

# STANDARDS AND INFORMATION DOCUMENTS

**AES31-3-2020**  
(rev AES31-3-2008)



**AES standard on  
Network & file transfer of audio —  
Audio-file transfer and exchange  
Part 3: Simple project exchange**

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# **AES standard for network and file transfer of audio - Audio-file transfer and exchange - Part 3: Simple project interchange**

Published by

**Audio Engineering Society, Inc.**

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## **Abstract**

This standard provides a convention for expressing edit data in text form in a manner that enables simple and accurate computer parsing while retaining human readability. It also describes a method for expressing time-code information in character notation and simple automation for stereo & surround panning and audio gain.

An AES standard implies a consensus of those directly and materially affected by its scope and provisions and is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an AES standard does not in any respect preclude anyone, whether or not he or she has approved the document, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in agreement with the standard. Prior to approval, all parties were provided opportunities to comment or object to any provision. Approval does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the standards document. This document is subject to periodic review and users are cautioned to obtain the latest edition. Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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## Foreword

[This foreword is not a part of *AES standard for network and file transfer of audio — Audio-file transfer and exchange — Part 3: Simple project interchange*, AES31-3-1999.]

In 1997-03, the SC-06-01 Working Group on Audio-File Transfer and Exchange of the SC-06 Subcommittee on Network and File Transfer of Audio replaced SC-02-08 to consider the topic of interchange of audio material in the form of computer file data.

This document is part of a proposed multi-part standard for a simple format for audio project interchange defined in project AES-X67. It describes a generalized means to interchange edit data in the form of human-readable text. It describes a means to communicate timing information to sample accuracy in the form of a text string. It describes a technique for communicating edit information between different types of computer platform using plain text.

The remaining projects at the time of issue of this printing, and their intended parts, are:

Project AES-X69: AES31-1 *Media for Interchange*;  
Project AES-X66: AES31-2 *Audio File Format*;  
Project AES-X68: AES31-4 *Object Oriented Project Interchange*.

Following the presentation of an earlier version of AES31-3 at the AES 105th Convention in San Francisco, CA, US, the draft was substantially revised by Task Group SC-06-01-C at Oxford, England, UK, in 1999-02. It was completed and issued with a call for comment following the working group meeting in conjunction with the AES 106th Convention in Munich, Germany, 1999-05.

At the time of public approval of the standard, the membership of the task group was A. Bell, D. Brennan, C. Broad, K. Brown, J. Bull, G. Dimino, J. Emmett, B. Fattorini, A. Faust, B. Harris, U. Henry, E. Mcdermid, O. Morgan, J. Nunn, M. Porter, I. Rodrigues, C. Sleight, and M. Yonge.

Mark Yonge, Chair  
Brooks Harris, Vice-Chair  
SC-06-01, 1999-06

## Foreword to second edition

This revision of AES31-3 incorporates previous corrigenda, and includes a number of editorial updates and corrections based on experiences of practical implementation. It has also been extended to include support for higher sampling frequencies and simple gain and surround pan automation.

At the time of revision, the writing group included: J. Bull, R. Caine, A. Faust, C. Garcha, B. Harris, U. Henry, J. Palmer, M. Yonge.

Mark Yonge  
Chair, SC-02-08

## Foreword to 2019 edition

Various editorial corrections have been made. The order of annexes has been changed and the informative reference section was converted to a bibliography to conform with the IEC recommended format.

Richard Cabot  
AES Standards Manager

### Foreword to 2020 edition

The SMPTE Universal Label identified in Annex F.2 was requested of SMPTE on 2019-08-15 as a Leaf in the metadata dictionary for 'Audio edit decision list (ADL) defined in AES31-3'.

At the same time the AES requested a Node in the metadata dictionary for 'File exchange metadata defined in AES standards'. This means that further file-exchange labels can be generated more easily in the future.

Mark Yonge  
Chair, SC-02-08  
2019-10-16

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# AES standard for network and file transfer of audio - Audio-file transfer and exchange - Part 3: Simple project interchange

## 0 Introduction

### 0.1 Rationale for this standard

Time-code character format (TCF) is a modified version of the familiar ASCII time-code display. It supports sample-accurate audio editing while integrating easily with systems and processes requiring conventional time codes. It can carry additional information describing time-base derivation. This generalized specification describes features that may not be applicable in all implementations.

Audio sampling resolution provides sample-accurate positions using a video frame count plus audio sample count scheme. The sample count is appended to the time code together with a sampling frequency indicator. Supported sampling frequencies include the primary audio rates together with the pull-up and pull-down rates required for sampling frequency conversions. Sampling frequency is expressed relative to true seconds.

In addition, TCF provides a means for communicating information about the timing relationships between different source media.

Society of Motion Picture and Television Engineers (SMPTE), European Broadcasting Union (EBU), and film time codes indicate how the HH:MM:SS:FF portion of the time code will be interpreted (30 frames per time base for SMPTE, 25 for EBU, 24 for film).

Time base indicates the actual speed (true hertz) at which the time code and the picture material associated with it is resolved. This has two values, 1 Hz and 1/1,001 Hz.

Video fields and time-code mode indicate a) the video field (field one or two) for National Television Systems Committee (NTSC) or Phase Alternating Line (PAL), and b) the frame-code mode (drop frame, non-drop frame) if the time code is NTSC.

Film framing indicates how film frames are transferred to form the video field sequence.

These enhancements provide an underlying mechanism for a broad range of edit data exchange formats capable of tracking film/video/audio phase relationships and conversions throughout the production process. TCF's similarity to conventional time code means TCF can interchange with conventional time-code formats with little difficulty.

## **0.2 Conventions used in this standard**

### **0.2.1 Decimal points**

According to IEC directives, the comma is used in all text to indicate the decimal point. However, in the specified coding, including the examples shown, the full stop is used as in IEC programming language standards.

### **0.2.2 Data representation**

In this standard, all coding and data representations are printed in an equally spaced font.

### **0.2.3 Non-printing ASCII characters**

Non-printing characters are delimited by angle brackets, as in <CR> for carriage return.

## **1 Scope**

This standard provides a convention for expressing edit data in text form in a manner that enables simple and accurate computer parsing while retaining human readability. It also describes a method for expressing time-code information in character notation. It supports common professional audio sampling frequencies, video frame rates, and film framing. This document addresses the core need of the AES31 series of standards in providing a simple but extensible system for passing audio material between systems.

## **2 Normative references**

The following standards contain provisions which, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the indicated standards.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*. International Standards Organisation, Geneva, Switzerland.

ISO/IEC 11578, - *Information technology - Open Systems Interconnection - Remote Procedure Call (RPC) [Annex A: Universal Unique Identifier]*; International Standards Organisation, Geneva, Switzerland.

ISO 8601, *Data elements and interchange formats - Information interchange - Representation of dates and times*; International Standards Organisation, Geneva, Switzerland.

AES31-2, *AES standard on network and file transfer of audio – Audio-file transfer and exchange – File format for transferring digital audio data between systems of different type and manufacture*, Audio Engineering Society, New York, NY., US.