

OPT-IN RULES FOR INCORPORATING XML MESSAGING IN ACH ADDENDA RECORDS (XML-ACH)

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1. Introduction and Overview

1.1 All capitalized terms used in these rules (the "XML-ACH Rules") shall have the meanings set forth in the Glossary included as Appendix A, in the technical appendices included as Appendix B, Appendix C, Appendix D, Appendix E, and Appendix F, or, if not defined in the Glossary or such Appendices, in the NACHA Rules. Unless otherwise noted, all references herein to a "Section" or an "Appendix" are to the applicable Section or Appendix of these XML-ACH Rules.

1.2 These XML-ACH Rules set forth the terms and conditions (a) under which DFIs, and XML Service Providers may participate in XML-ACH and opt to provide remittance data for CTX Entries in the XML format, and (b) governing the message format, required content and technical requirements associated with the transmission of ISO 20022 XML Entries.

1.3 For the avoidance of doubt, the processing of transactions that involve the Initiation of ISO 20022 XML Entries are governed by the NACHA Rules. In the event of a direct conflict between these XML-ACH Rules and the NACHA Rules with respect to the required formats and content of any ISO 20022 XML Entry, the XML-ACH Rules shall be deemed to modify the NACHA Rules solely with respect to such ISO 20022 XML Entry.

2. Participation of DFIs, XML Service Providers and Other Service Providers in XML-ACH.

2.1 Registration of DFIs and XML Service Providers. Each Direct Financial Institution ("DFI") that desires to initiate or receive ISO 20022 XML Entries as the ODFI or RDFI for customers of such DFI (i.e., not as the Supporting DFI for an XML Service Provider) and each XML Service Provider that desires to initiate or receive ISO 20022 XML Entries must:

(a) enter into an agreement with NACHA (the "XML Participant Agreement") in the form and format specified by NACHA, with respect to such participation. Each XML Participant Agreement shall contain terms and conditions that are consistent with these XML-ACH Rules, and shall include, at a minimum, a written and binding acknowledgement by the DFI or XML Service Provider, as applicable, that (i) the participation of such DFI or XML Service Provider, as applicable, in XML-ACH is governed by these XML-ACH Rules, and (ii) the DFI or XML Service Provider, as applicable, agrees to be bound by the NACHA Rules and these XML-ACH Rules with respect to ISO 20022 XML Entries;

(b) execute and submit any forms that NACHA may require from time-to-time for such DFI or XML Service Provider, as applicable, to participate in XML-ACH; and

(c) provide such information as NACHA may require from time-to-time regarding expected transaction volumes, for such DFI or XML Service Provider, as applicable, to participate in XML-ACH.

2.2 Additional Requirements Relating to the Participation of DFIs. Each DFI that desires to be an XML Participant must agree to serve as both an ODFI and an RDFI with respect to ISO 20022 XML Entries. A DFI may not elect to participate in XML-ACH only as an ODFI or RDFI.

2.3 Additional Requirements Relating to the Participation of XML Service Providers.

(a) Each XML Service Provider that desires to Initiate ISO 20022 XML Entries must either (i) be a Service Provider to a DFI that is registered as an XML Participant in accordance with Section 2.1 of these XML-ACH Rules, or (ii) separately register as an XML Participant in accordance with Section 2.1 of these XML-ACH Rules.

(b) Each XML Service Provider that registers as an XML Participant must use a DFI (the "Supporting DFI") as the ODFI or RDFI, as applicable, for ISO 20022 XML Entries Initiated or received by such XML Service Provider. A Supporting DFI may be, but is not required to be, registered as an XML Participant. Each such XML Service Provider must have the agreement of its Supporting DFI to serve as the ODFI and/or RDFI, as applicable, for ISO 20022 XML Entries Initiated or received by such XML Service Provider or by Service Providers acting on behalf of such XML Service Provider.

2.4 Use of Service Providers to Perform Functions of XML Participants. An XML Participant may use a Service Provider to perform any of such XML Participant's functions under these XML-ACH Rules, provided that such XML Participant shall be fully responsible and liable for all acts and omissions of each such Service Provider in connection with the processing (including Initiation and receipt) of ISO 20022 XML Entries for such XML Participant, including for compliance by such Service Provider with these XML-ACH Rules and the NACHA Rules.

2.5 Participation of Service Providers.

(a) Each Service Provider that processes ISO 20022 XML Entries must have an agreement with an XML Participant to act on behalf of such XML Participant and must identify such XML Participant to NACHA in a time and manner specified by NACHA.

(b) Only such XML Participant (if the XML Participant is a DFI), or the Supporting DFI of such XML Participant (if the XML Participant is an XML Service Provider) may serve as the ODFI and/or RDFI, as applicable, for such ISO 20022 XML Entries.

2.6 Termination by XML Participant. An XML Participant may terminate its XML Participant Agreement upon thirty (30) days notice to NACHA. Subject to Section 7.4, upon the effective date of such termination, the XML Participant shall cease its participation in XML-ACH.

3. Initiation of ISO 20022 XML Entries

3.1 Permissible ISO 20022 XML Entries.

(a) An ODFI that is an XML Participant may Transmit ISO 20022 XML-formatted remittance data on behalf of an Originator in the payment addenda records for credit CTX Entries. An ODFI that is a Supporting DFI may Transmit ISO 20022 XML-formatted remittance data on behalf of an Originator that utilizes the XML Service Provider for which the ODFI acts as a Supporting DFI, in the payment addenda records for credit CTX Entries. ODFIs may not Transmit ISO 20022 XML-formatted data with respect to any other Entries, including debit CTX Entries.

(b) Each ISO 20022 XML Entry shall conform with the message format, required content and other technical requirements for transmission of such ISO 20022 XML Entry, as specified in the Appendices to these XML-ACH Rules and with the general requirements of the NACHA Rules.

3.2 Initiation of ISO 20022 XML Entries.

(a) Except as provided in Section 2.3(b), the ODFI and RDFI for each ISO 20022 XML Entry each must be registered as an XML Participant and each must be listed in the then-current XML Participant Directory provided by NACHA.

(b) No XML Participant, Supporting DFI or Service Provider acting on behalf of any such party, shall initiate an ISO 20022 XML Entry to an RDFI (or a Service Provider acting on behalf of such RDFI) that is not (i) listed in the then-current XML Participant Directory, or (ii) identified in the XML Directory, by name or otherwise, as the RDFI acting as the Supporting DFI for an XML Service Provider that is listed in the XML Participant Directory as willing to receive ISO 20022 XML Entries.

(c) An RDFI that is registered as an XML Participant, or a Service Provider acting on behalf of such RDFI, may not refuse to accept an ISO 20022 XML Entry on the basis that such Entry contains ISO 20022 XML-formatted data. A Supporting DFI that is not an XML Participant is required to accept such Entries only to the extent that it has agreed to act as an RDFI for an XML Service Provider.

4. XML Participant Directory

4.1 NACHA shall maintain a directory of XML Participants (the "XML Participant Directory"). The XML Participant Directory shall include contact and other information (as determined by NACHA from time-to-time) concerning DFIs and XML Service Providers that have registered as XML Participants.

4.2 NACHA will revise the XML Participant Directory from time-to-time to reflect (a) additions or deletions to the list of XML Participants, and (b) updated information received from existing XML Participants. NACHA will disseminate the updated XML Participant Directory to XML Participants in a manner determined by NACHA from time-to-time.

5. Representations and Warranties

5.1 General Representations and Warranties of XML Participants. Each XML Participant represents and warrants to NACHA, the ACH Operator and each other XML Participant and Supporting DFI, that:

(a) such XML Participant is duly organized under the laws of its jurisdiction of incorporation or charter;

(b) such XML Participant has all necessary right, power and authority to enter into an XML Participant Agreement and to perform all of its obligations under such XML Participant Agreement and these XML-ACH Rules and the NACHA Rules, and the XML Participant Agreement, these XML-ACH Rules and the NACHA Rules constitute the valid and binding obligations of such XML Participant, enforceable against such XML Participant in accordance with their terms; and

(c) the participation of such XML Participant in XML-ACH, and the performance of such XML Participant of its obligations under its XML Participant Agreement, these XML-ACH Rules and the NACHA Rules, will not (i) violate such XML Participant's articles of

incorporation or bylaws or any other equivalent organizational document; (ii) conflict with or result in a breach of any obligation of such XML Participant under any order, law, contract, instrument or commitment to which such XML Participant is bound; (iii) require any consent, approval, authorization or filing under any law, judgment, order, writ, decree, permit, license or agreement to which such XML Participant is a party; or (iv) require the consent or approval of any other party to any contract, instrument or commitment to which such XML Participant is a party.

5.2 Additional Representations and Warranties.

(a) Each XML Participant, and Service Provider that Initiates an ISO 20022 XML Entry represents and warrants to NACHA, the ACH Operator, each XML Participant and each Supporting DFI that:

(i) the RDFI for such ISO 20022 XML Entry is listed or otherwise identified in the then-current XML Participant Directory as an XML Participant or as the RDFI for an XML Service Provider;

(ii) all information included in such ISO 20022 XML Entry is (A) complete and (B) in accordance with these XML-ACH Rules, including all requirements relating to the content and format of such ISO 20022 XML Entry; and

(iii) the ISO 20022 XML Entry does not contain any form of any virus, Trojan horse, bug, worm or other disabling or malicious code.

(b) Each XML Service Provider that Initiates or receives an ISO 20022 XML Entry represents and warrants to NACHA, the ACH Operator, each other XML Participant and each Supporting DFI that the Supporting DFI for such XML Service Provider has agreed to act as the ODFI or RDFI, as applicable, for the ISO 20022 XML Entry.

(c) Each Service Provider that Initiates or receives an ISO 20022 XML Entry on behalf of an XML Participant or Supporting DFI represents and warrants to NACHA, the ACH Operator, each XML Participant and each Supporting DFI that (i) such Service Provider is authorized to act on behalf of such XML Participant or Supporting DFI, as applicable; and (ii) such Service Provider has agreed to be bound by these XML-ACH Rules.

6. **Indemnification: Limitation of Liability: Covenant Not to Sue**

6.1 Indemnification by XML Participants. Each XML Participant shall indemnify and hold harmless each other XML Participant, each Supporting DFI, NACHA and each RDFI from and against any and all claims, demands, losses, liabilities or expenses, including attorneys' fees and costs (collectively "Losses") that result directly or indirectly from:

(a) the breach by such XML Participant or a Service Provider acting on behalf of such XML Participant of the XML-ACH Rules, including the breach of any representation or warranty made by such XML Participant or a Service Provider acting on behalf of such XML Participant in accordance with the XML-ACH Rules;

(b) in the case of an XML Participant that is an XML Service Provider, any act or omission of the Supporting DFI for such XML Service Provider or of any Service Provider acting on behalf of such Supporting DFI, including the breach of the NACHA Rules by such Supporting DFI or Service Provider; and

(c) the breach by such XML Participant of its XML Participant Agreement.

6.2 Limited Liability of NACHA. NACHA shall not have any liability to the XML Participants, Supporting DFIs, Service Providers or any other Person, for any act or omission relating to or in connection with XML-ACH, other than for NACHA's own willful misconduct or violation of applicable law.

6.3 Covenant Not to Sue. Each XML Participant, for itself and including and on behalf of its Affiliates and Service Providers and its and their respective successors, assigns, licensors, licensees, designees and transferees, covenants and agrees to refrain from, directly or indirectly, asserting any claim or demand, or commencing, instituting or causing to be commenced, any litigation, lawsuit, claim, action or proceeding of any kind alleging that any activity of NACHA or the ACH Operator relating to XML-ACH and when acting in accordance with these XML-ACH Rules, is within the scope of, or practices any invention set forth in, any patent owned by or assigned to such XML Participant or Supporting DFI or any of its Affiliates or Service Providers, or otherwise infringes, misappropriates or violates the intellectual property or trade secret rights of such XML Participant or Supporting DFI or any of its Affiliates or Service Providers.

7. Miscellaneous

7.1 Disputes. The arbitration procedures set forth in the applicable appendix to the NACHA Rules shall govern disputes arising under these XML-ACH Rules. For purposes of the foregoing, references in the NACHA Rules to Participating DFIs shall be deemed to refer to XML Participants and Supporting DFIs.

7.2 Amendments to the XML-ACH Rules. NACHA may amend these XML-ACH Rules at any time by providing sixty (60) days notice to XML Participants.

7.3 Enforcement.

(a) The rules enforcement procedures set forth in the NACHA Rules, including the System of Fines set forth therein, shall apply to ISO 20022 XML Entries as between DFIs (including Supporting DFIs) which serve as ODFIs and RDFIs with respect to such ISO 20022 XML Entries.

(b) Subject to Section 7.4, and notwithstanding Section 7.1 of these XML-ACH Rules, NACHA may at any time, upon notice to an XML Participant (i) require that an XML Participant promptly cease Initiating ISO 20022 XML Entries on behalf of a specific Originator, or (ii) terminate the authority of an XML Participant to Initiate or receive ISO 20022 XML Entries (including by terminating an XML Participant's XML Participant Agreement).

7.4 Survival. In the event that the participation of an XML Participant in XML-ACH is terminated for any reason, including, but not limited to, as a result of the termination of an XML Participant Agreement by such XML Participant, all obligations of such XML Participant under the applicable XML Participant Agreement, these XML-ACH Rules and the NACHA Rules shall survive with respect to ISO 20022 XML Entries Initiated or received prior to the date on which the participation of such XML Participant in XML-ACH terminated.

7.5 Rules of Construction for the XML-ACH Rules.

(a) When used in these XML-ACH Rules, words in a singular number include the plural, and in the plural include the singular, unless the context otherwise requires.

(b) Whenever the words "include," "includes" or "including" are used in these XML-ACH Rules, they shall be deemed to be followed by the words "without limitation."

(c) Headings and captions in these XML-ACH Rules are intended only for convenience of reference and have no substantive effect.

7.6 XML-ACH Rules Interpretation. NACHA may issue written interpretations of these XML-ACH Rules that are consistent with the express language of these XML-ACH Rules. Such written interpretations apply and are binding as if they were set forth in full in these XML-ACH Rules.

8. Glossary for XML-ACH Rules Sections 1-7

The following terms shall have the following meaning when used in these XML-ACH Rules. Related forms of any term shall have the correlative meaning.

“Affiliate” of an XML Participant means a Person who directly or indirectly controls, is controlled by or is under common control with a Participant. For the purpose of this definition, the term “control” (including with correlative meanings, the terms controlling, controlled by and under common control with) means the power to direct the management or policies of such Person, directly or indirectly, through the ownership of greater than fifty percent (50%) or more of a class of voting securities, by contract or otherwise.

“DFI” has the meaning set forth in Section 2.1.

“Initiate” means, in connection with any Entry: (a) as a DFI, to serve as the ODFI for such Entry, (b) as an XML Service Provider, to Transmit an Entry to the Supporting DFI that serves as the ODFI or its designee, and (c) as a Service Provider, either (i) to Transmit the Entry on behalf of an ODFI to the ACH Operator, or (ii) Transmit an Entry to the ODFI or its designee.

“Losses” has the meaning set forth in Section 6.1.

“NACHA Rules” means the NACHA Operating Rules promulgated and enforced by NACHA from time to time.

“Person” means a natural person, corporation, general or limited partnership, limited liability company, joint venture, trust, estate, association or other legal entity or organization.

“Service Provider” means a Third-Party Service Provider as defined in the NACHA Rules.

“Supporting DFI” has the meaning set forth in Section 2.3(b).

“XML-ACH” means the provision of data in the ISO 20022 XML format in accordance with these XML-ACH Rules.

“XML-ACH Rules” has the meaning set forth in Section 1.1.

“ISO 20022 XML Entry” means a CTX Entry Transmitted in accordance with these XML-ACH Rules that includes ISO 20022 XML-formatted data in the payment addenda records.

“XML Participant” means a DFI or XML Service Provider that has entered into an XML Participant Agreement with NACHA.

“XML Participant Agreement” has the meaning set forth in Section 2.1(a).

“XML Participant Directory” has the meaning set forth in Section 4.1.

“XML Service Provider” means an entity that is not a DFI and that provides accounts payable and/or accounts receivable transaction processing services to customers, including the Initiation, receipt and/or processing of Entries on behalf of such customers.

9. Appendix A: Technical Specifications

This section describes the technical specifications for the implementation of an ISO 20022 XML-formatted extended remittance information, or remt.001 and remt.002 in ACH addenda records. The key elements are outlined below.

