ASC X9 TR-40-2011 (R2016)

Bridging ANSI X9.100-187 to ANSI X9.100-182-2-1:

Transferring Data from an Image Cash Letter File to an XML Check Delivery Document

A Technical Report prepared by:
Accredited Standards Committee X9, Incorporated
Financial Industry Standards

Registered with American National Standards Institute

Date Registered: December 18, 2016

Contents

Figures

Tables

ASC X9 TR-40-2011 (R2016)

Foreword

The ANSI X9.100-182 Bulk Data and Image Delivery Schema addresses the formatting of check image payment items in a comprehensive XML structure. The ANSI X9.100-182 standard is not intended to compete with or to replace the more traditional standard for image payment exchange, the ANSI X9.100-187-2008 and its predecessor the withdrawn DSTU X9.37-2003. Rather, ANSI X9.100-182 is intended to complement the cash letter image delivery standard by extending a supported data structure to the transfer and storage of image cash letter originated payments. For example, image payments data can be formatted in a standardized structure on a delivery medium such as DVD, or a storage medium such as an archive. Image payments information can also be transferred in a standardized structure from one application to another within an organization's internal upstream or downstream service.

The XML format that is embodied in the ANSI X9.100-182 Bulk Data and Image Delivery Schema actually reflects a structure that is similar in context to the ANSI X9.100-187-2008 cash letter file. However, the data is in a format that is more readily accessible to modern XML-sensitive applications. Furthermore, the XML structure actually lends itself to storing payments, with or without embedded images, as individual independent entities, while still retaining the envelopment concept of a traditional cash letter file format (i.e. a transaction within bundle, a bundle within cash letter, and a cash letter within file).

When an organization receives payments data originating from standard image cash letter files, the payments data is likely to be retained for some period of time as individual transactions within a receiver's applications. Furthermore, transaction level data originating from the image cash letter file is likely to be transferred from one application to another for payments processing enrichment.

Many organizations, including payments processors, exchange channels, banks and check truncation product vendors, are very familiar with the industry-wide standard content of the image cash letter format. However, few such organizations are likely to be familiar with the format of the XML equivalent as embodied in the ANSI X9.100-182 Bulk Data and Image Delivery Schema. The challenge is that, without a simple guideline to assist an organization to relate the image cash letter data structure to the XML-based standard equivalent, it can be relatively difficult to see how the XML standard can be of benefit to the organization. Without an awareness of the potential benefit of the XML standard as applied to internal systems, the organization may embark on developing a separate proprietary application interface standard or a separate data storage structure, whereas an industry supported standard could more readily have provided a consistent solution.

The effective use of the XML standard emphasizes commonality and predictability for data transfer and storage. The standard can be a common point of agreement among adopting parties, whether these are intra-organizational systems or inter-organizational arrangements. This in turn can help reduce the time to market for new application services, help contain the risk associated with proprietary one-off implementations, and can promote greater longevity of developed solutions that are more broadly supportable.

This Technical Report provides a guideline to co-relate the two data structures, the image cash letter file and the XML document. The content of this document originated from a technical reference guideline that was authored by Brian Salway, Symcor Inc., for internal company use to assist with early adoption of the ANSI X9.100-182 standard. The content was then further developed to comply with standards conventions and general industry use. It was then offered by Symcor Inc. to Accredited Standards Committee X9 as a prospective ANS Technical Report.

Publication of this Technical Report that has been registered with ANSI has been approved by the Accredited Standards Committee X9, Incorporated, 275 West Street, Suite 107, Annapolis, MD 21401. This document is registered as a Technical Report according to the "Procedures for the Registration of Technical Reports with

ASC X9 TR-40-2011 (R2016)

ANSI." This document is not an American National Standard and the material contained herein is not normative in nature. Comments on the content of this document should be sent to: Attn: Executive Director, Accredited Standards Committee X9, Inc., 1212 West Street, Suite 200, Annapolis, MD 21401,

Published by

Introduction

This Technical Report contains no requirements for the specific use of patented materials.

Suggestions for the improvement or revision of this Technical Report are welcome. They should be sent to the X9 Committee Secretariat, Accredited Standards Committee X9, Inc., Financial Industry Standards, 275 West Street, Suite 107, Annapolis, MD 21401 USA.

This Technical Report was processed and registered for submittal to ANSI by the Accredited Standards Committee on Financial Services, X9. Committee approval of the Technical Report does not necessarily imply that all the committee members voted for its approval.

