



NSAI
Standards

Irish Standard
I.S. EN ISO/ASTM 52915:2020

Specification for additive manufacturing file format (AMF) Version 1.2 (ISO/ASTM 52915:2020)

I.S. EN ISO/ASTM 52915:2020

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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National Foreword

I.S. EN ISO/ASTM 52915:2020 is the adopted Irish version of the European Document EN ISO/ASTM 52915:2020, Specification for additive manufacturing file format (AMF) Version 1.2 (ISO/ASTM 52915:2020)

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO/ASTM 52915

April 2020

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Supersedes EN ISO/ASTM 52915:2017

English Version

Specification for additive manufacturing file format (AMF)
Version 1.2 (ISO/ASTM 52915:2020)

Spécification pour le format de fichier pour la
fabrication additive (AMF) Version 1.2 (ISO/ASTM
52915:2020)

Spezifikation für ein Dateiformat für Additive
Fertigung (AMF) Version 1.2 (ISO/ASTM 52915:2020)

This European Standard was approved by CEN on 18 March 2020.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN ISO/ASTM 52915:2020) has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" in collaboration with Technical Committee CEN/TC 438 "Additive Manufacturing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO/ASTM 52915:2017.

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Endorsement notice

The text of ISO/ASTM 52915:2020 has been approved by CEN as EN ISO/ASTM 52915:2020 without any modification.

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INTERNATIONAL STANDARD

ISO/ASTM 52915

Third edition
2020-03

Specification for additive manufacturing file format (AMF) Version 1.2

*Spécification pour le format de fichier pour la fabrication additive
(AMF) Version 1.2*



Reference number
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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

ASTM International
100 Barr Harbor Drive, PO Box C700
West Conshohocken, PA 19428-2959, USA
Phone: +610 832 9634
Fax: +610 832 9635
Email: khooper@astm.org
Website: www.astm.org

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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.

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM F 42.91, *Terminology*, on the basis of a partnership agreement between ISO and ASTM International with the aim to create a common set of ISO/ASTM standards on Additive Manufacturing.

This second edition cancels and replaces the first edition (ISO/ASTM 52915:2016), which has been technically revised.

The main changes compared to the previous edition are as follows:

- Harmonization of the terminology definition shared with ISO/ASTM 52900 in [3.8](#);
- Corrections to [Figures 1](#) to [6](#) in [7.1](#), [8.1.2](#), [9.1.1](#), [11.4](#) and [12](#);
- Corrections of typographic issues in [Table A.1](#) and Table A.4.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document describes an interchange format to address the current and future needs of additive manufacturing technology. For the last three decades, the stereolithography (STL) file format has been the industry standard for transferring information between design programs and additive manufacturing equipment. An STL file defines only a surface mesh and has no provisions for representing colour, texture, material, substructure and other properties of the fabricated object. As additive manufacturing technology is evolving quickly from producing primarily single-material, homogeneous objects to producing geometries in full colour with functionally defined gradations of materials and microstructures, there is a growing need for a standard interchange file format that can support these features.

The Additive Manufacturing File Format (AMF) has many benefits. It describes an object in such a general way that any machine can build it to the best of its ability, and as such is technology independent. It is easy to implement and understand, scalable and has good performance. Crucially, it is both backwards compatible, allowing any existing STL file to be converted, and future compatible, allowing new features to be added as advances in technology warrant.

Specification for additive manufacturing file format (AMF) Version 1.2

1 Scope

This document provides the specification for the Additive Manufacturing File Format (AMF), an interchange format to address the current and future needs of additive manufacturing technology.

This document specifies the requirements for the preparation, display and transmission for the AMF. When prepared in a structured electronic format, strict adherence to an extensible markup language (XML)^[1] schema supports standards-compliant interoperability.

NOTE A W3C XML schema definition (XSD) for the AMF is available from ISO from <http://standards.iso.org/iso/52915> and from ASTM from www.astm.org/MEETINGS/images/amf.xsd. An implementation guide for such an XML schema is provided in [Annex A](#).

It is recognized that there is additional information relevant to the final part that is not covered by the current version of this document. Suggested future features are listed in [Annex B](#).

This document does not specify any explicit mechanisms for ensuring data integrity, electronic signatures and encryptions.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

AMF consumer

software reading (parsing) the Additive Manufacturing File Format (AMF) file for fabrication, visualization or analysis

Note 1 to entry: AMF files are typically imported by additive manufacturing equipment, as well as viewing, analysis and verification software.

3.2

AMF editor

software reading and rewriting the Additive Manufacturing File Format (AMF) file for conversion

Note 1 to entry: AMF editor applications are used to convert an AMF from one form to another, for example, convert all curved triangles to flat triangles or convert porous material specification into an explicit mesh surface.

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