Originators of ACH payments with ISO 20022 XML formatted remittance information will need to construct a complete XML record (see Figure 8 Sample XML Format record) following the guidelines provided, and embed these into structured Addenda 7 records of up to 80 characters each (see Figure 7 XML Remittance Information addenda records). The value “<?xml version="1.0" encoding="UTF-8"?>” denotes the start of Addendum record 1, and the value “</RmtInf>” indicates the last XML addendum record for an ACH payment that has XML remittance information addenda. Receiving financial institutions should use these guidelines to carefully reconstruct all of the XML remittance addenda records into a unified XML remittance information record for each payment with remittance addenda.

A.1 Implementation Guidelines

1.1 XML Schema

The implementation of XML in ACH addenda records should utilize XML Schema Definition language (XSD) version 1.0 (See Appendix C: XML Schema Overview to learn more about XSD). The more widely prevalent XSD version 1.0 supports the character sets (see 1.3 Character Sets below) required for the XML remittance information fields and sub-fields in the ISO 20022 remt.001 and remt.002 messages.

1.2 Standard Entry Class (SEC) Code

The Standard Entry Class Code available in XML format will be CTX (Corporate Trade Exchange Entries) for corporate transactions.

1.3 Character Sets

To allow the use of special characters and symbols within the ISO 20022 XML file, systems will need to support and apply Unicode Transformation Format-8 (UTF-8) encoding. Systems must specify the UTF-8 in the XML encoding attribute as follows: <?xml version="1.0" encoding="UTF-8"?>. Specifying UTF-8 encoding at the beginning of the XML file denotes that the document character set is UTF-8-compliant. ISO 20022 XML messages will be restricted to the Basic Latin Character Set, a Unicode subset (see Appendix F: Character Sets).

1.4 Operator Code and Identifier

No changes in the detail record to indicate XML formatted addenda will be required. Existing notation for addenda indicator field will use “0” for no addenda and “1” for addenda record(s). XML-formatted addenda will specifically be identified by the XML Declaration, or the first line in every XML file: <?xml version="1.0" encoding="UTF-8"?> (similar to the identification of EDI files by looking for X12 structure or in other words, the leading sequence, “ISA”, the number of characters for subcomponent, and other relevant details).

A.2 ISO Payments Remittance Advice

The two ISO 20022 standalone remittance messages comprise of:

- Remittance Advice message, or remt.001.001.01, which offers full remittance detail.
- Remittance Location Advice, or remt.002.001.01 that specifies the location where the remittance details can be retrieved.

The XML Schema Definition (XSD) that describes the elements in remt.001 and remt.002 can be found on the ISO 20022 Payment messages site along with the Message Definition Report (MDR):

http://www.iso20022.org/payments_messages.page.

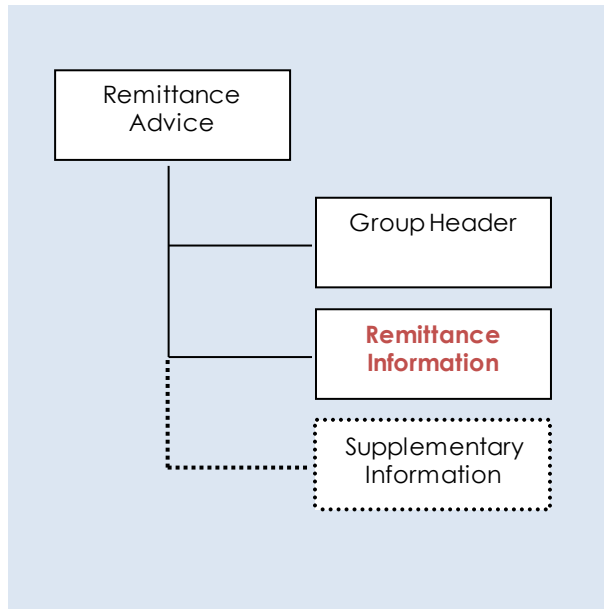
2.1 Remt.001 or Remittance Advice

The remt.001 message or *Remittance Advice* allows the originator to provide remittance details associated with a payment. It contains the three building blocks that comprise of:

- **Group Header** – This is mandatory and must be present once. It is the set of characteristics shared by all remittance information included in the message. It contains the elements Message Identification, Creation Date and Time, Authorisation, Copy Indicator, Initiating Party, Message Recipient, and Forwarding Agent.
- **Remittance Information** – This is mandatory and can be present more than once. It provides information to enable the matching of an entry with the items that the associated payment is intended to settle, such as commercial invoices in an accounts receivable system, tax obligations, or garnishment orders. It contains the elements Remittance Identification, Unstructured, Structured, and Original Payment Information.
- **Supplementary Data** – This is optional and can be present more than once. It contains the elements Place and Name and Envelope.

The structure of the *Remittance Advice* message is illustrated in the following diagram.

Figure 1:



2.1.1 Parties of the Transaction

ISO 20022 Participant	Synonym	Description
Initiating Party	Originator	Party sending the remittance information
Invoicee	Originator	Party which received the Invoice (when that party is different from the Debtor or Ultimate Debtor)
Debtor	Originator Ordering Party Buyer	Party that owes an amount of money to the (ultimate) creditor <i>(Used in reference to Original Payment Information)</i>
Ultimate Debtor	Ultimate Payer	Party that originally ordered goods or services and to whom the seller has sent the invoice. Ultimate Debtor is used when the receiver of the invoice is different from the payer.
<p>Comment on ISO 20022 to STP 820 Mapping:</p> <p>Invoicee maps to the STP 820 N1 segments. In practice, the Initiating Party (a mandatory field) and Invoicee (an optional field) would be the same party. As such Invoicee wouldn't be included. Typically Invoicee is provided when the initiating party and the Invoicee are different entities. For example, a parent that company pays on behalf of a subsidiary.</p> <p>However, when mapping to STP 820 N1 segments, even when the Initiating Party and the Invoicee are the same, both of these elements should be populated as the Invoicee relates to the details of what the payment is for, and could be different than the parties exchanging the remittance message. If only the Initiating Party is transmitted, the STP 820 N1 segments may be inadvertently dropped. <i>(Please refer to Appendix A.6 for samples and high level mapping guidelines.)</i></p> <p>Note that if the Invoicee information is missing, then the ISO Group Header (Initiating Party) information can be used as a default.</p>		
Message Recipient	Receiver / Beneficiary	Receiver of the remittance message
Invoicer	Receiver / Beneficiary	The party that issued the invoice (when that party is different from the Creditor or Ultimate Creditor)
Creditor	Receiver / Beneficiary	Party to which an amount of money is due. <i>(Used in reference to Original Payment Information)</i>

Ultimate Creditor	Ultimate Beneficiary	Party which is the ultimate beneficiary of the payment. For example, when payment is made to an account of a financing company, but the ultimate beneficiary is the customer of the financing company
<p>Comment on ISO 20022 to STP 820 Mapping:</p> <p>Invoicer maps to the STP 820 N1 segments. In practice, the Message Recipient (part of the Group Header and an optional field) and Invoicer (an optional field) would be the same party. As such, Invoicer wouldn't be necessary to include. Typically Invoicer is provided when the party receiving the remittance information and the Invoicer are different entities.</p> <p>However, when mapping to STP 820 N1 segments, even when the Message Recipient and the Invoicer are the same, the Invoicer should be provided. If Invoicer information is excluded, or only the Message Recipient information is transmitted, the STP 820 N1 segments may be inadvertently dropped. <i>(Please refer to Appendix A.6 for samples and high level mapping guidelines.)</i></p> <p>Note that if the Invoicer information is missing, then the ISO Group Header (Message Recipient) information can be used as a default.</p>		
Debtor agent	Bank (Originating Bank, Originator's Bank, Payer's Bank)	Party is the Bank of the Payer <i>(Used in reference to Original Payment Information)</i>
Creditor agent	Bank (Beneficiary's Bank, Seller's Bank)	Party is the Bank of the Beneficiary <i>(Used in reference to Original Payment Information)</i>
Forwarding agent	Bank	Financial institution that receives the instruction from the initiating party and forwards it to the next agent in the payment chain for execution

2.1.2 Contents

The information typically required and/or supplied in remt.001 are:

Group Header

- **Message Identification** is a point to point reference, as assigned by the instructing party, and sent to the next party in the chain to unambiguously identify the message. Message Identification should be unique per instructed party for a pre-agreed period.
- **Creation Date Time** is the date and time at which the message was created.
- **Initiating Party** is the party that initiates the message. This can be either the debtor or the party that initiates the credit transfer on behalf of the debtor.

Remittance Information

- **Referred Document Information** may refer to an invoice, and/or other documents such as credit memos, purchase orders, bills of lading, shipping documents and monthly statements. More than one of these documents might be associated with a single obligation to pay; alternatively, a single payment may refer to more than one invoice.
- **Referred Document Amount** supports detailed explanations that include Due Payable Amount, Discount Applied, Credit Note Applied, Tax Amount, Adjustments and Reasons, and ultimately the Remitted Amount.
- **Line Details** and sub-elements within allow itemization of the same attributes: Due Payable Amount, Discount Applied, Credit Note Applied, Tax Amount, Adjustments and Reasons, and the Remitted Amount at a line item detail level.

Comment on Line Details:

The use of **Line Details** is a trading partner decision. It was established to support some industries that require detailed remittance information. Typically, when a payment is made for less than the full amount due, Line Details provides a helpful means to identify specific exceptions such as discounts taken, back-ordered goods, damaged goods, short quantities, etc. It can also disclose differences in unit price – the debtor may be paying against a contract with a given price that is different than the creditor expects due to pending contract revisions. It is especially useful when there is an “invoiceless payment” agreement, also known as “evaluated receipts settlement”. The customer/debtor pays based on the Purchase Order/Contract for the quantity of items received and accepted. Thus, they need to provide the details of exactly what they are paying or not paying for, in order to facilitate reconciliation by the supplier/creditor.

- **Invoicer (Beneficiary/Receiver)** is the party issuing the invoice. (May be different from *Message Recipient*)
- **Invoicee (Originator)** is the party which received the invoice. May be different from *Initiating Party*.
- **Original Payment Information** concerns the original payment to which the remittance message refers.
- **Additional Remittance Information** is additional information that can be provided in free text form.

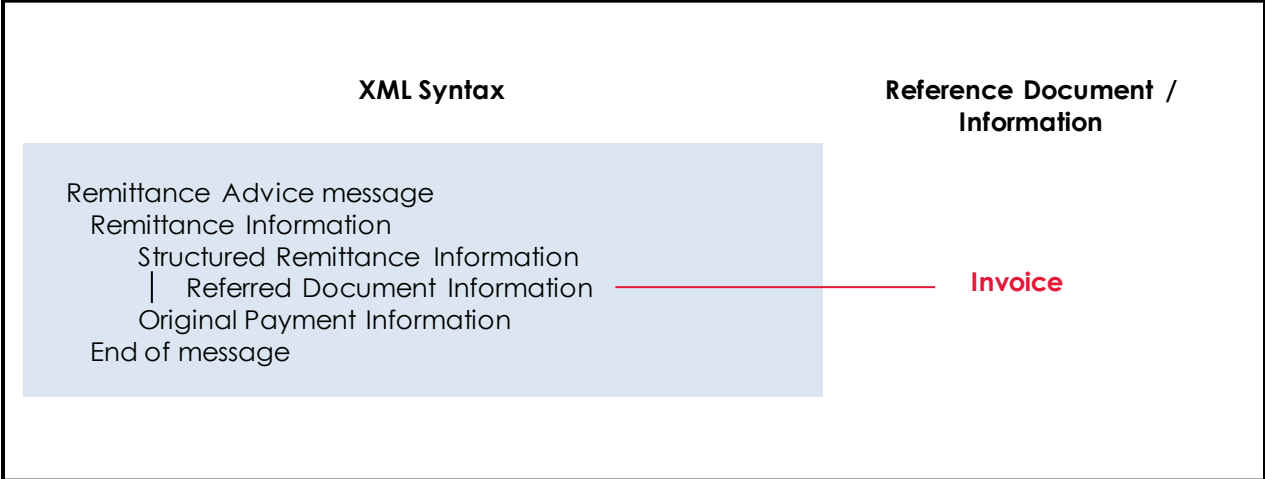
Comment on Additional Remittance Information:

Additional Remittance Information not captured in the detailed tags may be tied to each occurrence of Structured Remittance Information.

Note that remt.001 also offers a **Supplementary Data** container for any additional information that cannot be captured in the structured elements and/or any other specific block. However, this may not be used without the explicit approval of the ISO Payment Standards Evaluation Group (SEG) and submission to the Registration Authority (RA) of ISO 20022. In other words, an organization needs to go through the official development and approval process to utilize this section. Generally, this should be left empty.

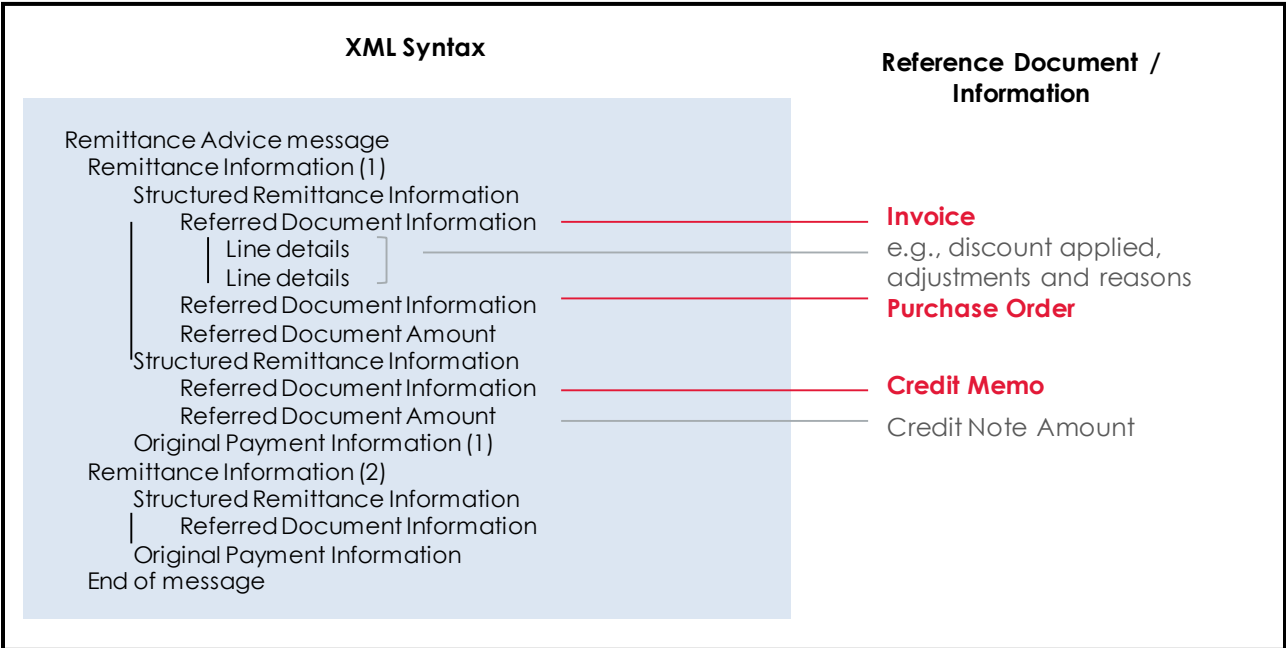
Illustrated below is an example of an invoice being paid, and a reference to the payment itself.

Figure 2: Single Payment



A business may pay more than one invoice with a payment and/or make multiple payments that reference multiple documents, such as an invoice, purchase order, and a credit memo as illustrated by the following diagram.

Figure 3: Multiple Payments Against Multiple Obligations



The Remittance Advice or remt.001 also offers the ability to provide remittance information related to distinct payment requirements for which NACHA has developed banking conventions (used in place of Referred Document Amount):

- **Tax Remittances** provides remittance information about a payment made for tax-related purposes.
- Wage **Garnishment Remittances** provide remittance information about a payment for garnishment-related purposes. For example, child support obligations made to a state disbursement organization is addressed by garnishment remittances.

