NACHA ISO 20022 Strategy for the ACH Network
ISO 20022 Overview

What is ISO?
- The International Standards Organization
- The U.S. is a member and contributor through the Accredited Standards Committee (ASC) X9

What is ISO 20022?
- A harmonized set of messaging standards across major financial services domains – Payments, Securities, Trade, Card and FX
- Based on a shared data dictionary and business process model
- Freely available to all members of the financial services community
- Foundation of SWIFT's future standards development (SWIFT MX)
NACHA’s ISO 20022 Strategy for the ACH Network – Definitions

• ISO 20022 ACH Integration
  – Industry tools and solutions that allow ACH users to translate and integrate the ISO 20022 Payment Message standard for both electronic payments initiation and payments remittance without making changes to the current ACH formats and with the support of the NACHA Operating Rules

• ISO 20022 ACH Conversion
  – The current ACH file formats are converted to ISO 20022 Payment Messages for all ACH payment types to all endpoints with the support of the NACHA Operating Rules, as revised to accommodate the different ISO formats or messages
NACHA ISO 20022 ACH Integration Solutions

• XML-ACH Remittance Opt-In Program
  – Defines rules for the exchange of ISO 20022 formatted remittance messages (remt.00x) for B2B transactions in a standardized XML format
  – Expands ACH Remittance offerings from existing ability to support extensive remittance information to an option to support XML

• ISO 20022 Mapping Guide & Tool
  – Provides standardized guidance to facilitate translation of ISO 20022 pain.001 credit transfer payment messages into ACH transactions

NACHA participates in domestic and international forums to promote standardized ISO 20022 implementations for payments systems
NACHA ISO 20022 ACH Integration Solutions: What’s Next?

• XML-ACH Remittance Rule
  – Initiate NACHA rulemaking process to transition XML-ACH Remittance Opt-In Program to requirement as part of NACHA Operating Rules
  – Continue outreach to the industry to gain feedback

• Enhance ISO 20022 Mapping Guide & Tool
  – Expand to support additional ISO messages and mapping to other ACH payments types
Available Now: ISO 20022 Integration with B2B Credit ACH Formats

INTERBANK CLEARING AND SETTLEMENT
NACHA File Formats: B2B Credit CCD, CTX, IAT and remittance

Debtor Agent / ODFI

NACHA File Formats:
EDI, BAI/BAI2, SWIFT MT
remit.00X, camt.05x
Custom Reports
Integrated Receivable

Creditor Agent / RDFI

NACHA Mapping Guide used to translate ISO format to NACHA file formats

ISO Messages:
pain.001
remit.00x

ACH OPERATOR
NACHA Operating Rules

Debtor / Originator

Creditor / Receiver

PURCHASE

INVOICE
Next: Expand ISO 20022 Integration Mapping to All ACH B2B, C2B/B2C and Related Messaging SECs (Credit and Debit)

INTERBANK CLEARING AND SETTLEMENT
NACHA File Formats: B2B, C2B/B2C, Remittance, Messaging (e.g., prenotes, returns)

ACH OPERATOR
NACHA Operating Rules

Debtor Agent / ODFI *
ISO Messages:
pain.001
remit.00x,
pain.007
pain.008

Debtor / Originator *

NACHA Mapping Guide used to translate ISO format to NACHA file formats

Creditor Agent / RDFI *
NACHA File Formats:
EDI, BAI/BAI2, SWIFT MT,
remit.00X, camt.05x,
Custom Reports,
Integrated Receivable

PURCHASE

*Note: Originator / Receiver & RDFI / ODFI reversed for debit

INVOICE

Creditor / Receiver *

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ISO 20022 ACH Conversion Exploration

• NACHA is a member of the ISO 20022 Stakeholder Group to better understand the specific U.S. needs for low and high value payment messaging and implications of replacing proprietary formats

• The Payments Innovation Alliance formed a ISO 20022 Task Force to identify potential use cases for converting the current ACH formats to ISO 20022 Payment Messages. They were asked:
  
  *What could ACH Network users do better, faster or more efficiently with ISO 20022 vs. the current ACH formats?*

  – Currently eight use cases have been identified
  – NACHA will continue to conduct industry outreach to obtain feedback on ISO 20022 ACH conversion use cases

  *NACHA participates in domestic and international forums to promote standardized ISO 20022 implementations for payments systems*
Will we convert the U.S. ACH to an ISO format?