At the time this Technical Report was published, the X9 committee had the following members:

Roy C. DeCicco, X9 Chairman
Claudia Swendseid, X9 Vice Chairman
Steve Stevens, Executive Director
Janet Busch, Managing Director

Organization Represented	Representative
ACI Worldwide	Mr. Doug Grote
American Bankers Association	Ms. C. Diane Poole
American Express Company	Mr. Ted Peirce
Apriva	Len Sutton
Bank of America	Daniel Welch
Certicom Corporation	Daniel Brown
Citigroup, Inc.	Karla McKenna
CUSIP Service Bureau	James Taylor
Deluxe Corporation	Ralph Stolp
Diebold, Inc.	Bruce Chapa
Discover Financial Services	Michelle Zhang
Federal Reserve Bank	Claudia Swendseid
First Data Corporation	Rick Van Luvender
Fiserv	Skip Smith
FIX Protocol Ltd	Mr. Jim Northey
Harland Clarke	John McCleary
Hewlett Packard	Larry Hines
IBM Corporation	Todd Arnold
Independent Community Bankers of America	Viveca Ware
Ingenico	John Spence
ISITC	Tara Gonzales
J.P. Morgan Chase & Co	Roy DeCicco
Key Innovations	Scott Spiker
KPMG LLP	Mark Lundin
MasterCard International	Mr. Mark Kamers
Metavante Image Solutions	Stephen Gibson-Saxty
National Association of Convenience Stores	Michael Davis
NCR Corporation	Steve Stevens
RouteOne	Mark Leonard

ASC X9 TR-40-2011 (R2016)

SWIFT/Pan Americas .... Mrs. Juliette Kennel
Symantec Corportation .... Alex Deacon
Symcor Inc. .... Brian Salway
TECSEC Incorporated .... Ed Scheidt
The Clearing House .... Sharon Jablon
U.S. Bank .... Brian Fickling
University Bank .... Stephen Ranzini
USDA Food and Nutrition Service .... Kathy Ottobre
VeriFone, Inc. .... Brad McGuinness
VISA .... Kim Wagner
Wells Fargo Bank .... Mark Tiggas
Wincor Nixdorf Inc. .... Ramesh Arunashalam
XBRL US, Inc. .... Mark Bolgiano

At the time this standard was approved, the X9AB subcommittee on Payments had the following members:

Daniel Welch, Chairman
John McCleary, Vice Chairman
Jackie Pagán, Vice Chairman
Alan Thiemann, Vice Chairman

Organization Represented	Representative
ACI Worldwide	Cindy Rink
ACS, Government Solutions	Mr. Pat Solitro
All My Papers	Ray Higgins
All My Papers	Larry Krummel
American Bankers Association	Tom Judd
American Bankers Association	Steve Kenneally
American Bankers Association	Ms. C. Diane Poole
American Express Company	Vicky Sammons
BancTec, Inc.	Mr. Russ Andrews
BancTec, Inc.	Peter Caporal
BancTec, Inc.	Mr. David Hunt
Bank of America	Andi Coleman
Bank of America	Daniel Welch
Bank of America	Daniel Whipple
Burroughs Payments Systems, Inc.	David J. Concannon
Burroughs Payments Systems, Inc.	Navnit Shah
Certicom Corporation	Daniel Brown
Citigroup, Inc.	Michael Knorr
Citigroup, Inc.	Karla McKenna
Citigroup, Inc.	Susan Rhodes
Citigroup, Inc.	Rene Schuurman
Citigroup, Inc.	Dr. Chii-Ren Tsai
Compass Bank	Jan Cole
Compass Bank	Mark Pynes
Davis & Henderson	Yves Denomme
Deluxe Corporation	Angela Hendershott
Deluxe Corporation	Ms. Deb Lynch
Deluxe Corporation	Ralph Stolp
Deluxe Corporation	Andy Vo
Diebold, Inc.	Bruce Chapa
Diebold, Inc.	Kelly Patenaude
Discover Financial Services	Jeffery Moran
Discover Financial Services	Michelle Zhang
ECCHO	Ellen Heffner
ECCHO	Phyllis Meyerson
Etegrity L.L.C.	Penny Tisdale
Federal Reserve Bank	Deb Hjortland
Federal Reserve Bank	Mark Kielman
First Data Corporation	Mr. Todd Nuzum
First Data Corporation	Rodney Schwaner
Fiserv	Mary Bland
Fiserv	Keay Edwards
Fiserv	Don Harman
Fiserv	Allen Heimerdinger
Fiserv	Lori Hood
Fiserv	Dan Otten
Fiserv	Skip Smith

ASC X9 TR-40-2011 (R2016)