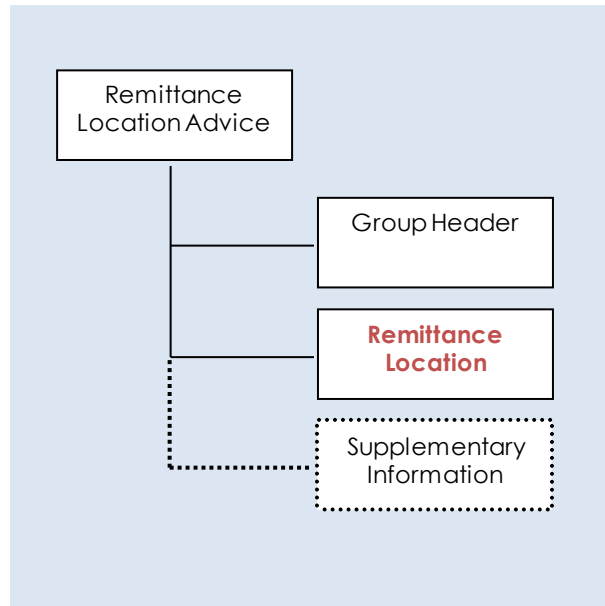
2.2 Remt.002 or Remittance Location Advice

The remt.002 message or *Remittance Location Advice* contains the three building blocks that comprise of:

- **Group Header** – This is mandatory and must be present once. It is the set of characteristics shared by all individual transactions included in the message. It contains the elements Message Identification, Creation Date and Time, Authorisation, Copy Indicator, Initiating Party, Message Recipient, and Forwarding Agent.
- **Remittance Location** – This is mandatory and can be present more than once. It provides the set of details of the message between the (ultimate) creditor and the (ultimate) debtor. It contains the elements Remittance Identification, Remittance Location Details, and References.
- **Supplementary Data** – This is optional and can be present more than once. It contains the elements Place and Name and Envelope.

The structure of the *Remittance Location Advice* message is illustrated in the following diagram.

Figure 4:



2.2.1 Contents

The information typically required and/or supplied in remt.002 are:

Group Header

- **Message Identification** is a point to point reference, as assigned by the instructing party, and sent to the next party in the chain to unambiguously identify the message. Message Identification should be unique per instructed party for a pre-agreed period.
- **Creation Date Time** is the date and time at which the message was created.
- **Initiating Party** is party that initiates the message. This can be either the debtor or the party that initiates the credit transfer on behalf of the debtor.

Remittance Location provides information related to the location and/or delivery of the remittance information. This information is used to enable the matching of an entry with the items that the associated payment is intended to settle.

- The **Remittance Location Details** component includes a Method indicator to provide information on how the remittance is being delivered such as an electronic address (or URL text), email address, or a postal address. As the Remittance Location Details may be repeated, it is possible to indicate multiple recipients by repeating the component.

A.3 Code Set

The below provides a list of codes that may be used in remt.001 or remt.002 messages:

- The definitions for the data elements are available in the remt Message Definition Report (MDR) on the ISO 20022 catalogue page: http://www.iso20022.org/payments_messages.page
- The External Code sets are a list of codes published separately from the schema available on the ISO website: http://www.iso20022.org/external_code_list.page. The codes listed in this document are published as of July 31, 2014. Please check the ISO site for any updates.

In areas where information was lacking further clarification has been provided.

Data Element Name	remt.001	remt.002
AddressTypeCode	√	√
AuthorisationCode	√	√
CopyDuplicateCode	√	√
CountryCode	√	√
CreditDebitCode	√	
DocumentTypes		
ReferredDocumentTypeCode	√	
CreditorReferenceInformationTypeCode	√	
ExchangeRateCode	√	
NamePrefixCode	√	√
PriorityCode	√	√
RemittanceLocationMethodCode		√
TaxRecordPeriod		
External Code Sets*		
AccountIdentificationCode	√	
CashAccountTypeCode	√	
CategoryPurposeCode	√	
ClearingSystemIdentificationCode	√	√
DiscountAmountTypeCode	√	
DocumentLineTypeCode	√	
FinancialInstitutionIdentificationCode**	√	√
GarnishmentTypeCode	√	
LocalInstrumentCode	√	
OrganisationIdentificationCode	√	√
PersonIdentificationCode	√	√

ServiceLevelCode	√	
TaxAmountTypeCode	√	

**Currently no *Financial Institution Identification Codes* have been defined.

3.1 Address Type Code

Specifies the type of address.

Code	Name	Definition
ADDR	Postal	Address is the complete postal address.
BIZZ	Business	Address is the business address.
DLVY	Delivery To	Address is the address to which delivery is to take place.
HOME	Residential	Address is the home address.
MLTO	Mail To	Address is the address to which mail is sent.
POBX	PO Box	Address is the post office (PO) box.

3.2 Authorisation Code

Specifies the level of approval depending on a number of factors, including payment type, threshold amount or local country or operations practice.

Code	Name	Definition
AUTH	Pre Authorised File	Indicates a file has been pre authorised or approved within the originating customer environment and no further approval is required.
FDET	File Level Authorisation Details	Indicates that a file requires additional file level approval, with the ability to view both the payment information block and supporting customer credit transaction detail.
FSUM	File Level Authorisation Summary	Indicates that a file requires additional file level approval, with the ability to view only the payment information block level information.
ILEV	Instruction Level Authorisation	Indicates that a file requires all customer transactions to be authorised or approved

3.3 Copy Duplicate Code

Specifies if the document is a copy, a duplicate, or a duplicate of a copy previously sent.

Code	Name	Definition
CODU	Copy Duplicate	Message is a copy to a party other than the account owner/account servicer, for information purposes and the message is a duplicate of a message previously sent.
COPY	Copy	Message is a copy to a party other than the account owner/account servicer, for information purposes.
DUPL	Duplicate	Message is for information/confirmation purposes. It is a duplicate of a message previously sent.

3.4 Country Code

Code to identify a country, a dependency, or geopolitical interest on the basis of country names obtained from the United Nations. The Country Code list is available on the ISO website:

http://www.iso.org/iso/home/standards/country_codes/iso-3166-1_decoding_table.htm

3.5 Credit Debit Code

Specifies if an operation is an increase or a decrease.

Code	Name	Definition
CRDT	Credit	Operation is an increase.
DBIT	Debit	Operation is a decrease.

3.6 Document Type Code

3.6.1 Referred Document Type Code

Specifies a type of financial or commercial document.

Code	Name	Definition
AROI	Accounts Receivable Open Item	Document is a payment that applies to a specific source document.
BOLD	Bill of Lading Shipping Notice	Document is a shipping notice.
CINV	Commercial Invoice	Document is an invoice.
CMCN	Commercial Contract	Document is an agreement between the parties, stipulating the terms and conditions of the delivery of goods or services.
CNFA	Credit Note Related to Financial Adjustment	Document is a credit note for the final amount settled for a commercial transaction.
CREN	Credit Note	Document is a credit note.
DEBN	Debit Note	Document is a debit note.
DISP	Dispatch Advice	Document is a dispatch advice.
DNFA	Debit Note Related to Financial Adjustment	Document is a debit note for the final amount settled for a commercial transaction.
HIRI	Hire Invoice	Document is an invoice for the hiring of human resources or renting goods or equipment.
MSIN	Metered Service Invoice	Document is an invoice claiming payment for the supply of metered services, for example, gas or electricity, supplied to a fixed meter.
SBIN	Self Billed Invoice	Document is an invoice issued by the debtor.
SOAC	Statement of Account	Document is a statement of the transactions posted to the debtor's account at the supplier.
TSUT	Trade Services Utility Transaction	Document is a transaction identifier as assigned by the Trade Services Utility.
VCHR	Voucher	Document is a voucher.

3.6.2 Creditor Reference Information Type Code

Specifies a type of financial or commercial document.

Code	Name	Definition
DISP	Dispatch Advice	Document is a dispatch advice.
FXDR	Foreign Exchange Deal Reference	Document is a pre-agreed or pre-arranged foreign exchange transaction to which the payment transaction refers.
PUOR	Purchase Order	Document is a purchase order.
RADM	Remittance Advice Message	Document is a remittance advice sent separately from the current transaction.
RPIN	Related Payment Instruction	Document is a linked payment instruction to which the current payment instruction is related, for example, in a cover scenario.
SCOR	Structured Communication Reference	Document is a structured communication reference provided by the creditor to identify the referred transaction.

3.7 Exchange Rate Code

Specifies the type of exchange rate applied.

Code	Name	Definition
AGRD	Agreed	Exchange rate applied is the rate agreed between the parties.
SALE	Sale	Exchange rate applied is the market rate at time of the sale.
SPOT	Spot	Exchange rate applied is the spot rate.

3.8 Name Prefix Code

Specifies the title of the person.

Code	Name	Definition
DOCT	Doctor	Title of the person is Doctor or Dr.
MADM	Madam	Title of the person is Madam.
MISS	Miss	Title of the person is Miss.
NORM	Mister	Title of the person is Mister or Mr.

3.9 Priority Code

Specifies the priority level of an event.

Code	Name	Definition
HIGH	High	Priority is high.
NORM	Normal	Priority is normal.

3.10 Remittance Location Method Code (for remt.002 only)

Method used to deliver the remittance advice information. The following codes also pertain to Fedwire Funds Service Customer Transfer Plus (CTP) tag {8250} Related Remittance Information:

Code	Name	Definition
EDIC	Electronic Data Interchange	Remittance advice information sent through Electronic Data Interchange (EDI).
EMAL	E-mail	Remittance advice information sent through e-mail.
FAXI	Fax	Remittance advice information faxed.
POST	Post	Remittance advice information sent through postal services.
SMSM	SMS	Remittance advice information sent by phone as a Short Message Service (i.e., text message between mobile phone devices.)
URID	Uniform Resource Identifier	Remittance advice information sent to a Uniform Resource Identifier (URI). URI is a compact string of characters that uniquely identify an abstract or physical resource. URIs are the super-set of identifiers, such as URLs, email addresses, ftp sites, etc., and as such, provide the syntax for all of the identification schemes.

3.11 Tax Record Period Code

Specifies the period related to the tax payment.

Code	Name	Definition
MM01	First Month	Tax is related to the first month of the period.
MM02	Second Month	Tax is related to the second month of the period.
MM03	Third Month	Tax is related to the third month of the period.
MM04	Fourth Month	Tax is related to the fourth month of the period.
MM05	Fifth Month	Tax is related to the fifth month of the period.
MM06	Sixth Month	Tax is related to the sixth month of the period.
MM07	Seventh Month	Tax is related to the seventh month of the period.
MM08	Eighth Month	Tax is related to the eighth month of the period.
MM09	Ninth Month	Tax is related to the ninth month of the period.
MM10	Tenth Month	Tax is related to the tenth month of the period.
MM11	Eleventh Month	Tax is related to the eleventh month of the period.
MM012	Twelfth Month	Tax is related to the twelfth month of the period.
QTR1	First Quarter	Tax is related to the first quarter of the period.
QTR2	Second Quarter	Tax is related to the second quarter of the period.
QTR3	Third Quarter	Tax is related to the third quarter of the period.
QTR4	Fourth Quarter	Tax is related to the fourth quarter of the period.
HLF1	First Half	Tax is related to the first half of the period.
HLF2	Second Half	Tax is related to the second half of the period.

3.12 External Code Sets

External code sets are a list of codes published separately from the schema available on the ISO website: http://www.iso20022.org/external_code_list.page. The codes listed in this document are published as of July 31, 2014.

3.12.1 Account Identification Code

Specifies the external account identification scheme name code.

Code	Name	Definition
BBAN	BBANIdentifier	Basic Bank Account Number (BBAN) - identifier used nationally by financial institutions, ie, in individual countries, generally as part of a National Account Numbering Scheme(s), to uniquely identify the account of a customer.
CUID	CHIPSUniversalIdentifier	(United States) Clearing House Interbank Payments System (CHIPS) Universal Identification (UID) - identifies entities that own accounts at CHIPS participating financial institutions, through which CHIPS payments are effected. The CHIPS UID is assigned by the New York Clearing House.
UPIC	UPICIdentifier	Universal Payment Identification Code (UPIC) - identifier used by the New York Clearing House to mask confidential data, such as bank accounts and bank routing numbers. UPIC numbers remain with business customers, regardless of banking relationship changes.

3.12.2 Cash Account Type Code

Specifies the nature, or use, of the cash account.

Code	Name	Definition
CACC	Current	Account used to post debits and credits when no specific account has been nominated.
CASH	Cash Payment	Account used for the payment of cash.
CHAR	Charges	Account used for charges if different from the account for payment.
CISH	Cash Income	Account used for payment of income if different from the current cash account
COMM	Commission	Account used for commission if different from the account for payment.
LOAN	Loan	Account used for loans.
MGLD	Marginal Lending	Account used for a marginal lending facility.
MOMA	Money Market	Account used for money markets if different from the cash account.
NREX	Non Resident External	Account used for non-resident external.
ODFT	Overdraft	Account is used for overdrafts.
ONDP	Overnight Deposit	Account used for overnight deposits.
SACC	Settlement	Account used to post debit and credit entries, as a result of transactions cleared and settled through a specific clearing and settlement system.
SLRY	Salary	Accounts used for salary payments.
SVGS	Savings	Account used for savings.
TAXE	Tax	Account used for taxes if different from the account for payment.
TRAS	Cash Trading	Account used for trading if different from the current cash account.
LLSV	Limited Liquidity Savings Account	Account used for savings with special interest and withdrawal terms.
OTHR	Other Account	Account not otherwise specified.

3.12.3 Category Purpose Code

Specifies the category purpose, as published in an **external** category purpose list.

Code	Name	Definition
BONU	Bonus Payment	Transaction is the payment of a bonus.
CASH	Cash Management Transfer	Transaction is a general cash management instruction.
CBLK	Card Bulk Clearing	A Service that is settling money for a bulk of card transactions, while referring to a specific transaction file or other information like terminal ID, card acceptor ID or other transaction details.
CCRD	Credit Card Payment	Transaction is related to a payment of credit card.
CORT	Trade Settlement Payment	Transaction is related to settlement of a trade, e.g., a foreign exchange deal or a securities transaction.
DCRD	Debit Card Payment	Transaction is related to a payment of debit card.
DIVI	Dividend	Transaction is the payment of dividends.
EPAY	Epayment	Transaction is related to ePayment via Online-Banking
FCOL	Fee Collection	A Service that is settling card transaction related fees between two parties.
GOVT	Government Payment	Transaction is a payment to or from a government department.
HEDG	Hedging	Transaction is related to the payment of a hedging operation.
ICCP	Irrevocable Credit Card Payment	Transaction is reimbursement of credit card payment.
IDCP	Irrevocable Debit Card Payment	Transaction is reimbursement of debit card payment.
INTC	Intra Company Payment	Transaction is an intra-company payment, i.e., a payment between two companies belonging to the same group.
INTE	Interest	Transaction is the payment of interest.
LOAN	Loan	Transaction is related to the transfer of a loan to a borrower.
OTHR	Other Payment	Other payment purpose.
PENS	Pension Payment	Transaction is the payment of pension.
SALA	Salary Payment	Transaction is the payment of salaries.
SECU	Securities	Transaction is the payment of securities.

SSBE	Social Security Benefit	Transaction is a social security benefit, i.e., payment made by a government to support individuals.
SUPP	Supplier Payment	Transaction is related to a payment to a supplier.
TAXS	Tax Payment	Transaction is the payment of taxes.
TRAD	Trade	Transaction is related to the payment of a trade finance transaction.
TREA	Treasury Payment	Transaction is related to treasury operations. E.g. financial contract settlement.
VATX	Value Added Tax Payment	Transaction is the payment of value added tax.
WHLD	Withholding	Transaction is the payment of withholding tax.

Usage Rules: * If the tag is present, and no specific code is required, SUPP is the recommended default.

* The more specific code is the one which should be used.

e.g. if a payment is to a government for withholding tax, relevant codes would include GOVT, TAXS, and WHLD. WHLD would be the preferred code here.

3.12.4 Clearing System Identification Code

Specifies the clearing system identification codes, as published in an **external** clearing system identification code list.

