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Part 1: Structure and semantics

Technologies de l'information — Archive eXchange Format (AXF) — Partie 1: Structure et sémantique

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Archive eXchange Format (AXF) — Part 1: Structure & Semantics

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Foreword

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SMPTE ST 2034-1 was prepared by Technology Committee 31FS on File Formats and Systems.

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Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

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The Archive eXchange Format (AXF) is an open format that supports interoperability among disparate data storage systems and ensures long–term availability of data, no matter how storage or file system technologies evolve. AXF inherently supports interoperability between existing, discrete storage systems, irrespective of the operating and file systems used, and also future–proofs digital storage by abstracting the underlying technology so that content remains available across generations of technology development.

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At the most basic level, AXF is a file container that can encapsulate any number, size, and type of files in a fully self–contained and self–describing package. The package contains its own light-weight file system, which establishes independence from underlying operating systems, storage technologies, and file systems and can store any type of data on any type of storage media. Inside its packaging, AXF can contain metadata of any format, applicable to either AXF Objects or to individual files contained within AXF Objects; AXF also carries key preservation information, such as provenance, fixity, and the like — all key to ensuring long-term robustness and recoverability.

Historically, digital archive systems have used media data storage formats that are proprietary to their manufacturers, either intentionally or due to the lack of established standards. There have been neither interchange of media nor interoperability of archive systems between manufacturers and in some cases between different archive systems from the same manufacturer. Archives could be orphaned due to support ending for the systems used to create data archives. End users and manufacturers recognized that the proprietary nature of archive systems and the data stores that they create result in significant costs of operation that are unnecessary. These costs could be avoided if there were standardization of the format used for storage of the data on media and for transfer of the data between systems and locations. AXF permits separating the stored content from the systems that create and recover sets of data, thereby enabling refreshing of storage technology, recovering sets of data that otherwise would have been orphaned, and transferring sets of data between systems and locations.

This standard specifies a structure for data that can be written to any current or future data storage subsystem, regardless of the type of media on which it is stored. The data can include any types of files and associated metadata that are stored and transferred together in a structure called an "AXF Object." A single AXF Object can be spanned across multiple physical media, can be copied from one set of physical media to another, and

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