Fiserv	Senthil Thiagarajan
Food Marketing Institute	Mike Brown
Food Marketing Institute	Liz Garner
Food Marketing Institute	Elizabeth Tansing
Harland Clarke	John McCleary
Harland Clarke	Valerie Meddleton
HSBC Bank	Kevin O'Neil
Huntington Bank	Jim Posani
IBM Corporation	Rod Moon
IBM Corporation	Andrew Sutton
Independent Community Bankers of America	Viveca Ware
Ingenico	John Spence
iStream Imaging/Bank of Kenney	Mike McGuire
J.P. Morgan Chase & Co	Robert Blair
J.P. Morgan Chase & Co	Edward Koslow
J.P. Morgan Chase & Co	Jackie Pagan
Jack Henry and Associates	Mr. Jerry Garrett
Jack Henry and Associates	Mr. Chuck Hendrickson
Key Bank	James Sokal
Key Innovations	Scott Spiker
MagTek, Inc.	Jeff Duncan
Metavante Image Solutions	Stephen Gibson-Saxty
Micro Solutions Enterprises - MSE	Scott Harland
NACHA The Electronic Payments Association	Nancy Grant
NACHA The Electronic Payments Association	Priscilla Holland
National Association of Convenience Stores	Michael Davis
National Association of Convenience Stores	Alan Thiemann
National Security Agency	Paul Timmel
Navy Federal Credit Union	Kim Engman
Navy Federal Credit Union	Jimmy Jones
Navy Federal Credit Union	Mr. Dana Majors
Navy Federal Credit Union	Tynika Wilson
NCR Corporation	Mr. Rick Lugg
NCR Corporation	David Norris
NCR Corporation	Ron Rogers
NCR Corporation	Steve Stevens
NetDeposit, Inc.	Danne Buchanan
NetDeposit, Inc.	Chris Walden
NetDeposit, Inc.	William Wong
Oce North America, Inc.	Tony Ribeiro
Paychex Inc	Carl Tinch
Piracle	Mr. Lynn Shimada
Piracle	Chris Whitaker
PNC Bank	Kevin deBrucky
PNC Bank	Lynn Nettleton
Procter & Gamble	Bill Lundeen
RDM Corporation	Dr. Dmitri Eidenzon
RDM Corporation	Bill Faulkner
RDM Corporation	Karin McNabb
Relyco Sales Inc	Rick Gagnon
Relyco Sales Inc	Michael Steinberg
Rosetta Technologies	Jim Maher
Rosetta Technologies	Mr. Steven Shapiro
S1 Corporation	Ms. Jennifer Delmerico
Silver Bullet Technology, Inc.	Bryan Clark
Silver Bullet Technology, Inc.	Matthew Dunne

Source Technologies ....Wally Burlingham
Source Technologies ....Roger Owens
Standard Register Company ....Melissa Barnes
Sterling National Bank ....Mr. Eliot Robinson
SWIFT/Pan Americas ....Jean-Marie Eloy
SWIFT/Pan Americas ....Mr. James Wills
Symcor Inc. ....Brian Salway
TECSEC Incorporated ....Ed Scheidt
The Clearing House ....Henry Farrar
The Clearing House ....Susan Long
Troy Group, Inc. ....Michael Riley
U.S. Bank..Tim Dawe
U.S. Bank..Gina Hebner
U.S. Bank..Mr. Scott LaPlante
U.S. Bank..Timothy Schmidt
U.S. Bank..Christopher Stickney
University Bank...Stephen Ranzini
University Bank...Mr. Michael Talley
USDA Food and Nutrition Service ....Erin McBride
VeriFone, Inc. ....Dan Kannady
VeriFone, Inc. ....Brad McGuinness
Viewpointe ....Richard Luchak
Viewpointe ....Karroll Searcy
VISA..John Aafedt
VISA..Justin Chace
VISA..Philippe De Smedt
VISA..Brian Hamilton
VISA..Glenn Powell
Wells Fargo Bank ....Ann Kirk
Wells Fargo Bank ....Mark Tiggas
Wincor Nixdorf Inc ....Ramesh Arunashalam
Wincor Nixdorf Inc ....Mr. Scott Waldrop
WorkflowOne ....Kurt Schnabel
WorkflowOne ....Larry Willman
World Pay ....Gus Penedo
Xerox Corporation..Frank Bov
Xerox Corporation..Susan Siani

Under ASC X9, Inc. procedures, a working group may be established to address specific segments of work under the ASC X9 Committee or one of its subcommittees. A working group exists only to develop standard(s) or technical report(s) in a specific area and is then disbanded. The individual experts are listed with their affiliated organizations. However, this does not imply that the organization has approved the content of the standard or technical report. (Note: Per X9 policy, company names of non-member participants are listed only if, at the time of publication, the X9 Secretariat received an original signed release permitting such company names to appear in print.)