Code	Name	Definition
ATBLZ	Austrian Bankleitzahl	Bank Branch code used in Austria
AUBSB	Australian Bank State Branch Code (BSB)	Bank Branch code used in Australia
CACPA	Canadian Payments Association Payment Routing Number	Bank Branch code used in Canada
CHBCC	Swiss Clearing Code (BC Code)	Bank Clearing number used in Switzerland
CHSIC	Swiss Clearing Code (SIC Code)	Bank Branch code used in clearing with Swiss Francs
CNAPS	CNAPS Identifier	Bank Branch code used in China
DEBLZ	German Bankleitzahl	Bank Branch code used in Germany
ESNCC	Spanish Domestic Interbanking Code	Bank Branch code used in Spain
GBDSC	UK Domestic Sort Code	Bank Branch code used in the UK

GRBIC	Hellenic Bank Identification Code	Bank Branch code used in Greece
HKNCC	Hong Kong Bank Code	Bank Branch code used in Hong Kong
IENCC	Irish National Clearing Code	Bank Branch code used in Ireland
INFSC	Indian Financial System Code	Bank Branch code used in India
ITNCC	Italian Domestic Identification Code	Bank Branch code used in Italy
JPZGN	Japan Zengin Clearing Code	Bank Branch code used in Japan
NZNCC	New Zealand National Clearing Code	Bank Branch code used in New Zealand
PLKNR	Polish National Clearing Code	Bank Branch code used in Poland
PTNCC	Portuguese National Clearing Code	Bank Branch code used in Portugal
RUCBC	Russian Central Bank Identification Code	Bank Branch code used in Russia
SESBA	Sweden Bankgiro Clearing Code	Bank Branch code used in Sweden
SGIBG	IBG Sort Code	Bank Branch code used in Singapore
THCBC	Thai Central Bank Identification Code	Bank Identification code used in Thailand
TWNCC	Financial Institution Code	Bank Branch code used in Taiwan
USABA	United States Routing Number (Fedwire, NACHA)	Routing Transit number assigned by the ABA for US financial institutions
USPID	CHIPS Participant Identifier	Bank identifier used by CHIPS in the US
ZANCC	South African National Clearing Code	Bank Branch code used in South Africa

3.12.5 Discount Amount Type Code

Specifies the nature of the discount as published in an **external** code list.

Code	Name	Definition
APDS	Additional Promotional Discount	Addition discount based on third-party agreed business promotional activity, i.e., extra 10 percent discount for 15 days)
STDS	Standing Discount	Discount based on volume purchased.
TMDS	Terms Discount	Discount based on terms negotiated for payment within a specified time period, i.e., 2/10 Net 30 (2 percent discount if paid in 10 days; otherwise, net amount is due in 30 days).

3.12.6 Document Line Type Code

Specifies the document line type as published in an **external** document type code list.

Code	Name	Definition
ADPI	Additional Product Identification Assigned by the Manufacturer	Line item reference is an additional product identification assigned by the manufacturer.
AISB	Alternate ISBN	Line item reference is an alternate International Standard Book Number (ISBN).
ASNB	Asset Number	Line item reference is an asset number.
CTNB	Catalog Number	Line item reference is a catalog number.
DBSP	Dun & Bradstreet Standard Product and Service Code	Line item reference is Dun & Bradstreet Standard Product and Service code.
EANN	European Article Number (EAN) (2-5-5-1)	Line item reference is an European Article Number (EAN).
EINB	Equipment Identification Number	Line item reference is an equipment identification number.
GSNB	General Specification Number	Line item reference is a general specification number.
HIBC	HIBC (Health Care Industry Bar Code)	Line item reference is a Health Care Industry Bar Code (HIBC)

ISBN	International Standard Book Number (ISBN)	Line item reference is an International Standard Book Number (ISBN).
LTNB	Lot Number	Line item reference is a lot number.
MDNB	Model Number	Line item reference is a model number
PRNB	Part Number	Line item reference is a part reference number.
PTCD	Product Type Code	Line item reference is a product type code.
SKNB	Stock Number	Line item reference is a stock number.
STNB	Style Number	Line item reference is a style number.
TONB	Technical Order Number	Line item reference is a technical order number.
UPCC	UPC Consumer Package Code	Line item reference is an UPC consumer package code.
UPNB	Universal Product Number	Line item reference is an Universal Product Number.

3.12.7 Financial Institution Identification Code

Specifies the **external** financial institution identification scheme name code. *Currently no codes have been defined.*

3.12.8 Garnishment Type Code

Specifies the garnishment type as published in an **external** document type code list.

Code	Name	Definition
GNCS	Garnishment For Child Support	Garnishment from a third party payer for Child Support
GNDP	Garnishment For Child Support From Direct Payer	Garnishment from a direct payer for Child Support
GTPP	Garnishment To Taxing Agency	Garnishment from a third party payer to taxing agency

3.12.9 Local Instrument Code

Specifies the **external** local instrument code.

Code	Name	Definition
TRF	Credit Transfers	Transaction is related to credit transfers
CHN	Truncated Checks	Transaction is related to truncated checks. Conversion of physical instrument to electronic form for transmission to the paying bank and where the original paper document does not continue in the clearing process..The original instrument rules are retained throughout the life of the instrument.
CPP	Cash Per Post	Transaction is related to cash per post. Transaction to ultimate recipient having no bank account. Primary beneficiary is a postal service provider. Funds are paid out by cash. Additional necessary information for address and delivery options need to be attached.
DDT	Direct Debits	Transaction is related to direct debits.
GST	Truncated Credit Transfers	Transaction is related to truncated credit transfers. Conversion of physical instrument to electronic form for transmission to the paying bank and where the original paper document does not continue in the clearing process..The original instrument rules are retained throughout the life of the instrument. Transaction triggered by specific marked and populated paper slip. Reconciliation reference is secured by check digits supporting secure optical recognition. All other remittance information is truncated prior transmission.
RDD	Returned Direct Debits	Transaction is related to returned direct debits.
RTR	Returned Credit Transfers	Transaction is related to returned credit transfers.
SCN	Revoked Truncated Checks	Transaction is related to revoked truncated checks.
SDD	Revoked Direct Debits	Transaction is related to revoked direct debits.
SGT	Revoked Truncated Credit Transfers	Transaction is related to revoked truncated credit transfers.

SRD	Revoked Returned Direct Debits	Transaction is related to revoked returned direct debits.
SRT	Revoked Returned Credit Transfers	Transaction is related to revoked returned credit transfers
STR	Revoked Credit Transfers	Transaction is related to revoked credit transfers
82	Non-pre authorised Direct Debit	Transaction is related to a direct debit that is not pre authorised (Einzugsermächtigung).
83	Pre authorised Direct Debit	Transaction is related to a direct debit that is pre authorised (Abbuchungsauftrag).
CARD	Card Clearing	Transaction is related to card clearing.
04	Pre authorised Direct Debit	Transaction is related to a direct debit that is pre authorised (Abbuchungsauftrag).
05	Non-pre authorised Direct Debit	Transaction is related to a direct debit that is not pre authorised (Einzugsermächtigung).
IN	Cross Border Customer Credit Transfer	Transaction is related to cross border customers credit transfers
19	Business-to-customer Direct Debit	Transaction is related to a business-to-customer direct debit (CSB19).
58	Business-to-business Direct Debit	Transaction is related to a business-to-business direct debit (CSB58).
08	Pre-authorized Direct Debit Ordinaire (Normal clearing / 4 Day)	Transaction is related to a direct debit that is pre authorised (Avis de Prélèvement).
60	Recovered Bill of Exchange or Promissory Note	LCR - Lettre de Change Relevé (Recovered Bill of Exchange) and BOR - Billet à Orde Relevé (Promissory Note)
85	Pre-authorized Direct Debit Accéléré (Accelerated clearing / 2 Day)Ordinaire (Normal clearing / 4 Day)	Transaction is related to an urgent direct debit that is pre authorised (Avis de Prélèvement accéléré).
89	Pre-authorized Direct Debit Vérifié (Verified clearing)	Transaction is related to an urgent direct debit that is pre authorised (Avis de Prélèvement vérifié).
RIBA	Non-pre authorised direct debit	Transaction is related to a non-pre authorised collection (RIBA).
RIDO	Pre authorised revocable Direct Debit	Transaction is related to a direct debit that is pre authorised and revocable (RID Ordinario).
RIDV	Pre authorised revocable urgent Direct Debit	Transaction is related to an urgent direct debit that is pre authorised and revocable (RID Veloce).
ACCEPT	Payment via Accepgiro owned by Currence	Transaction is related to payments via Accepgiro owned by Currence.

IDEAL	Payments via Internet owned by Currence	Transaction is related to payments via internet owned by Currence.
NLDO	Dutch Domestic Bulk Payment	Transaction is related to a Domestic payment initiated by PAIN.001
NLGOV	Direct debit initiated by the government with special conditions	Transaction is related to direct debit scheme owned by the NVB
NLUP	Dutch Urgent Payment	Transaction is related to a Domestic payment initiated by PAIN.001
SDN	Payments via Standaard Digitale Nota	Transaction is related to payments via a 'Standaard Digitale Nota' InvoiceAcceptgiro payment.
0000	Business Payment	Transaction is related to business payment
0001	Converted (Bank) Payment	Transaction is related to converted (bank) payment. Conversion of physical instrument to electronic form for transmission to the paying bank and where the original paper document does not continue in the clearing process. The instrument rules change upon conversion.
0002	Standing Order	Transaction is related to standing order.
0090	Mass Payment Beneficiary	Transaction is related to mass payment beneficiary.
0091	Mass Payment Ours	Transaction is related to mass payment ours.
0092	Mass Payment Shared	Transaction is related to mass payment shared.
0220	Standing Authorisation General	Transaction is related to standing authorisation general.
0221	One-off Authorisation	Transaction is related to one-off authorisation.
0222	Standing Authorisation Companies	Transaction is related to standing authorisation companies.
0223	Standing Authorisation Lotteries	Transaction is related to standing authorisation lotteries.
0224	One-off Authorisation Charities	Transaction is related to one-off authorisation charities.
0225	One-off Authorisation Tuition Fees	Transaction is related to one-off authorisation tuition fees.
0226	One-off Authorisation Construction Industry	Transaction is related to one-off authorisation construction industry.
0227	Standing Authorisation Companies Without Debtor Revocation Right	Transaction is related to standing authorisation companies without debtor revocation right.

IN	Cross Border Customer Credit Transfer	Transaction is related to cross border customer credit transfer.
ONCL	Overnight	Transaction is related to overnight clearing.
SDCL	Same Day	Transaction is related to same day clearing.
B2B	SEPA Business to Business Direct Debit	Transaction is related to SEPA business to business direct debit.
B2BAMIPM	SEPA B2B Direct Debit AMI	SEPA B2B Direct Debit AMI based on a paper mandate
COR1	SEPA Direct Debit - 1 Day Settlement	Optional shorter time cycle (D-1) for SEPA Core Direct Debit
CORAMIPM	SEPA Core Direct Debit AMI	SEPA Core Direct Debit AMI based on a paper mandate
CORE	SEPA Direct Debit - Core	Transaction is related to SEPA direct debit -core.
CR1AMIPM	SEPA Core D-1 Direct Debit AMI	Optional shorter time cycle (D-1) for SEPA Core Direct Debit AMI based on a paper mandate
DDFA	DirectDebitFixedAmount	SEPA Fixed Amount Direct Debit
DDNR	CoreNoRefund	SEPA Core Direct Debit with 'no refund' option
FADAMIPM	SEPA FA Direct Debit AMI	SEPA Fixed Amount Direct Debit AMI based on a paper mandate
CCI	Cash Concentration Intragroup	Transaction is related to an intra-group bank initiated cash management payment
BTR	Bank Transfer	Transaction is related to a bank transfer.
CKS	Check Same Day Settlement Wire	Transaction is related to check same day settlement wire.
CTP	Customer Transfer Plus	Transaction is related to a customer transfer, which may include information related to a cover payment or extended remittance information.
CTR	Customer Transfer	Transaction is related to customer transfer.
DEP	Deposit to Sender's Account	Transaction is related to deposit to sender's account.
DRB	Bank-to-Bank Drawdown Request or Response (Non-value)	Transaction is related to bank-to-bank drawdown request or response (non-value)
DRC	Customer or Corporate Drawdown Request or Response (Non-value)	Transaction is related to customer or corporate drawdown request or response (non-value).

DRW	Drawdown Response (Value) to Honor a Drawdown Request	Transaction is related to drawdown response (value) to honor a drawdown request.
FFR	Fed Funds Returned	Transaction is related to Fed funds returned.
FFS	Fed Funds Sold	Transaction is related to Fed funds sold.
SVC	Non-Value Service Message	Transaction is related to non-value service message.
ARC	Accounts Receivable Check	Transaction is related to accounts receivable check.
CCD	Cash Concentration or Disbursement Corporate counterparty.	Transaction is related to cash concentration or disbursement corporate counterparty.
CIE	Customer Initiated Entry	A credit entry initiated by or on behalf of the holder of a consumer account
CTX	Corporate Trade Exchange	Transaction is related to corporate trade exchange.
IAT	International ACH	Transaction is related to international ACH.
POP	Point-Of-Purchase	Transaction is related to point-of-purchase.
POS	Point-Of-Sale	Transaction is related to point-of-sale.
PPD	Prearranged Payment or Deposit. Consumer counterparty.	Transaction is related to prearranged payment or deposit consumer counterparty.
RCK	Re-presented Check Entry	Transaction is related to re-presented check entry.
TEL	Telephone Initiated Entry	Transaction is related to telephone initiated entry.
WEB	Internet Initiated Entry	Transaction is related to internet initiated entry.

3.12.10 Organisation Identification Code

Specifies the **external** organization scheme name code e.g., used in Invoicer and Invoicee identification.

Code	Name	Definition
BANK	Bank Party Identification	Unique and unambiguous assignment made by a specific bank or similar financial institution to identify a relationship as defined between the bank and its client.
CBID	Central Bank Identification Number	A unique identification number assigned by a central bank to identify an organisation.
CHID	Clearing Identification Number	A unique identification number assigned by a clearing house to identify an organisation
COID	Country Identification Code	Country authority given organisation identification (e.g., corporate registration number)
CUST	Customer Number	Number assigned by an issuer to identify a customer. Number assigned by a party to identify a creditor or debtor relationship.
DUNS	Data Universal Numbering System	A unique identification number provided by Dun & Bradstreet to identify an organisation.
EMPL	Employer Identification Number	Number assigned by a registration authority to an employer.
GS1G	GS1GLN Identifier	Global Location Number. A non-significant reference number used to identify legal entities, functional entities, or physical entities according to GS1 numbering scheme rules. The number is used to retrieve detailed information that is linked to it.
SREN	SIREN	The SIREN number is a 9 digit code assigned by INSEE, the French National Institute for Statistics and Economic Studies, to identify an organisation in France.

SRET	SIRET	The SIRET number is a 14 digit code assigned by INSEE, the French National Institute for Statistics and Economic Studies, to identify an organisation unit in France. It consists of the SIREN number, followed by a five digit classification number, to identify the local geographical unit of that entity
TXID	Tax Identification Number	Number assigned by a tax authority to identify an organisation.

3.12.11 Person Identification Code

Specifies the **external** personal identification scheme name code e.g., used in Invoicer and Invoicee identification.

Code	Name	Definition
ARNU	Alien Registration Number	Number assigned by a social security agency to identify a non-resident person.
CCPT	Passport Number	Number assigned by an authority to identify the passport number of a person.
CUST	Customer Identification Number	Number assigned by an issuer to identify a customer.
DRLC	Drivers License Number	Number assigned by an authority to identify a driver's license.
EMPL	Employee Identification Number	Number assigned by a registration authority to an employee.
NIDN	National Identity Number	Number assigned by an authority to identify the national identity number of a person.
SOSE	Social Security Number	Number assigned by an authority to identify the social security number of a person.

3.12.12 Service Level Code

Specifies the **external** service level code.

Code	Name	Definition
BKTR	Book Transaction	Payment through internal book transfer.
NUGP	Non-urgent Priority Payment	Payment must be executed as a non-urgent transaction with priority settlement.
NURG	Non-urgent Payment	Payment must be executed as a non-urgent transaction, which is typically identified as an ACH or low value transaction.
PRPT	EBA Priority Service	Transaction must be processed according to the EBA Priority Service.
SDVA	Same Day Value	Payment must be executed with same day value to the creditor.
SEPA	Single Euro Payments Area	Payment must be executed following the Single Euro Payments Area scheme.
URGP	Urgent Payment	Payment must be executed as an urgent transaction cleared through a real-time gross settlement system, which is typically identified as a wire or high value transaction.
URNS	Urgent Payment Net Settlement	Payment must be executed as an urgent transaction cleared through a real-time net settlement system, which is typically identified as a wire or high value transaction.

3.12.13 Tax Amount Type Code

Specifies the nature, or use of, the tax amount as published in an **external** code list.