• There are potential “triggers” or events that will influence decisions around when, if or how to convert the current ACH format to an ISO 20022 format
  – Significant gaps or opportunities are not met by ISO 20022 ACH Integration impacting users
  – The ACH operators complete significant system and operation modernization efforts that would create a catalyst for ACH format conversion
  – Adjacent systems that facilitate “STP” are updated to ease acceptance and utilization of ISO formats for all parties including accounting, banking and reporting systems for payments, and remittance included in the ACH flow
  – The benefits of ISO 20022 ACH format conversion justify the potential industry cost
  – Regulatory/mandatory requirements
ISO 20022 ACH Format Conversion

INTERBANK CLEARING AND SETTLEMENT

ACH OPERATOR
NACHA Operating Rules

Debtor Agent / ODFI *

Debtor / Originator *

ISO Messages:
pain.00x
remt.00x
camt.05x

Creditor Agent / RDFI *

Creditor / Receiver *

ISO Messages:
pain.00x
remt.00x
camt.00x

*Note: Originator / Receiver & RDFI / ODFI reversed for debit

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Integration and conversion activities may allow for investments over time

**Integration**
ODFI translates ISO 20022 (pain.remt) Payment Instructions to NACHA format using NACHA Mapping Tool and Guide

ODFI transmits NACHA formatted files to ACH Operators

Operators switch ACH formatted interbank messages example: CCD, CTX, IAT, etc.

**Both**
Originator sends ISO 20022 payment instructions (pain.remt.) to ODFI

ODFI receives ISO 20022 payments instructions for processing

RDFI delivers reporting to receivers in format options including EDI, BAI, SWIFT, ISO 20022

Payment receiver processes integrating reporting from RDFI

**Conversion**
ODFI sends ISO 20022 (pacs) formatted to ACH Operator (switch)

Operators switch ISO 20022 (pacs) interbank payment messages

**NACHA Operating Rules** apply to financial institutions
ISO 20022 ACH Conversion Use Cases

- The Payments Innovation Alliance, representing participants of the U.S. ACH Network as well as electronic payment networks in other geographies, formed an ISO 20022 project team to assist NACHA in developing initial use cases for U.S. adoption of the ISO 20022 payments standard for ACH payments.

- The project team identified existing and future pain points and opportunities in response to this:

  What could ACH Network users do better, faster or more efficiently with ISO 20022 vs. the current ACH formats?
Use Case 1: A Modern Programming Language

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
</table>
| The capabilities of modern systems are not designed to process fixed field formats without customization and knowledge of legacy processes, such as getting a flat file onto a Web page for customer approval online or to a beneficiary to reconcile invoice detail can be challenging. | XML is better suited to and makes the data more easily transportable with modern technologies. ISO 20022 XML is designed to support modern systems integration capabilities, resources and other software development languages or SDK’s such as C#, Visual Basic.Net, Javascript, Ruby, etc.                                                                 | • Improved integration with modern infrastructure and less need for customization  
• Better support for new payment software and innovation                                                                 |

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## Use Case 2: XML is more Human Readable

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native ACH files do not carry data labels. In contrast, XML formats use descriptive tags that can make them easier to understand.</td>
<td>As newer generations enter the professional market, familiarity with native file formats such as NACHA or ANSI EDI will become less common, whereas XML will become broader in use.</td>
<td>XML can advance the learning curve as well as achieve synergies with other payment types migrating to this technology.</td>
</tr>
</tbody>
</table>
CCD Versus XML Example

XML format with its descriptive tags is human readable and natively easier to understand and learn.

NOTE: This is only an extrapolation of part of a payment instruction.
## Use Case 3: ISO 20022 Structured Data Facilitates Straight-Through Processing (STP)

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today’s legacy formats often require financial institutions to send the file for manual repair because the required information has been crammed into other fields than they were intended or populated the wrong fields.</td>
<td>With ISO 20022, each piece of data has a dedicated data element to facilitate scanning and processing.</td>
<td>The parsing of data fields provides a practical advantage particularly concerning enhanced risks and government compliance.</td>
</tr>
</tbody>
</table>
### Dedicated ISO 20022 Fields Example

Discrete, consistent and user friendly fields facilitate parsing as well as investigation.

