identify the data as being part of ISO 12641.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12641:1997, *Graphic technology — Prepress digital data exchange — Colour targets for input scanner calibration*

ISO 17972-1, *Graphic technology — Colour data exchange format — Part 1: Relationship to CxF3 (CxF/X)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply

3.1 Terms

NOTE The spelling of terms taken from Colour Exchange Format v3.0 is not altered from that used in the normative reference. A specific example is the word color instead of colour.

3.1.1
ColorSpecification
information about the *ColorValue* (3.1.2) including its source (measurement specifications), illuminant/observer calculation method (tristimulus specifications) and physical attributes of the *objects* (3.1.5) (size, quantity, finish, etc.)

3.1.2
ColorValue
one of a number of defined color space types that can hold values and associated information related to that specific type of device independent colour space

[SOURCE: Color Exchange Format v3.0]

© ISO 2016 – All rights reserved

3.1.3
CustomResources
"extensible" part of CxF3, additional information not included in the CxF3 Core about colour objects and the file itself that is considered application specific in nature and not generally of use to all other applications

[SOURCE: Colour Exchange Format v3.0]

3.1.4
DeviceColorValue
one of a number of defined colour space types that can hold values and associated information related to that specific type of device dependent colour space

[SOURCE: Color Exchange Format v3.0]

3.1.5
object
used to identify each specific "Colour item" that is being described

3.2 Definitions

3.2.1
profile
set of mathematical values or binary structure that allows transformation to/from one device colour space to another

Note 1 to entry: Profiles are stored in the ProfileCollection and are shared and referenced by the ColourValues.

3.2.2
resources
information about each colour object that is of interest to all readers of the CxF file

Note 1 to entry: Also referred to as the "CxF3 Core", it is defined by the CxF3-Core namespace schema.

3.2.3
schema
XML document that, conforming to the specifications established by the World Wide Web Consortium, defines the structure of a class of XML documents

3.2.4
extensible markup language
XML
set of rules for encoding documents electronically

3.2.5
XSD
XML schema definition

4 Symbols and abbreviated terms

The following documentation conventions are used.

Names of XML elements are shown in bold type, for example, **Resources**.

Names of XML attributes are shown in italics, for example, *SpotColorName*.

XML XPaths are used to identify XML elements. For example, **container**/**contained** refers to an element (**contained**) that is a child of another element (**container**).

Similarly, XML XPaths are used to refer to XML attributes, for example, **element1**/@*Name* refers to an attribute (*Name*) of an element (**element1**).

© ISO 2016 – All rights reserved