Code	Name	Definition
CITY	City Tax	Tax accessed by city jurisdictions within a country.
CNTY	County Tax	Tax accessed by county jurisdictions within a country.
LOCL	Local Tax	Tax accessed by local jurisdictions within a country.
PROV	Province Tax	Tax accessed by province jurisdictions within a country.
STAT	State Tax	Tax accessed by state jurisdictions within a country.

3.13 Non-ISO Code: Adjustment Reason Code

For remittance information, ISO does not include these explicit codes within ISO 20022 messages. The Adjustment Reason Codes are the same as those used in the STP 820 format, Fedwire CTP and CHIPS ERI message format. As such, the use of the below adjustment reason codes is recommended to harmonize with STP 820, Fedwire ERI, and CHIPS ERI messages.

Code	Definition
01	Pricing Error
03	Extension Error
04	Item Not Accepted (Damaged)
05	Item Not Accepted (Quality)
06	Quantity Contested
07	Incorrect Product
11	Returns (Damage)
12	Returns (Quality)
59	Item Not Received
75	Total Order Not Received
81	Credit as Agreed
CM	Covered by Credit Memo

A.4 Technical Mapping Guidelines

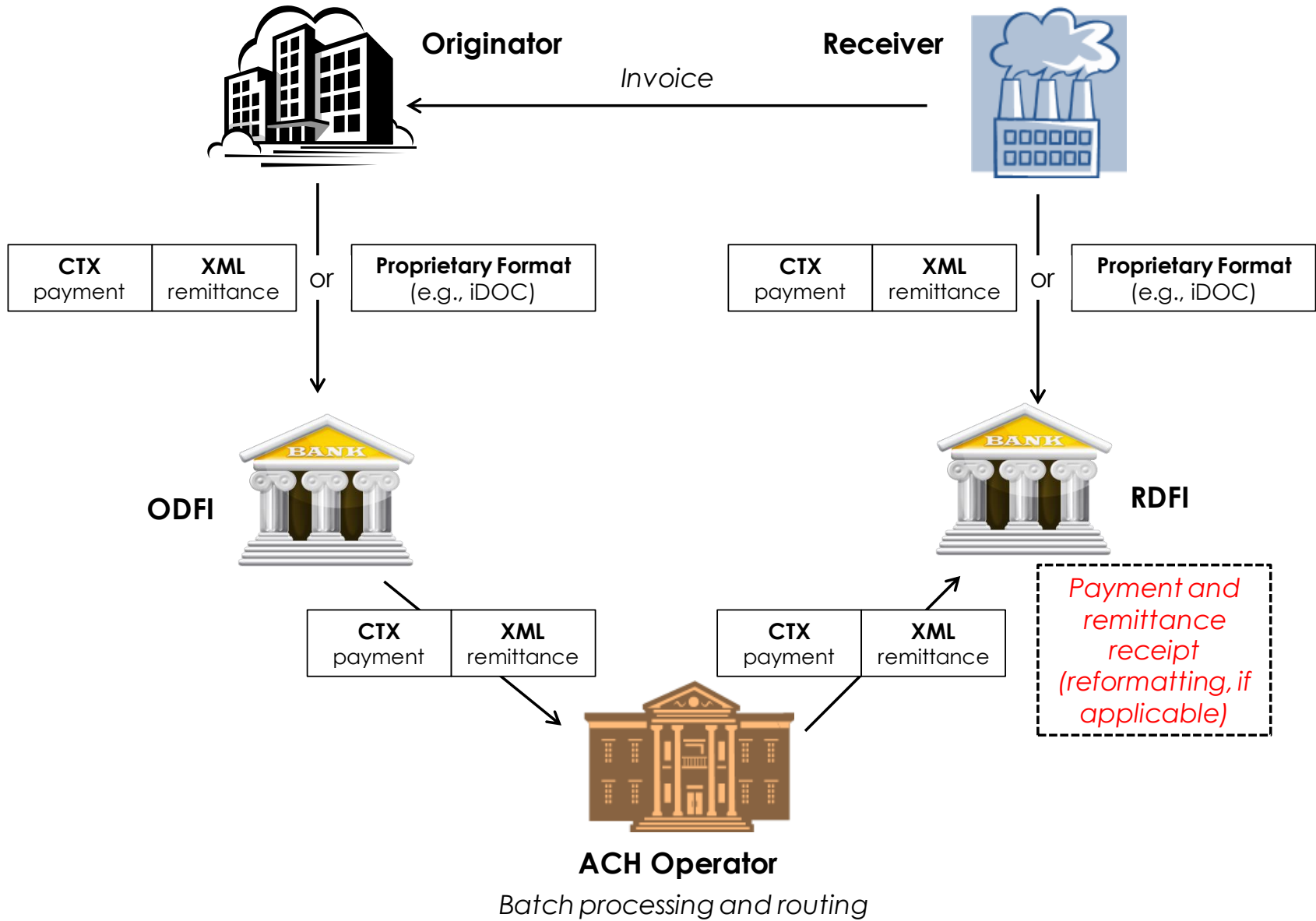
The migration to the ISO 20022 XML remittance messages requires the following key considerations and guidelines:

Format translation	Data translations from other formats such as EDI, SAP iDoc, and proprietary formats should ensure that the full contents of each translated field is carried forward to the respective ISO 20022 XML data elements to prevent truncation of information.
Empty tags in target message	Note that if as a result of translation, a source tag is translated as an empty target element, then this target element will not be created.
Character sets	The source (text) elements that are translated can only carry characters compatible with the ISO 20022 message character set. See Appendix F for acceptable characters.
Message header elements	Translation to the target ISO XML messages are restricted to the header fields and tags that are supported in the target XML messages.
Presence	Only when an element is present, which contains a mandatory element on a deeper level, this element must be present.

A.5 Context for ACH Record Structure and Example

An application of the business flow is presented in the following page. The diagram depicts the "round trip" flow of an invoice from ABC Corporation as the Invoicer/Originator (in either hardcopy or electronic format) to XYZ Corp. as the Invoicee / Receiver and the return CTX Payment (sent via ACH) with Remittance Addendum from XYZ Corp. as the Payer / Originator to ABC Corp. as the Payee / Receiver. Note the ODFI which passes an electronic invoice becomes the RDFI for the Payment. A similar role reversal is true for the RDFI passing the Invoice to XYZ Corp. becoming the ODFI processing the Payment for XYZ Corp.


Figure 5: Sample XML-ACH Data Flow: Invoice to Payment with Remittance Addendum



5.1 ACH with XML Remittance Data Examples

The Sample Invoice (hardcopy version for clarity of data contained) is provided to align with the selections of data in the following CTX Payment Example.

Figure 6: Sample Invoice

To: XYZ Corporation Attn : John Smith Purchasing Department 27 Washington Ave. Albany, NY 12206 Office Phone: 212-333-1234 Mobile Phone: 212-555-5678 email: john.smith@xyzcorp.org		Cust #: 111222222PD		 ABC Corporation ABC Corporation Accounts Receivable 123 Lexington St. Wilmington, DE 19801 Telephone: 302-123-4567 Dunns #: 33388888					
YOUR ORDER NO. XYZ Corporation PO#: 000123		OUR CONTRACT NO. ABC-007925		TERMS Net 30 Days		INVOICE DATE 05/30/14		INVOICE NO. 123456	
Quarterly ABC-Customer-Care Software License Fee per the SOFTWARE LICENSE AGREEMENT (ABC-007925) between ABC Corporation and XYZ Corporation date effective January 1, 2013 Signed by John Smith for ABC Corporation on November 26, 2012									
Line Item	Description	Price	Discounts	Tax (6.25%):	Amount Due				
1	Quarterly ABC-Customer-Care Software License Fee for the period July 1 - September 30, 2014 Discount applied for payment before start of License Fee period: Payment reduction due to Software License price change (Reason Code: 03)	\$110,500.00		\$6,875.00	\$116,875.00				
			-\$300.00						
			-\$200.00						
2	Quarterly Volume Processing Component Fee (2,429,278 @ \$0.02) for the period April 1 - June 30, 2014	\$48,585.56	\$0.00	\$3,036.60	\$51,622.16				
3	Delivery of Product Change Request #20795	\$34,500.00	\$0.00	\$2,156.25	\$36,656.25				
	TOTAL	\$193,585.56	-\$500.00	\$12,067.85	\$205,153.41				
				TOTAL DUE:		\$205,153.41			
SEND REMITTANCE DIRECTLY: ABC Corporation Accounts Receivable 123 Lexington St. Wilmington, DE 19801		OR ELECTRONIC PAYMENT TO: HSBC Bank USA, N.A. ABA #021001088 Account #123456789 Account Name: ABC Corporation, Inc.		Past due invoices will be subject to a late fee charge of 1.5% of the outstanding balance per month					

Explanation of annotations between Figure 6 and Figure 7.

Reference	Description	Original Source	Content
A	Invoice Number	Original Invoice (Figure 6)	<ul style="list-style-type: none"> Part of Structured Remittance Advice information
B	Invoice Date	Original Invoice (Figure 6)	<ul style="list-style-type: none"> Part of Structured Remittance Advice information
C	Line Detail #1 Data	Original Invoice (Figure 6)	For Line Detail 1: <ul style="list-style-type: none"> Description Price Discount Tax Payment Reduction Amount Due
D	Line Detail #2 Data	Original Invoice (Figure 6)	For Line Detail 2: <ul style="list-style-type: none"> Description Price Discount (not applied for this Detail) Tax Payment Reduction (not applied for this Detail) Amount Due
E	Line Detail #3 Data	Original Invoice (Figure 6)	For Line Detail 3: <ul style="list-style-type: none"> Description Price Discount (not applied for this Detail) Tax Payment Reduction (not applied for this Detail) Amount Due
F	Referred Document Amount (Invoice Summary Data)	Original Invoice (Figure 6)	For TOTAL Invoice: <ul style="list-style-type: none"> Price (Sum of Line Details 1+2+3) Discount (Sum of Line Details 1+2+3) Tax (Sum of Line Details 1+2+3) Payment Reduction (Sum of Line Details 1+2+3) Amount Due (Sum of Line Details 1+2+3)
G	Initiating Party Purchase Order	Original Invoice (Figure 6)	<ul style="list-style-type: none"> Initiating Party Purchase Order Number

Reference	Description	Original Source	Content
	Number (PO#)		(PO#)
H	Message Recipient / Invoicer Organizational Information	Original Invoice (Figure 6)	<ul style="list-style-type: none"> • Message Recipient / Invoicer Organizational Information • Both assumed to be the same for this example (which is the case for most invoices); but may be different
I	Initiating Party / Invoicee Organizational Information	Original Invoice (Figure 6)	<ul style="list-style-type: none"> • Initiating Party / Invoicee Organizational Information • Both assumed to be the same for this example (which is the case for most invoices), but may be different
J*	Group Header Information	Generated by Payer's System (Originator: XYZ Corp.) to CTX Payment	<ul style="list-style-type: none"> • Message ID • Message Creation Date & Time
K*	Additional Information	Added by Payer (Originator: XYZ Corp.) to CTX Payment	<ul style="list-style-type: none"> • Optional additional information • Included in this example
L*	Original Payment Information	Generated by Payer's System (Originator: XYZ Corp.) to CTX Payment	<ul style="list-style-type: none"> • Payment information Identifier for future End-To-End tracking • Creditor Account information • Creditor Agent information

*NOTE: Would not be pulled from the invoice

5.2 CTX Payment Example

The below provides an example of XML Remittance Information in structured Addenda 7 records, 80 characters each.

Figure 7: Sample CTX with XML Remittance Data

	1	2	3	4	5	6	7	8	
705	1234567890123456789012345678901234567890123456789012345678901234567890								
705	Example Data (continued - page 1 of 3)								
705	<pre> <?xml version="1.0" encoding="UTF-8"?><Document xmlns="urn:iso:std:iso:20022:tec h:xsd:remt.001.001.01" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"><Rmt Advc><GrpHdr><MsgId>987654321</MsgId><CreDtTm>2014-07-25T09:59:59</CreDtTm><Init gPty><Nm>XYZ Corporation</Nm><PstlAdr><AdrTp>DLVY</AdrTp><Dept>PurchasingDepartm ent</Dept><StrtNm>Washington Avenue</StrtNm><BldgNb>27</BldgNb><PstCd>12206</Pst Cd><TwnNm>Albany</TwnNm><CtrySubDvsn>NY</CtrySubDvsn><Ctry>US</Ctry></PstlAdr><I d><OrgId><Othr><Id>111222222PD</Id><SchmeNm><Prtry>Identifier 333444555</Prtry>< /SchmeNm><Issr>XYZ Corporation</Issr></Othr></OrgId></Id><CtryOfRes>US</CtryOfRe s><CtctDtls><NmPrfx>MIST</NmPrfx><Nm>John Smith</Nm><PhneNb>+1-212-333-1234</Phn eNb><MobNb>+1-212-555-5678</MobNb><FaxNb>+1-212-333-3355</FaxNb><EmailAdr>john.s mith@xyzcorp.org</EmailAdr><Othr>John is primary contact at XYZ Corp</Othr></Ctc tDtls></InitgPty><MsgRcpt><Nm>ABC Corporation</Nm><PstlAdr><AdrTp>ADDR</AdrTp><D ept>Accounts Receivable</Dept><StrtNm>Lexington Street</StrtNm><BldgNb>123</Bldg Nb><PstCd>19801</PstCd><TwnNm>Wilmington</TwnNm><CtrySubDvsn>DE</CtrySubDvsn><Ct ry>US</Ctry></PstlAdr><Id><OrgId><AnyBIC>ABCCUS33</AnyBIC><Othr><Id>33388888</Id ><SchmeNm><Cd>DUNS</Cd></SchmeNm><Issr>ABC Corporation</Issr></Othr></OrgId></Id ><CtryOfRes>US</CtryOfRes><CtctDtls><NmPrfx>MISS</NmPrfx><Nm>Mary Putnam</Nm><Ph neNb>+1-302-123-4567</PhneNb><MobNb>+1-302-111-1234</MobNb><FaxNb>+1-302-123-333 3</FaxNb><EmailAdr>Mary.Putnam@abc.com</EmailAdr><Othr>Mary is delivery contact< /Othr></CtctDtls></MsgRcpt></GrpHdr><RmtInf><Strd>< RfrdDocInf><Tp><CdOrPrtry><C </pre>								00010030110
705									00020030110
705									00030030110
705									00040030110
705									00050030110
705									00060030110
705									00070030110
705									00080030110
705									00090030110
705									00100030110
705									00110030110
705									00120030110
705									00130030110
705									00140030110
705									00150030110
705									00160030110
705									00170030110
705									00180030110
705									00190030110
705									00200030110
705	(Continued)								