#### NACHA File Format – IAT (715)

<table>
<thead>
<tr>
<th>Field</th>
<th>Receiver Street Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
</tr>
<tr>
<td>Length</td>
<td>35</td>
</tr>
<tr>
<td>Contents</td>
<td>221b Baker Street</td>
</tr>
</tbody>
</table>

Receiver address is in separate addenda and/or combined fields.

#### NACHA File Format – IAT (716)

<table>
<thead>
<tr>
<th>Field</th>
<th>Receiver City &amp; State / Province</th>
<th>Receiver Country &amp; Postal Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Length</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Contents</td>
<td>London</td>
<td>NW1 6XE * United Kingdom</td>
</tr>
</tbody>
</table>

**NOTE:** There are additional data elements not shown above.

```
<CdtTrfTxInf>
  <Cdtr>
    <Nm>Sherlock Holmes Company</Nm>
    <PstlAdr>
      <AdrTp>BlZZ</AdrTp>
      <StrtNm>Baker Street</StrtNm>
      <BldgNb>221b</BldgNb>
      <PstCd>NW1 6XE</PstCd>
      <TwnNm>London</TwnNm>
      <Ctry>United Kingdom</Ctry>
    </PstlAdr>
  </Cdtr>
</CdtTrfTxInf>
```
## Use Case 4: Single Payment Instruction for All Payment Types

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining/creating unique payment instruction output to ODFI(s) for U.S. wire, ACH and card payment instructions for payments to U.S. trading partners via proprietary formats (as well as payments to be executed through other global systems) is costly and inefficient, and is currently limited to ANSI X12 format.</td>
<td>Corporates can send a single payment instruction to any financial institution for multiple payment types and eliminate the need to support proprietary formats for ACH and wire. The corporate payer can identify the payment type within the pain.001 payment instruction.</td>
<td>• Reduced corporate accounts payable staffing needs and increased efficiency by eliminating mapping requirement overhead</td>
</tr>
<tr>
<td>Corporates wish to reduce cost and create efficiency by combining accounts payable functions for international and domestic ACH and wire transfer payments.</td>
<td></td>
<td>• Increased flexibility for creating and maintaining banking relationships</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improved innovation opportunity</td>
</tr>
</tbody>
</table>
Wire and ACH Payments Example

**Use case: Originator needs to send separate files for ACH and wire payments today.**

### NACHA File Format – CCD Record 5

<table>
<thead>
<tr>
<th>Field</th>
<th>Company Name</th>
<th>Standard Entry Class Code</th>
<th>Effective Entry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>M</td>
<td>R</td>
</tr>
<tr>
<td>Length</td>
<td>16</td>
<td>3</td>
<td>R</td>
</tr>
<tr>
<td>Contents</td>
<td>Groovy Enterprises</td>
<td>CCD</td>
<td>July 4, 2015</td>
</tr>
</tbody>
</table>

### NACHA File Format – CCD Record 6

<table>
<thead>
<tr>
<th>Field</th>
<th>Receiving DFI ID</th>
<th>DFI Account Number</th>
<th>Amount</th>
<th>Receiving Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>R</td>
<td>M</td>
<td>R</td>
</tr>
<tr>
<td>Length</td>
<td>8</td>
<td>17</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Contents</td>
<td>2 021030004</td>
<td>3 14170001</td>
<td>1 $50,000</td>
<td>4 Austin Powers Inc.</td>
</tr>
</tbody>
</table>