At the time this Technical Report was published, the X9AB5 Bulk Data and Image Delivery group which developed this technical report had the following active members:

Organization Represented   *Representative*

All My Papers..Larry Krummel
All My Papers..Brett Nelson
American Bankers Association..Tom Judd
American Bankers Association..C. Diane Poole

ASC X9 TR-40-2011 (R2016)

BancTec, Inc. .... Peter Caporal
Bank of America.. Tony England
Bank of America.. Daniel Welch
Data Strategies International Inc. .... Dr. Giancarlo Gaggero
Deluxe Corporation .... John FitzPatrick
Diebold, Inc. .... Bruce Chapa
ECCHO .... Phyllis Meyerson
Federal Reserve Bank .... Darin Contini
Federal Reserve Bank .... Jeannine M. DeLano
Federal Reserve Bank .... Deb Hjortland
Federal Reserve Bank .... Mark Kielman
Fiserv .... Keay Edwards
Fiserv .... Don Harman
Fiserv .... Lori Hood
Harland Clarke .... John McCleary
Huntington Bank .... Jim Posani
iStream Imaging/Bank of Kenney .... Mike McGuire
J.P. Morgan Chase & Co .... Jackie Pagan
Metavante Image Solutions .... Stephen Gibson-Saxty
NACHA The Electronic Payments Association... Nancy Grant
NCR Corporation .... Rick Lugg
NCR Corporation .... David Norris
NetDeposit, Inc. .... William Wong
Oce North America, Inc... Tony Ribeiro
Parascript, LLC .... Kaz Jaszczak
Paychex Inc .... Carl Tinch
RDM Corporation .... Bill Faulkner
Rosetta Technologies .... Steven Shapiro
Silver Bullet Technology, Inc. .... Bryan Clark
Silver Bullet Technology, Inc. .... Matthew Dunne
Source Technologies .... Wally Burlingham
Standard Register Company .... Melissa Barnes
Symcor Inc. .... Brian Salway
U.S. Bank.. Christopher Stickney
Unisys Corporation .... David J. Concannon
Viewpointe .... Richard Luchak
Wells Fargo Bank.. Kevin Crockett
Wells Fargo Bank.. Andrew Garner
Wells Fargo Bank.. Ann Kirk
Wincor Nixdorf Inc.. Ramesh Arunashalam

This document does not cancel or replace any other ANSI published standards or Technical Reports, in whole or in part.

This Technical Report provides information related to the bridging of data between the ANSI X9.100-187 and the ANSI X9.100-182 standards. To understand the concepts discussed in this document, the reader must be knowledgeable of the purpose and the content of these two standards.

Bridging ANSI X9.100-187

to ANSI X9.100-182-2-1:
Transferring Data from an Image Cash Letter File to an XML Check Delivery Document

1   Introduction

This Technical Report contains considerations for the transfer of data from an ANSI X9.100-187 Electronic Exchange of Check and Image Data – Domestic cash letter file to an ANSI X9.100-182 Part 2-1 Bulk Data and Image Delivery – General Check Delivery XML document. It describes a technique for the mapping of data elements contained within these source image cash letter (ICL) files [1] to a programmatically addressable storage structure, embodied in an XML document.

The ICL files arrive into the payments process from a variety of sources. These include inclearings image exchange, upstream truncated deposits in a depository bank process (for example, branch capture), regional distributed proof-of-deposit truncated capture within a bank network, third party depository sources (for example, merchant capture), and post-presentment payments processing services (for example, outbound and inbound image returns).

1.1   Scope

The Technical Report provides some background material and a relevant synopsis of the ANSI X9.100-182 standard. It explains the structure principle behind the mapping approach. And finally, it provides field-by-field data content mapping from the image cash letter file records to the respective XML element layers.

The Technical Report focuses on, and restricts itself to, those ANSI X9.100-182 Part 2-1 defined elements and element layers in the XML structure that have equivalence in the ANSI X9.100-187 file record fields. The Technical Report does not provide content detail on ANSI X9.100-182 Part 2-1 XML elements that do not have a direct equivalence in ANSI X9.100-187 file record fields.

The guidelines and suggestions in the Technical Report apply to the technical specifications as documented in the ANSI X9.100.187 image cash letter standard, and the technical functionality implemented in the XML schema files that are a component of the ANSI X9.100-182 Part 2-1 standard. A proprietary adoption of the ANSI X9.100-187 standard, or the use of a proprietary rendering of the ANSI X9.100-182 schema files, may render some or all of the guidelines in this Technical Report to be incompatible with the programming processes of the adopter.

Although it is possible and even desirable in certain situations to transfer data from the ANSI X9.100-182 XML element structure to equivalent data placement in an ANSI X9.100-187 cash letter file, this Technical Report does not provide specific information to assist with that directional transition. The Technical Report focuses on the transfer from ANSI X9.100-187 to ANSI X9.100-182 Part 2-1 only. However, the information provided in this

---

[1] The term ICL is used throughout this document to refer generically to any ANSI X9.100-187 formatted check and image data file. These can include, but are not necessarily restricted to, clearings exchange files, depository source files and proprietary internal application-to-application files.