	1	2	3	4	5	6	7	8	
	12345678901234567890123456789012345678901234567890123456789012345678901234567890								
	Example Data (continued - page 2 of 3)								
B	d>CINV</Cd></CdOrPrtry><Issr>ABC Corporation</Issr></Tp><Nb>INVOICE123456</Nb><R								A
	ltdDt>2014-05-30</RltdDt><LineDtls><Id><Tp><CdOrPrtry><Prtry>Line Item 1</Prtry>								00210030110
	</CdOrPrtry><Issr>ABC Corporation</Issr></Tp><Nb>123456-1</Nb><RltdDt>2014-05-30								00220030110
	</RltdDt></Id><Desc>Quarterly SW Lic. Fee July 1 - Sept 30, 2014</Desc><Amt><Due								00230030110
C	PyblAmt Ccy="USD">110500.00</DuePyblAmt><DscntApldAmt><Amt Ccy="USD">300.00</Amt								00240030110
	></DscntApldAmt><TaxAmt><Amt Ccy="USD">6875.00</Amt></TaxAmt><AdjstmntAmtAndRsn>								00250030110
	<Amt Ccy="USD">200.00</Amt><CdtDbtInd>CRDT</CdtDbtInd><Rsn>03</Rsn><AddtlInf>Ded								00260030110
	ucted \$200.00 from payment due to pricing change</AddtlInf></AdjstmntAmtAndRsn><								00270030110
	RmtdAmt Ccy="USD">116875.00</RmtdAmt></Amt></LineDtls><LineDtls><Id><Tp><CdOrPr								00280030110
	ry><Prtry>Line Item 2</Prtry></CdOrPrtry><Issr>ABC Corporation</Issr></Tp><Nb>12								00290030110
D	3456-2</Nb><RltdDt>2014-05-30</RltdDt></Id><Desc>Vol (2,429,278 @ \$0.02)4/1-6/30								00300030110
	/2014</Desc><Amt><DuePyblAmt Ccy="USD">48585.56</DuePyblAmt><TaxAmt><Amt Ccy="US								00310030110
	D">3036.60</Amt></TaxAmt><RmtdAmt Ccy="USD">51622.16</RmtdAmt></Amt></LineDtls><								00320030110
	LineDtls><Id><Tp><CdOrPrtry><Prtry>Line Item 3</Prtry></CdOrPrtry><Issr>ABC Corp								00330030110
E	oration</Issr></Tp><Nb>123456-3</Nb><RltdDt>2014-05-30</RltdDt></Id><Desc>Delive								00340030110
	ry of Prod Change Req #20795</Desc><Amt><DuePyblAmt Ccy="USD">34500.00</DuePyblA								00350030110
	mt><TaxAmt><Amt Ccy="USD">2156.25</Amt></TaxAmt><RmtdAmt Ccy="USD">36656.25</Rmt								00360030110
	dAmt></Amt></LineDtls></RfrdDocInf><RfrdDocAmt><DuePyblAmt Ccy="USD">193585.56</								00370030110
	DuePyblAmt><DscntApldAmt><Amt Ccy="USD">300.00</Amt></DscntApldAmt><TaxAmt><Amt								00380030110
F	Ccy="USD">12067.85</Amt></TaxAmt><AdjstmntAmtAndRsn><Amt Ccy="USD">200.00</Amt><								00390030110
	CdtDbtInd>CRDT</CdtDbtInd><Rsn>03</Rsn><AddtlInf>Deducted \$200.00 from payment d								00400030110
	ue to pricing change</AddtlInf></AdjstmntAmtAndRsn><RmtdAmt Ccy="USD">205153.41<								00410030110
	/RmtdAmt></RfrdDocAmt><CdtrRefInf><Tp><CdOrPrtry><Prtry>Purchase Order number</P								00420030110
	rtry></CdOrPrtry><Issr>XYZ Corporation</Issr></Tp><Ref>PO-000123</Ref></CdtrRefI								00430030110
H	nf><Invcr><Nm>ABC Corporation</Nm><PstlAdr><AdrTp>ADDR</AdrTp><Dept>Accounts Rec								00440030110
	eivable</Dept><StrtNm>Lexington Street</StrtNm><BldgNb>123</BldgNb><PstCd>19801<								00450030110
									00460030110
	(Continued)								G

1	2	3	4	5	6	7	8
12345678901234567890123456789012345678901234567890123456789012345678901234567890							

Example Data (continued - page 3 of 3)

705	/PstCd><TwnNm>Wilmington</TwnNm><CtrySubDvsn>DE</CtrySubDvsn><Ctry>US</Ctry></Ps	00470030110
705	tlAdr><Id><OrgId><AnyBIC>ABCCUS33</AnyBIC><Othr><Id>33388888</Id><SchmeNm><Cd>DU	00480030110
705	NS</Cd></SchmeNm><Issr>ABC Corporation</Issr></Othr></OrgId></Id><CtryOfRes>US</	00490030110
705	CtryOfRes><CtctDtls><NmPrfx>MISS</NmPrfx><Nm>Mary Putnam</Nm><PhneNb>+1-302-123-	00500030110
705	4567</PhneNb><MobNb>+1-302-111-1234</MobNb><FaxNb>+1-302-123-3333</FaxNb><EmailA	00510030110
705	dr>Mary.Putnam@abc.com</EmailAdr><Othr>Mary is delivery contact</Othr></CtctDtls	00520030110
705	></Invcr><Invcee><Nm>XYZ Corporation</Nm><PstlAdr><AdrTp>DLVY</AdrTp><Dept>Purch	00530030110
705	asing Department</Dept><StrtNm>Washington Avenue</StrtNm><BldgNb>27</BldgNb><Pst	00540030110
705	Cd>12206</PstCd><TwnNm>Albany</TwnNm><CtrySubDvsn>NY</CtrySubDvsn><Ctry>US</Ctry	00550030110
705	></PstlAdr><Id><OrgId><Othr><Id>111222222PD</Id><SchmeNm><Prtry>Identifier 33344	00560030110
705	4555</Prtry></SchmeNm><Issr>XYZ Corporation</Issr></Othr></OrgId></Id><CtryOfRes	00570030110
705	>US</CtryOfRes><CtctDtls><NmPrfx>MIST</NmPrfx><Nm>John Smith</Nm><PhneNb>+1-212-	00580030110
705	333-1234</PhneNb><MobNb>+1-212-555-5678</MobNb><FaxNb>+1-212-333-3355</FaxNb><Em	00590030110
705	ailAdr>john.smith@xyzcorp.org</EmailAdr><Othr>John is primary contact at XYZ Cor	00600030110
705	p</Othr></CtctDtls></Invcee><AddtlRmtInf>For more info about this payment, call	00610030110
705	John Smith at 212-333-1234</AddtlRmtInf><AddtlRmtInf>Call before 5 PM ET</AddtlR	00620030110
705	mtInf><AddtlRmtInf>Monday to Friday</AddtlRmtInf></Strd><OrgnlPmtInf><Refs><PmtI	00630030110
705	nfId>XYZ Corp. Payment Txn Number</PmtInfId><EndToEndId>20140624000000025998</En	00640030110
705	dToEndId></Refs><CdtrAcct><Id><Othr><Id>Account #123456789</Id><SchmeNm><Prtry>A	00650030110
705	ccount Name: ABC Corporation, Inc.</Prtry></SchmeNm></Othr></Id></CdtrAcct><Cdtr	00660030110
705	Agt><FinInstnId><BICFI>HSBCUS33</BICFI><ClrSysMmbId><ClrSysId><Cd>USABA</Cd><Mmb	00670030110
705	Id>021001088</MmbId></ClrSysId></ClrSysMmbId><Nm>HSBC Bank USA, N.A.</Nm></FinIn	00680030110
705	stnId></CdtrAgt></OrgnlPmtInf></RmtInf></RmtAdv</Document>	00690030110

H

I

K

L

J K L J, K and L all Added by Payer
(Originator: XYZ Corp.) to CTX Payment

An alternative format of the CTX Payment Example is shown below.

Figure 8: Alternate View of the CTX Example with XML Formatting

```
<?xml version="1.0" encoding="UTF-8"?>
<Document xmlns="urn:iso:std:iso:20022:tech:xsd:remt.001.001.01"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <RmtAdvc>
  <GrpHdr>
    <MsgId>987654321</MsgId>
    <CreDtTm>2014-07-25T09:59:59</CreDtTm>
    <InitgPty>
      <Nm>XYZ Corporation</Nm>
      <PstlAdr>
        <AdrTp>DLVY</AdrTp>
        <Dept>Purchasing Department</Dept>
        <StrtNm>Washington Avenue</StrtNm>
        <BldgNb>27</BldgNb>
        <PstCd>12206</PstCd>
        <TwnNm>Albany</TwnNm>
        <CtrySubDvsn>NY</CtrySubDvsn>
        <Ctry>US</Ctry>
      </PstlAdr>
      <Id>
        <OrgId>
          <Othr>
            <Id>111222222PD</Id>
            <SchmeNm>
              <Prtry>Identifier 333444555</Prtry>
            </SchmeNm>
            <Issr>XYZ Corporation</Issr>
          </Othr>
        </OrgId>
      </Id>
      <CtryOfRes>US</CtryOfRes>
      <CtctDtls>
        <NmPrfx>MIST</NmPrfx>
        <Nm>John Smith</Nm>
        <PhneNb>+1-212-333-1234</PhneNb>
```

```

        <MobNb>+1-212-555-5678</MobNb>
        <FaxNb>+1-212-333-3355</FaxNb>
        <EmailAdr>john.smith@xyzcorp.org</EmailAdr>
        <Othr>John is primary contact at XYZ Corp</Othr>
    </CtctDtls>
</InitgPty>
<MsgRcpt>
    <Nm>ABC Corporation</Nm>
    <PstlAdr>
        <AdrTp>ADDR</AdrTp>
        <Dept>Accounts Receivable</Dept>
        <StrtNm>Lexington Street</StrtNm>
        <BldgNb>123</BldgNb>
        <PstCd>19801</PstCd>
        <TwnNm>Wilmington</TwnNm>
        <CtrySubDvsn>DE</CtrySubDvsn>
        <Ctry>US</Ctry>
    </PstlAdr>
    <Id>
        <Orgld>
            <AnyBIC>ABCCUS33</AnyBIC>
            <Othr>
                <Id>33388888</Id>
                <SchmeNm>
                    <Cd>DUNS</Cd>
                </SchmeNm>
                <Issr>ABC Corporation</Issr>
            </Othr>
        </Orgld>
    </Id>
    <CtryOfRes>US</CtryOfRes>
    <CtctDtls>
        <NmPrfx>MISS</NmPrfx>
        <Nm>Mary Putnam</Nm>
        <PhneNb>+1-302-123-4567</PhneNb>
        <MobNb>+1-302-111-1234</MobNb>
        <FaxNb>+1-302-123-3333</FaxNb>
        <EmailAdr>Mary.Putnam@abc.com</EmailAdr>
        <Othr>Mary is delivery contact</Othr>
    </CtctDtls>

```

```

    </MsgRcpt>
  </GrpHdr>
  <RmtInf>
    <Strd>
      <RfrdDocInf>
        <Tp>
          <CdOrPrtry>
            <Cd>CINV</Cd>
          </CdOrPrtry>
          <Issr>ABC Corporation</Issr>
        </Tp>
        <Nb>INVOICE123456</Nb>
        <RitdDt>2014-05-30</RitdDt>
        <LineDtls>
          <Id>
            <Tp>
              <CdOrPrtry>
                <Prtry>Line Item 1</Prtry>
              </CdOrPrtry>
              <Issr> ABC Corporation</Issr>
            </Tp>
            <Nb>123456-1</Nb>
            <RitdDt>2014-05-30</RitdDt>
          </Id>
          <Desc>Quarterly SW Lic. Fee July 1 - Sept 30, 2014</Desc>
          <Amt>
            <DuePyblAmt Ccy="USD">110500.00</DuePyblAmt>
            <DscntApldAmt>
              <Amt Ccy="USD">300.00</Amt>
            </DscntApldAmt>
            <TaxAmt>
              <Amt Ccy="USD">6875.00</Amt>
            </TaxAmt>
            <AdjstmntAmtAndRsn>
              <Amt Ccy="USD">200.00</Amt>
              <CdtDbtInd>CRDT</CdtDbtInd>
              <Rsn>03</Rsn>
              <AddtlInf>Deducted $200.00 from payment due to pricing
            </AdjstmntAmtAndRsn>
          </Amt>
        </LineDtls>
      </Strd>
    </RfrdDocInf>
  </RmtInf>
</AddtlInf>
change</AddtlInf>
</AdjstmntAmtAndRsn>