**Fedwire Message**

{1510} 1000
{2000} $1,000,000
{3400} 021030004*Gold Bank*CTR
{4200} 14170001*Austin Powers Inc.
{5000} Groovy Enterprises
{6000} PAYMENT*
Wire and ACH Payments Example

```xml
<PmtInf>
  <PmtMtd>TRF</PmtMtd>
  <PmtTpInf>
    <SvcLvl>
      <Cd>URGP</Cd>
    </SvcLvl>
    <LclInstrm>
      <Cd>CCD</Cd>
    </LclInstrm>
  </PmtTpInf>
  <ReqdExctnDt>2015-07-04</ReqdExctnDt>
  <CdtTrfTxInf>
    <Amt>
      <InstdAmt Ccy="USD">1000000.00</InstdAmt>
    </Amt>
    <CdtrAgt>
      <FinInstnId>
        <ClrSysMmbld>
          <ClrSysId>
            <Cd>USABA</Cd>
          </ClrSysId>
        </ClrSysMmbld>
      </FinInstnId>
    </CdtrAgt>
  </CdtTrfTxInf>
</PmtInf>

<PmtInf>
  <PmtMtd>TRF</PmtMtd>
  <PmtTpInf>
    <SvcLvl>
      <Cd>NURG</Cd>
    </SvcLvl>
    <LclInstrm>
      <Cd>CTR</Cd>
    </LclInstrm>
  </PmtTpInf>
  <ReqdExctnDt>2015-07-04</ReqdExctnDt>
  <CdtTrfTxInf>
    <Amt>
      <InstdAmt Ccy="USD">50000.00</InstdAmt>
    </Amt>
    <CdtrAgt>
      <FinInstnId>
        <ClrSysMmbld>
          <ClrSysId>
            <Cd>USABA</Cd>
          </ClrSysId>
        </ClrSysMmbld>
      </FinInstnId>
    </CdtrAgt>
  </CdtTrfTxInf>
</PmtInf>
```
Wire and ACH Payments Example

Payment instrument can be provided in the Payment Information block or in the Credit Transfer Transaction Information level of the pain.001 file. It is recommended that the information is populated in the Payment Information component.

Use case: Originator can combine ACH and wire payment instructions in a single pain.001 file.
Use Case 5: Flexibility in Data Formats and Field Definition

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
</table>
| The current fixed field ACH formats have limited flexibility in addressing evolving stakeholder data requirements. For example, insurers would like to include the National Provider Identifier (NPI) to ensure proper payment routing. Providers may potentially supply one or multiple NPI numbers, the latter of which cannot be accommodated easily in the NACHA file format. Today it can only be achieved through a bi-lateral agreement re-defining an existing field of the payment instruction. | ISO 20022 payments are not limited by fixed field formats, are able to carry more descriptive data, and depending on the field, may occur multiple times in contrast to ACH. | • Eliminates the need for special bilateral agreements on data field definitions and usage  
• Facilitates evolving needs of user communities to define data needs in a standardized process |
Example of Flexibility in Data Formats – Addressing Healthcare Industry Vertical (NPI) Need

The National Provider Identifier (NPI) is a unique number assigned to all healthcare providers. Health plans often need to provide NPI to help hospitals/practices identify physician recipient. Some provide NPI in the 6 record – Identification Number field, but this is an optional field with variable usage, and other industries use this field as well for other uses.

ISO 20022 can standardize the inclusion of NPI through the chain from the Originator to the Receiver, including <EndToEndIdentification> in the Credit Transfer Transaction level and <CreditorReferenceInformation> in the Remittance component.

NACHA File Format – CCD Record 6

<table>
<thead>
<tr>
<th>Field</th>
<th>Receiving DFI ID</th>
<th>Check Digit</th>
<th>DFI Account Number</th>
<th>Amount</th>
<th>Identification Number</th>
<th>Receiving Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>M</td>
<td>R</td>
<td>M</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>Length</td>
<td>8</td>
<td>1</td>
<td>17</td>
<td>10</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Contents</td>
<td>021030004</td>
<td>9</td>
<td>14170001</td>
<td>$5,000</td>
<td>133557799</td>
<td>BlueCare</td>
</tr>
</tbody>
</table>

OR

```xml
<CdtTrfTxInf>
  <PmtId>
    <EndToEndId>133557799</EndToEndId>
  </PmtId>
  ...
  <RmtInf>
    <Strd>
      <CdtrRefInf>133557799</CdtrRefInf>
    </Strd>
  </RmtInf>
</CdtTrfTxInf>

May be used to provide multiple NPIs
## Use Case 6: Field Length Restrictions and Data Truncation

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fixed field length requirements of the existing ACH format can result in the truncation of data that could cause interruption of straight-through processing (and may further complicate processing based on having to develop unique truncation business procedures).</td>
<td>ISO 20022 data fields do not have length restrictions, so data will be received as sent, and will not be truncated in an arbitrary manner.</td>
<td>• Improved straight through processing by eliminating need to develop additional procedures related to data truncation e.g., more on-boarding work, manual investigation, emails sent to the beneficiary</td>
</tr>
</tbody>
</table>
Truncation Example 1 - pain.001 to NACHA CCD

pain.001 – Proprietary Description of Category or Purpose of Instruction