```

```

        <RmtdAmt Ccy="USD">116875.00</RmtdAmt>
    </Amt>
</LineDtls>
<LineDtls>
    <Id>
        <Tp>
            <CdOrPrtry>
                <Prtry>Line Item 2</Prtry>
            </CdOrPrtry>
            <Issr>ABC Corporation</Issr>
        </Tp>
        <Nb>123456-2</Nb>
        <RltdDt>2014-05-30</RltdDt>
    </Id>
    <Desc>Vol (2,429,278 @ $0.02) 4/1-6/30/ 2014</Desc>
    <Amt>
        <DuePyblAmt Ccy="USD">48585.56</DuePyblAmt>
        <TaxAmt>
            <Amt Ccy="USD">3036.60</Amt>
        </TaxAmt>
        <RmtdAmt Ccy="USD">51622.16</RmtdAmt>
    </Amt>
</LineDtls>
<LineDtls>
    <Id>
        <Tp>
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            </CdOrPrtry>
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        </Tp>
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    </Id>
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        <TaxAmt>
            <Amt Ccy="USD">2156.25</Amt>
        </TaxAmt>
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    </Amt>
</LineDtls>

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        </Amt>
    </LineDtls>
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    </DscntApldAmt>
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    </TaxAmt>
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  <FaxNb>+1-302-123-3333</FaxNb>
  <EmailAdr>Mary.Putnam@abc.com</EmailAdr>
  <Othr>Mary is delivery contact</Othr>
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        <SchmeNm>

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            </Othr>
        </Orgld>
    </Id>
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    <CtctDtls>
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        <Nm>John Smith</Nm>
        <PhneNb>+1-212-333-1234</PhneNb>
        <MobNb>+1-212-555-5678</MobNb>
        <FaxNb>+1-212-333-3355</FaxNb>
        <EmailAdr>john.smith@xyzcorp.org</EmailAdr>
        <Othr>John is primary contact at XYZ Corp</Othr>
    </CtctDtls>
</Invcee>
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            </Othr>
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  </Document>

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A.6 remt.001 Mappings

The following sections provide high level mappings of remt.001 to ASC X12 820 (or STP 820) and NACHA Banking Conventions: DED, TPP, and TXP. Also, available on the NACHA website is the detailed *NACHA XML-ACH Remittance Mapping Tool* for download.

6.1 remt.001 Mappings to STP 820

The STP 820 remittance information is grouped by the following:

- Remittance Information (RMR)
- Reference Information (REF)
- Date Information (DTM)
- Adjustment Information (ADX)

The ISO equivalent and mappings are provided in the tables that follow.

Remittance Information or RMR

Segment	Data Element	ISO Equivalent
RMR01	Reference Identification Qualifier	ReferredDocumentInformation>Type>CodeOrProprietary>Code
RMR02	Reference Identification	ReferredDocumentInformation>Number
RMR03	Payment Action Code (not typically used)	Set to *
RMR04	Monetary Amount [Amount Paid]	ReferredDocumentAmount>RemittedAmount
RMR05	Monetary Amount [Invoice Amount]	ReferredDocumentAmount>DuePayableAmount
RMR06	Monetary Amount [Adjustment Amount]	ReferredDocumentAmount>DiscountAppliedAmount

Reference Information or REF

Segment	Data Element	ISO Equivalent
REF01	Reference Identification Qualifier (BM, PO, R7, VV)	CreditorReferenceInformation>Type>CodeOrProprietary>Code
REF02	Reference Identification	CreditorReferenceInformation>Reference
REF03	Description	AdditionalRemittanceInformation

Date / Time Information or DTM

Segment	Data Element	ISO Equivalent
DTM01	Date/Time Qualifier	
DTM02	Date	ReferredDocumentInformation>RelatedDate

Adjustment Information or ADX

Note that for ADX03 and ADX04 are mapped to the same data element.

Segment	Data Element	ISO Equivalent
ADX01	Monetary Amount [Adjustment Amount]	ReferredDocumentAmount>AdjustmentAmountAndReason>Amount
ADX02	Adjustment Reason Code	ReferredDocumentAmount>AdjustmentAmountAndReason>Reason
ADX03	Reference Identifier Qualifier	ReferredDocumentAmount>AdjustmentAmountAndReason>AdditionalInformation
ADX04	Reference Identification	

Additionally, customer number and customer name (N1 segments) of the payment information are mandatory fields of the STP 820. As such, the ISO equivalent and mappings are provided in the below table.

Originator and Receiver Name Identification or N1

Segment	Data Element	ISO Equivalent
N1 – Originator Name Identification or “Payer”		
N101	Entity Identifier Code (“Payer”)	Structured>Invoicee (implies entity identifier)
N102	Payer Name	Invoicee>Name
N103	Payer Identification Code Qualifier	Invoicee>Identification>OrganisationIdentification>Other>SchemeName>Code

N104	Identification Code (Payer Tax ID)	Invoicee>Identification>OrganisationIdentification>Other>Identification
N1 – Receiver Name Identification or “Payee”		
N101	Entity Identifier Code (“Payee”)	Structured>Invoicer (implies entity identifier)
N102	Payee Name	Invoicer>Name

The following illustrates the syntax comparison between STP 820 (EDI) and ISO 20022 XML.

Figure 10: Comparison of STP 820 (EDI) to ISO 20022 XML Syntax

Reference Information	STP 820 (EDI) Structure	ISO 20022 XML Structure (remt.001)
1 Customer Account Number	N104 N1*PR*ABC Corporation*91*C1234567\	<Invcee> <Orgld>... <ld>C1234567</ld>
2 Customer Name	N102 ABC Corporation	<Nm> ABC Corporation </Nm>
3 Invoice Number	IV = Invoice number RMR*IV* 4562 **9500.00*10000.00*500.00\	<RfrdDocInf> <Tp> <CdOrPrtry> <Cd> CINV </Cd> </CdOrPrtry> </Tp> <Nb> 4562 </Nb> <RltdDt> 2012-09-08 </RltdDt> </RfrdDocInf>
4 Invoice Date	DTM02 DTM*003* 20120908 \	<RltdDt> 2012-09-08 </RltdDt>

5	Invoice Gross Amount/ Amount before Discounts	RMR05 RMR*IV*4562**9500.00*10000.00*500.00\	<RfrdDocAmt> <DuePyblAmt Ccy="USD">10000.00</DuePyblAmt> </RfrdDocAmt>
6	Amount Paid	RMR04 RMR*IV*4562**9500.00*10000.00*500.00\	<RfrdDocAmt> <RmtdAmt Ccy="USD">9500.00</RmtdAmt> </RfrdDocAmt>
7	Discount Amount	RMR06 RMR*IV*4562**9500.00*10000.00*500.00\	<RfrdDocAmt> <DscntApld Amt Ccy="USD">500.00</DscntApldAmt> </RfrdDocAmt>
8	Purchase Order	REF*PO*5722319* APPROVED BY JOE SMITH\	<CdtrRefInf> <TP> <CdOrPrtry> <Cd>PUOR</Cd> </Tp> <Ref>5722319</Ref> </CdtrRefInf>
9	Adjustment Amount (ADX01)	ADX*-8.98*01\	<AdjstmntAmtAndRsn> <Amt Ccy="USD">8.98</Amt> <CdtDbtInd>DBIT</CdtDbtInd> <Rsn>01</Rsn> </AdjstmntAmtAndRsn>
10	Adjustment Reason Code (ADX02)	ADX*-8.98*01\	<Rsn>01</Rsn>

6.2 remt.001 Mappings to NACHA Banking Conventions

Tax Payment – TXP Segment

NACHA supports tax payments made by businesses to state revenue authorities through the use of the TXP segment in ACH Addenda (CCD+). The ISO equivalent and mappings for TXP01–TXP10 are provided below.

Note that for TXP05, TXP07, and TXP09 are mapped to the same data element.

Segment	Data Element	ISO Equivalent
TXP01	Taxpayer Identification Number	TaxRemittanceDetails>Debtor>TaxIdentification
TXP02	Tax Payment Type Code	TaxRemittanceDetails>Record>Category
TXP03	Tax Period End Date	TaxRemittanceDetails>Record>Period>FromToDate>ToDate
TXP04	Amount Type (Tax Information ID Number)	TaxRemittanceDetails>Record>Category Details
TXP05	Tax Amount	TaxRemittanceDetails>Record>TaxAmount>TotalAmount
TXP06	Amount Type (Tax Information ID Number)	TaxRemittanceDetails>Record>Category Details
TXP07	Tax Amount	TaxRemittanceDetails>Record>TaxAmount>TotalAmount
TXP08	Amount Type (Tax Information ID Number)	TaxRemittanceDetails>Record>Category Details
TXP09	Tax Amount	TaxRemittanceDetails>Record>TaxAmount>TotalAmount
TXP10	Taxpayer Verification	TaxRemittanceDetails>Debtor>RegistrationIdentification

Tax Payment – TPP Segment

NACHA supports tax payments made by third parties, such as employers to government agencies for delinquent taxpayers through the use of the TPP segment in the ACH Addenda (CCD+). The ISO equivalent and mappings for TPP01–TPP07 are provided below.

Note that TPP03 and TPP07 may be mapped to multiple ISO equivalent data elements.

Segment	Data Element	ISO Equivalent
TPP01	Tax Payment Type Code	TaxRemittanceDetails>Record>Category
TPP02	Reference ID	TaxRemittanceDetails>Debtor>TaxIdentification
TPP03	Date (2 Applications possible – Tax Period End Date)	TaxRemittanceDetails>Record>Period>FromToDate>ToDate
	or	
TPP03	Payroll Date or Account Debit Date	TaxRemittanceDetails>Date
TPP04	Amount	TaxRemittanceDetails>TotalTaxAmount
TPP05	Reference ID	TaxRemittanceDetails>UltimateDebtor>TaxIdentification
TPP06	Name	TaxRemittanceDetails>UltimateDebtor>Authorisation>Name
TPP07	Reference ID	TaxRemittanceDetails>UltimateDebtor>RegistrationIdentification
	or	
TPP07		TaxRemittanceDetails>ReferenceNumber

Garnishment Payment – DED Segment

NACHA supports garnishments made by third parties, such as employers to government agencies for child support through the use of the DED segment in the ACH Addenda (CCD+). The ISO equivalent and mappings for DED01–DED09 are provided below.

Segment	Data Element	ISO Equivalent
DED01	Application Identifier	N/A (presence of GarnishmentRemittanceDetails implies)
DED02	Case Identifier	GarnishmentRemittanceDetails> ReferenceNumber
DED03	Pay Date	GarnishmentRemittanceDetails>Date
DED04	Payment Amount	GarnishmentRemittanceDetails>RemittedAmount
DED05	Non Custodial Parent SSN	GarnishmentRemittanceDetails>Garnishee>Identification>PrivateIdentification>Other>Identification
DED06	Medical Support Indicator	GarnishmentRemittanceDetails>FamilyMedicalInsuranceIndicator
DED07	Non Custodial Parent Name	GarnishmentRemittanceDetails>Garnishee>Name
DED08	FIPS Code	GarnishmentRemittanceDetails>GarnishmentAdministrator>Identification>OrganisationIdentification>Other>Identification
DED09	Employment Termination Indicator	GarnishmentRemittanceDetails>EmployeeTerminationIndicator

6.3 Special Considerations – Use of SWIFT Bank Identifier Code (BIC)

BICs are valid Business identifier codes for financial institutions and/or non-financial institutions issued by SWIFT.

6.3.1 Organization with no BIC

Some financial institutions and/or non-financial institutions may not have a BIC that is registered by the ISO 9362 Registration Authority in the BIC directory. For financial institutions and corporations that do not have a SWIFT BIC, the <AnyBIC> and <BICFI> elements must not be used. The Clearing System Member Identification, Name, and <Oth> other element group of identification elements should be used to identify the financial institution or corporation. See example below.

Sample