```xml
<PmtInf>
  <CtgyPurp>
    <Prtry>HEALTH CARE CLAIM PAYMENT</Prtry>
  </CtgyPurp>
</PmtInf>
```

NACHA File Format – Record 5

<table>
<thead>
<tr>
<th>Field</th>
<th>Record Type Code</th>
<th>Service Class Code</th>
<th>Company Entry Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Length</td>
<td>1</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Contents</td>
<td>5</td>
<td>220</td>
<td>HCCLAIMPMT</td>
</tr>
</tbody>
</table>
Truncation Example 2 - pain.001 to NACHA CCD

**pain.001 – Debtor Name / Company Name / Originator**

```xml
<PmtInf>
  <Dbtr>
    <Nm> American Family Life Assurance Company of Columbus </Nm>
  </Dbtr>
</PmtInf>
```

**Max 140 text**

### NACHA File Format – Record 5

<table>
<thead>
<tr>
<th>Field</th>
<th>Record Type Code</th>
<th>Service Class Code</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Inclusion Req.</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Length</td>
<td>1</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Contents</td>
<td>5</td>
<td>220</td>
<td>AmericanFamilyLi</td>
</tr>
</tbody>
</table>

**Max 16 text**
## Use Case 7: Regulatory Compliance Improvement

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks – and corporates – have added costs because the monitoring and reporting is difficult by locating/reporting required information in disparate payment systems. Also, the ACH currently is not able to support some regulatory monitoring requirements, such as identification of ultimate creditor and ultimate debtor.</td>
<td>ISO 20022 messaging already includes additional identification data elements that cannot be carried in ACH transactions, and can standardize the identification of regulatory data fields across all payment types.</td>
<td>• Streamlined and enhanced regulatory reporting and requirement tracking</td>
</tr>
</tbody>
</table>
Detailed Party Information Examples

**Subsidiary (party) information** is not available in a NACHA file format.

Identifies **customer type**, i.e., an organization or a person; helpful to distinguish from false positives in sanctions screening.

NOTE: Ultimate Creditor would follow the same logic.

---

```xml
<CdtTrfTxInf>
  <UltmtDbtr>
    <Nm>Bart Simpson Enterprises</Nm>
    <PstlAdr>
      <StrtNm>Evergreen Terrace</StrtNm>
      <BldgNb>742</BldgNb>
      <TwnNm>Springfield</TwnNm>
      <Ctry>USA</Ctry>
    </PstlAdr>
    <Id>
      <OrgId>
        <Othr>
          <Id>231879432</Id>
        </Othr>
      </OrgId>
    </Id>
  </UltmtDbtr>
</CdtTrfTxInf>
```
### Use Case 8: International Cross Border Payments

<table>
<thead>
<tr>
<th>Issue with Current ACH Formats</th>
<th>Opportunity with ISO 20022 Payment Messages</th>
<th>Benefit for Using ISO 20022 for ACH Payments</th>
</tr>
</thead>
</table>
| The International ACH transactions (IAT) support cross border payments and also is supported within the International Payments Framework Association mapping gateway, hosted by the Federal Reserve and NACHA’s ISO 20022 Mapping Guide and Tool. However, mapping IAT and ISO 20022 does not allow business to transmit the structured remittance information due to size restriction and lack of worldwide use of ANSI X12 data segments that can be transmitted in IAT addenda records. | Conversion to ISO 20022 will eliminate the need for mapping and allow cross border B2B payments to carry additional remittance information as well as align with remittance data content and structure in use globally in contrast to NACHA’s current requirement of ANSI ASC X12 formatted data segments. | • Corporates will be able to use the low cost and efficient ACH networks to process complex B2B payments  
• Financial Institutions can offer remittance services for cross border payments  
• Facilitate process automation |
International Cross Border Payments Example

Optional Addenda Record for Remittance Information (717)

Example Data

In practice, today IAT payment related addenda is sent in an unstructured format (though NACHA requires ANSI X12 formatted data).

ISO 20022 offers structure, consistency and can facilitate automation of processes.

NOTE: There are additional data elements not illustrated here
Providing Feedback

• Any comments or questions regarding ISO20022 and the ACH Network please contact
  – George Throckmorton gthrockmorton@nacha.org
  – Rob Unger runger@nacha.org