```
<FinInstnId>  
  <ClrSysMmbld>  
    <ClrSysId>  
      <Cd>USABA</Cd>  
      <Mmbld>256074974</Mmbld>  
    </ClrSysId>  
  </ClrSysMmbld>  
  <Nm>Navy Federal Credit Union</Nm>  
</FinInstnId>
```

6.3.2 BIC Lookups to other Identifiers

The remt.001 and remt.002 messages may carry a BIC identifier of a financial institution in the AnyBIC or BICFI elements that require mapping or lookups to another Identifier such as the Fed ABA (American Bankers Association) routing number of the financial institution when mapping from ISO remt message format to Fedwire, CHIPS, or STP 820 and vice versa from Fedwire, CHIPS, or STP 820 to ISO remt format. It is recommended to use bank directories including BIC directories, ABA directories, and bank directories from a third-party provider such as Accuity be invoked or called by applications in the translation of a valid BIC to the valid ABA number for the respective financial institution.

10. Appendix B: Best Practices and Guidelines for Stakeholders

The objective of the best practices and guidelines for ACH stakeholders provided herein is to ensure a common understanding of the XML remittance data elements to support implementations of ISO 20022 XML remittance addenda and to facilitate automation and efficiencies in processing, end to end from Originator to ODFI to RDFI and to Beneficiary customer. The below is a general checklist for stakeholders as they embark on incorporating XML remittance addenda into ACH payments. (Note that subsequent references to “XML” are specific to ISO 20022 XML format.)

B.1 Financial Institutions

1. ODFI

The following details the best practices and implementation guidelines for incorporating XML remittance addenda with ACH payments for Originating Depository Financial Institutions:

ACH Payment Stakeholder	Best Practices	Guidelines
ODFI	<ul style="list-style-type: none"> a) The ODFI should validate and if required should translate or repair remittance information into the ISO 20022 XML standard before transmitting the ACH payment with XML remittance addenda. b) If you provide translation services to your customers for remittance information in other formats to XML format, determine which formats will be supported for translation to XML format for ACH payments with XML remittance addenda. c) Conduct an impact analysis and coordinate with all potential stakeholders to identify the internal systems within the bank and on your customer facing systems, such as intra-day reporting and ability to provide the status of ACH payments and remittance data to your customers. Evaluate process changes needed, including within Sales and Customer Service. d) Communicate to your customers the new processes and procedures you may have for XML translations of remittance information received and which must travel with ACH payments in XML remittance addenda. e) If as an ODFI, your financial institution 	Banks will need to consider whether they will provide remittance translation services and repair services to ACH originators.

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>translates remittance information from other formats to the standard XML format defined in this document, validate the tags to ensure they are in compliance with the ISO 20022 standards.</p> <p>f) Develop procedures for handling files received that are not in compliance with ISO 20022 standard.</p> <p>g) Provide training and support for personnel who will be implementing and supporting ISO 20022 XML remittance information services and operations, and provide support to your customers who will be originating the remittance information.</p> <p>XML Format Specific:</p> <p>h) Ensure the maximum number of remittance addenda records is not exceeded.</p> <p>i) As a best practice, XML remittance information exchanged should not contain any 'empty tags', i.e., should not contain data elements which do not contain content.</p> <p>j) To address security concerns and the risk of malicious code being inserted into the XML (e.g., malicious Remote Procedure Calls (RPC) being inserted or present in the XML content), it is recommended your applications have built-in protection to ensure the code is not executed in the applications that would handle the message or XML remittance information, and thereby execute the malicious code.</p>	<p>g) Banks should develop training and support programs for ISO 20022 XML remittance information in ACH addenda.</p> <p>j) The bank's infrastructure should have built-in protection to treat all contents in the XML tags as data rather than executable even if it appears to be executable.</p>

2. RDFI

Receiving Depository Financial Institutions that implement XML remittance addenda with ACH payments should consider the following:

ACH Payment Stakeholder	Best Practices	Guidelines
RDFI	<ul style="list-style-type: none"> a) Support the ability to receive ISO 20022 XML remittance information that is included with ACH payments. b) Evaluate all of your remittance reporting channels and formats and determine which ones will be used for the reporting of remittance information received in XML format with ACH payments. c) Provide the ability to translate the XML remittance information into the various reporting formats that you plan to make available to customers. d) Conduct an impact analysis and coordinate with all potential stakeholders to identify the internal systems within the bank and on your customer facing systems, such as intra-day reporting and ability to provide the status of ACH payments and remittance data to your customers. Evaluate process changes needed, including within Sales and Customer Service. e) Communicate with your customers who 	<p>The use of ISO 20022 XML remittance information is optional for RDFIs, which can opt-in by signing an agreement with NACHA. Note that receiving "traditional" addenda (e.g., EDI and NACHA Banking Conventions) is mandatory. Each RDFI needs to be able to receive remittance data to provide the remittance information to customers as defined in the NACHA Rules Book and this rule still applies.</p> <p>Banks should review the ACH remittance product features they provide to customers to ensure the reporting of XML remittance information to beneficiary customers are consistent and align with existing payment systems and remittance systems including Wire, lockbox, and BAI to support adoption by customers.</p> <p>RDFI's should consider offering XML remittance information translation services for beneficiary customers who require the ACH XML remittance information to be provided to them from the RDFI in other formats and channels such as via browser.</p>

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>receive ACH payments any new specifications in the supported channels and formats for reporting of the XML remittance information, whether via browser or through a file interface.</p> <p>f) For the remittance reporting formats and channels that you support for providing remittance information to your beneficiary customers, you should validate the XML translations against the industry standards for compliance for each channel and format. In the cases of invalid syntax or non-compliance with industry standards, you should provide the remittance information to your customer in raw form or a note reporting an invalid remittance format was received with the ACH payment.</p> <p>g) Optional elements which are included by the sender in the XML schema and which are not required by the receiver may be ignored (i.e., not used for processing and not passed on by the RDFI) to the Receiver. Where the recipient may not actually require this 'surplus' information, it will be viewed as 'data overpopulation' and will be ignored.</p> <p>h) Communicate with your customers any new requirements you may have for XML translations of remittance information received and which must be reported over existing formats and channels to your receive customers.</p> <p>i) Provide training and support for personnel who will be implementing and supporting XML remittance information services and operations, and provide support to your customers who will be receiving the remittance information.</p> <p>XML Format Specific:</p> <p>j) To address security concerns and the risk of malicious code being inserted into the XML such as malicious Remote Procedure Calls (RPC) being inserted or present in the XML content, it is recommended your applications</p>	<p>i) Banks should develop training and support programs for XML remittance information in ACH addenda.</p> <p>j) The bank's infrastructure should have built-in protection to treat all contents in the XML tags as data rather than executable even if it appears to be executable.</p>

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>have built-in protection to ensure the code is not executed in the applications that would handle the message or XML remittance information and would not execute the malicious code.</p>	

B.2 Solution Providers/Vendors

The best practices and implementation guidelines for solution providers or vendors are provided below:

ACH Payment Stakeholder	Best Practices	Guidelines
Solution Providers/Vendors	<ul style="list-style-type: none"> a) Discuss with your customers their requirements for ISO 20022 XML remittance information in ACH remittance addenda. b) Consider adding the support of XML remittance addenda to your ACH solutions, product strategy and roadmap to enhance your product suite. c) Conduct an impact analysis to identify the internal processes that may be impacted by the support of XML remittance information in the ACH. d) Provide training and support services to your customers for the XML remittance addenda with ACH payments to comply with the NACHA recommended standards. e) As a best approach, solution providers should evaluate the impact that new XML remittance information may have on the delivery mechanism or connection to and from the Federal Reserve Banks and the Clearing House (EPN). <p>XML Format Specific:</p> <ul style="list-style-type: none"> f) Ensure the maximum number of remittance addenda records is not exceeded. g) As a best practice, XML remittance information exchanged should not contain 	

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>any 'empty tags', i.e., should not contain data elements which do not contain content.</p> <p>h) To address security concerns and the risk of malicious code being inserted into the XML (e.g., malicious Remote Procedure Calls (RPC) being inserted or present in the XML content), it is recommended your solutions have built-in protection to ensure malicious code is not introduced and is not executed in the applications that would handle the message or XML remittance information, and thereby execute the malicious code.</p>	<p>h) The solution provider's infrastructure should have built-in protection to treat all contents in the XML tags as data rather than executable even if it appears to be executable.</p>

B.3 Corporates

1. Originator

As an originator of ACH payments to beneficiaries where remittance information is to be sent to the beneficiary in XML format, the best practices and implementation guidelines are:

ACH Payment Stakeholder	Best Practices	Guidelines
Originator	<p>a) Engage with your principal banks. Communicate with them to verify you will be sending remittance information with ACH payments in ISO 20022 XML remittance addenda in the NACHA recommended standards. Encourage them to support the origination of XML remittance information in ACH addenda records.</p> <p>b) Confirm whether and in what channels and formats your bank can support translations of remittance information to the XML remittance addenda to travel with ACH payments. Confirm with your bank whether you will need to make any changes to your existing ACH remittance information origination processes.</p> <p>c) Evaluate your ACH origination software systems (such as accounts payable, ERP, treasury workstation, or cash management) to determine whether they can support or</p>	

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>plan to support the sending of XML remittance information to your bank.</p> <p>d) If needed, review other technology partners. Choosing the right tools and services is essential. Some banks and software vendors will provide value added services to simplify and accelerate your ability to transmit XML remittance information. It is important to collaborate with a partner who meets your needs and those of your trading partner.</p> <p>e) Conduct an impact analysis to identify the internal processes that may be impacted. As an example, determine whether any changes are needed to your accounts payable processes where ACH remittance information previously sent through other methods such as mail or email will now be sent in XML addenda with ACH payments.</p> <p>f) Originating customers should validate ACH remittance information for compliance with the NACHA recommended XML standard format before transmitting the remittance information to your bank. You should discuss with your bank to confirm what it will do if you transmit ACH remittance information that does not comply with the recommended standards.</p> <p>XML Format Specific:</p> <p>g) As a best practice, XML remittance information exchanged should not contain any 'empty tags', i.e., should not contain data elements which do not contain content.</p> <p>h) To address security concerns and the risk of malicious code being inserted into the XML (e.g., malicious Remote Procedure Calls (RPC) being inserted or present in the XML content), it is recommended your applications have built-in protection to ensure the code is not executed in the applications that would handle the message or XML remittance information, and thereby execute the malicious code.</p>	<p>h) The originator's infrastructure should have built-in protection to treat all contents in the XML tags as data rather than executable even if it appears to be executable.</p>

ACH Payment Stakeholder	Best Practices	Guidelines

2. Receiver

Of note, beneficiary customers should communicate their requirement for receiving XML remittance information addenda with ACH payments to their bank, the RDFI of received ACH payments with remittance addenda, as defined in the NACHA Rules Book. Receiving corporate customers who require the receipt of XML remittance addenda with ACH payments should:

ACH Payment Stakeholder	Best Practices	Guidelines
Receiver	<ul style="list-style-type: none"> a) Engage with your principal banks. Discuss with each of your banks to ensure they can support the routing and delivery of the ISO 20022 XML remittance information to your corporation. Communicate with and confirm with your bank(s) your requirement to receive remittance information with ACH payments. Encourage them to support receipt of XML remittance information in ACH addenda records. b) Review the software products your corporation uses to process incoming ACH payments (such as accounts receivable, treasury workstation, or ERP), and discuss with your software providers whether they support or plan to support remittance information that is received in XML with ACH payments for the software products that you are using. c) Work with your originating company. Communicate to your paying customers that you would like to receive XML remittance information together with the ACH payment. d) If needed, review other technology partners. Choosing the right tools and services is essential. Some banks and software vendors will provide value added services to simplify and accelerate your ability to transmit XML remittance information. It is important to collaborate with a partner(s) who meets your needs and those of your trading partner. e) Conduct an impact analysis to identify the 	<ul style="list-style-type: none"> a) Determine whether the ACH remittance information can be integrated with remittance information for other payment types such as Wire, Lockbox, and BAI. c) Consider offering favorable payment terms to paying customers who send remittance information with ACH payments since this can reduce your costs of reconciling payments.

ACH Payment Stakeholder	Best Practices	Guidelines
	<p>internal processes that may be impacted.</p> <p>f) If as a receiving corporation, your organization requires translation of received XML remittance information into other common formats and delivery over channels, discuss with your bank the translations services and formats that the bank offers and supports.</p> <p>XML Format Specific:</p> <p>g) As a best practice, XML remittance information exchanged should not contain any 'empty tags', i.e., should not contain data elements which do not contain content.</p> <p>h) If you will be receiving XML formatted remittance information from your RDFI: To address security concerns and the risk of malicious code being inserted into the XML (e.g., malicious Remote Procedure Calls (RPC) being inserted or present in the XML content), it is recommended your applications have built-in protection to ensure the code is not executed in the applications that would handle the message or XML remittance information, and thereby execute the malicious code.</p>	<p>h) The receiving corporation's infrastructure should have built-in protection to treat all contents in the XML tags as data rather than executable, even if it appears to be executable.</p>

B.4 Operators

Although no changes are anticipated for ACH Operators to support remittance information addenda in XML format, the following outline the best practices and implementation guidelines that are recommended:

ACH Payment Stakeholder	Best Practices	Guidelines
Operators	ACH Operators should maintain the integrity and send on all XML remittance addenda that travel with ACH payments.	

11. **Appendix C: XML Schema Overview and XML Output of NACHA XSD**

The XML Schema, commonly known as an XML Schema Definition (XSD), describes what a given XML document can contain. The XML schema defines the shape, or structure, of an XML document, along with rules for data content and semantics such as what fields an element can contain, which sub elements it can contain and how many items can be present. It can also describe the type and values that can be placed into each element or attribute. The XML data constraints are called facets and include rules such as minimum and maximum length.

An XML Schema document is built on a series of declarations which gives very detailed information and makes sure the information contained in the XML document is in the correct form.

There are two parts to an XML document: the first part is the message schema which is typically accessed (i.e., document assessment) via the internet and which is in a well-known location that is referenced within a particular XML document. It tells the message receiver what the "rules" are for processing the message (e.g. `<xs:schema elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema">`), and the second part is the message itself (i.e. the document) that uses the schema-defined components to frame the message.

C.1 XML Schema Structure

The below table provides an overview of the structure of a XML Schema, and an explanation of the opening schema tags. An XML Schema is the data dictionary and defines:

- elements that can appear in a document
- attributes that can appear in a document
- simple and complex data types
- model group definitions
- attribute group definitions
- attribute uses (i.e., relationship between a particular complex type and attribute)
- element particles (i.e., relationship between a particular complex type and element)
- the hierarchy of elements
- enumerations (acceptable values)
- constraints
- sequences
- default values

Table 1: XML Schema Syntax

XML Declaration	The first line in every XML file is the XML Declaration. It tells the device opening it that the file is XML compliant. The version attribute specifies the version of XML in use, while the encoding attribute specifies what character encoding was used to create the XML file, so the information is displayed properly	<?xml version="1.0" encoding="UTF-8"?>
Schema Element	In the rest of the schema, defines the Elements and Attributes. The subsequent line alerts the interpreter that this information is XML Schema, and provides the location of the Schema. (Schemas must be located in a completely separate file outside of XML. The separate file defines the elements and attributes that work together to define the content.)	<xsd:schemema xmlns: xsd="http://www.w3.org/2001/XMLSchema">
Namespace	XML Namespaces provide a method to avoid element name conflicts. The namespace is defined by the xmlns attribute in the start tag of an element. The namespace declaration has the following syntax. xmlns:prefix="URI".	<IFX xmlns:pain001="urn:swift:xsd:\$pain.001.001.03" xmlns:remit="http://www.ifxforum.org/RemitDetailInfo/2004/07"> <ClientDt>2006-02-16</ClientDt> <CustLangPref>EN</CustLangPref> <ClientApp> <Org>abc</Org> <Name>a</Name> <Version>1</Version> </ClientApp> </IFX>
Elements	An XML element is everything from (including) the element's start tag to (including) the element's end tag and can contain: <ul style="list-style-type: none"> • other elements 	<CtctDtls> <NmPrfx>MIST</NmPrfx> <Nm>John Smith</Nm> <PhneNb>+1-212-333-1234</PhneNb> <MobNb>+1-212-555-5678</MobNb>

	<ul style="list-style-type: none"> • text • attributes • or a combination of all of the above 	<pre><FaxNb>+1-212-333-3355</FaxNb> <EmailAdr>john.smith@xyxcorp.org</EmailAdr> </CtctDtls></pre>
Attributes	<p>Attributes provide additional information about an element. Attributes often provide information that is not a part of the data. Attribute values must always have quotation marks. Either single or double quotes can be used.</p>	<pre><AdjstmntAmtAndRsn> <Amt Ccy="USD">200.00</Amt> <CdtDbtInd> CRDT </CdtDbtInd> <Rsn>03</Rsn> <AddtlInf>Deducted \$200.00 from payment due to pricing change</AddtlInf> </AdjstmntAmtAndRsn></pre>
Data Types (simple and complex)	<p>A simple data type is used when a restriction is placed on an embedded simple type to create and use a new type. Simple data types can be independently defined by a user.</p> <p>XSD provides 19 primitive data types and 25 derived data types to express the most common data elements.</p> <p>A complex data type is a type that has a child element or attribute structure. An element declaration may be used with this type. There are no predefined complex type data types, so the user will always define their own.</p>	<pre><xs:simpleType name="RmtRsn"> <xs:restriction base="xs:Rsn"> <xs:enumeration value="01"/> <xs:enumeration value="02"/> <xs:enumeration value="03"/> </xs:restriction> </xs:simpleType></pre> <p><u>Complex:</u></p> <pre><xs:element name="RemitType"> <xs:complexType> <xs:simpleContent> <xs:extension base="string350"> <xs:attribute ref="RefDocInfoCd"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element></pre>
Comments	<p>Comments begin with<!--and end with the symbol--></p>	<pre><!--Draft NACHA XML Remittance Standards - on 2012 Oct 14 20:47:20--></pre>

The XSD schema illustrated below in an XSD output, shows the structure, content, format and semantics of the remt.001. Please refer to the ISO payments messages catalogue for the most current XSD.

Figure 11: XSD Output of remt.001

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Generated by Standards Editor (build:R1.6.1.1) on 2014 Apr 16 13:59:08, ISO 20022 version : 2013-->
<xs:schema xmlns="urn:iso:std:iso:20022:tech:xsd:remt.001.001.01" xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified" targetNamespace="urn:iso:std:iso:20022:tech:xsd:remt.001.001.01">
  <xs:element name="Document" type="Document"/>
  <xs:complexType name="AccountIdentification4Choice">
    <xs:choice>
      <xs:element name="IBAN" type="IBAN2007Identifier"/>
      <xs:element name="Othr" type="GenericAccountIdentification1"/>
    </xs:choice>
  </xs:complexType>
  <xs:complexType name="AccountSchemeName1Choice">
    <xs:choice>
      <xs:element name="Cd" type="ExternalAccountIdentification1Code"/>
      <xs:element name="Prtry" type="Max35Text"/>
    </xs:choice>
  </xs:complexType>
  <xs:simpleType name="ActiveOrHistoricCurrencyAndAmount_SimpleType">
    <xs:restriction base="xs:decimal">
      <xs:fractionDigits value="5"/>
      <xs:totalDigits value="18"/>
      <xs:minInclusive value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="ActiveOrHistoricCurrencyAndAmount">
    <xs:simpleContent>
      <xs:extension base="ActiveOrHistoricCurrencyAndAmount_SimpleType">
        <xs:attribute name="Ccy" type="ActiveOrHistoricCurrencyCode" use="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
  <xs:simpleType name="ActiveOrHistoricCurrencyCode">
    <xs:restriction base="xs:string">
```

```

        <xs:pattern value="[A-Z]{3,3}"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="AddressType2Code">
    <xs:restriction base="xs:string">
        <xs:enumeration value="ADDR"/>
        <xs:enumeration value="PBOX"/>
        <xs:enumeration value="HOME"/>
        <xs:enumeration value="BIZZ"/>
        <xs:enumeration value="MLTO"/>
        <xs:enumeration value="DLVY"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="AmountType3Choice">
    <xs:choice>
        <xs:element name="InstdAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
        <xs:element name="EqvtAmt" type="EquivalentAmount2"/>
    </xs:choice>
</xs:complexType>
<xs:simpleType name="AnyBICIdentifier">
    <xs:restriction base="xs:string">
        <xs:pattern value="[A-Z]{6,6}[A-Z2-9][A-NP-Z0-9]([A-Z0-9]{3,3}){0,1}"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="Authorisation1Choice">
    <xs:choice>
        <xs:element name="Cd" type="Authorisation1Code"/>
        <xs:element name="Prtry" type="Max128Text"/>
    </xs:choice>
</xs:complexType>
<xs:simpleType name="Authorisation1Code">
    <xs:restriction base="xs:string">
        <xs:enumeration value="AUTH"/>
        <xs:enumeration value="FDET"/>
        <xs:enumeration value="FSUM"/>
        <xs:enumeration value="ILEV"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="BICFIIdentifier">
    <xs:restriction base="xs:string">

```

```

        <xs:pattern value="[A-Z]{6,6}[A-Z2-9][A-NP-Z0-9]([A-Z0-9]{3,3}){0,1}"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="BaseOneRate">
    <xs:restriction base="xs:decimal">
        <xs:fractionDigits value="10"/>
        <xs:totalDigits value="11"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="BranchAndFinancialInstitutionIdentification5">
    <xs:sequence>
        <xs:element name="FinInstnId" type="FinancialInstitutionIdentification8"/>
        <xs:element maxOccurs="1" minOccurs="0" name="BrnchId" type="BranchData2"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="BranchData2">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="Id" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max140Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="PstlAdr" type="PostalAddress6"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="CashAccount24">
    <xs:sequence>
        <xs:element name="Id" type="AccountIdentification4Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="CashAccountType2Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Ccy" type="ActiveOrHistoricCurrencyCode"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max70Text"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="CashAccountType2Choice">
    <xs:choice>
        <xs:element name="Cd" type="ExternalCashAccountType1Code"/>
        <xs:element name="Prtry" type="Max35Text"/>
    </xs:choice>
</xs:complexType>
<xs:complexType name="CategoryPurpose1Choice">
    <xs:choice>
        <xs:element name="Cd" type="ExternalCategoryPurpose1Code"/>
        <xs:element name="Prtry" type="Max35Text"/>
    </xs:choice>

```

```

        </xs:choice>
    </xs:complexType>
    <xs:complexType name="ClearingSystemIdentification2Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalClearingSystemIdentification1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="ClearingSystemMemberIdentification2">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="ClrSysId" type="ClearingSystemIdentification2Choice"/>
            <xs:element name="Mmbld" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ContactDetails2">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="NmPrfx" type="NamePrefix1Code"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max140Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="PhneNb" type="PhoneNumber"/>
            <xs:element maxOccurs="1" minOccurs="0" name="MobNb" type="PhoneNumber"/>
            <xs:element maxOccurs="1" minOccurs="0" name="FaxNb" type="PhoneNumber"/>
            <xs:element maxOccurs="1" minOccurs="0" name="EmailAdr" type="Max2048Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Othr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="CopyDuplicate1Code">
        <xs:restriction base="xs:string">
            <xs:enumeration value="CODU"/>
            <xs:enumeration value="COPY"/>
            <xs:enumeration value="DUPL"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="CountryCode">
        <xs:restriction base="xs:string">
            <xs:pattern value="[A-Z]{2,2}"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="CreditDebitCode">
        <xs:restriction base="xs:string">
            <xs:enumeration value="CRDT"/>

```

```

        <xs:enumeration value="DBIT"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="CreditorReferenceInformation2">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="CreditorReferenceType2"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Ref" type="Max35Text"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="CreditorReferenceType1Choice">
    <xs:choice>
        <xs:element name="Cd" type="DocumentType3Code"/>
        <xs:element name="Prtry" type="Max35Text"/>
    </xs:choice>
</xs:complexType>
<xs:complexType name="CreditorReferenceType2">
    <xs:sequence>
        <xs:element name="CdOrPrtry" type="CreditorReferenceType1Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="DateAndPlaceOfBirth">
    <xs:sequence>
        <xs:element name="BirthDt" type="ISODate"/>
        <xs:element maxOccurs="1" minOccurs="0" name="PrvcOfBirth" type="Max35Text"/>
        <xs:element name="CityOfBirth" type="Max35Text"/>
        <xs:element name="CtryOfBirth" type="CountryCode"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="DatePeriodDetails">
    <xs:sequence>
        <xs:element name="FrDt" type="ISODate"/>
        <xs:element name="ToDt" type="ISODate"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="DiscountAmountAndType1">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="DiscountAmountType1Choice"/>
        <xs:element name="Amt" type="ActiveOrHistoricCurrencyAndAmount"/>
    </xs:sequence>

```

```

</xs:complexType>
<xs:complexType name="DiscountAmountType1Choice">
  <xs:choice>
    <xs:element name="Cd" type="ExternalDiscountAmountType1Code"/>
    <xs:element name="Prtry" type="Max35Text"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="Document">
  <xs:sequence>
    <xs:element name="RmtAdvc" type="RemittanceAdviceV01"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DocumentAdjustment1">
  <xs:sequence>
    <xs:element name="Amt" type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element maxOccurs="1" minOccurs="0" name="CdtDbtInd" type="CreditDebitCode"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Rsn" type="Max4Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="AddtlInf" type="Max140Text"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DocumentLineIdentification1">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="DocumentLineType1"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Nb" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="RlfdDt" type="ISODate"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DocumentLineInformation1">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="1" name="Id" type="DocumentLineIdentification1"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Desc" type="Max2048Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Amt" type="RemittanceAmount3"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DocumentLineType1">
  <xs:sequence>
    <xs:element name="CdOrPrtry" type="DocumentLineType1Choice"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
  </xs:sequence>
</xs:complexType>

```

```

<xs:complexType name="DocumentLineType1Choice">
  <xs:choice>
    <xs:element name="Cd" type="ExternalDocumentLineType1Code"/>
    <xs:element name="Prtry" type="Max35Text"/>
  </xs:choice>
</xs:complexType>
<xs:simpleType name="DocumentType3Code">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RADM"/>
    <xs:enumeration value="RPIN"/>
    <xs:enumeration value="FXDR"/>
    <xs:enumeration value="DISP"/>
    <xs:enumeration value="PUOR"/>
    <xs:enumeration value="SCOR"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="DocumentType5Code">
  <xs:restriction base="xs:string">
    <xs:enumeration value="MSIN"/>
    <xs:enumeration value="CNFA"/>
    <xs:enumeration value="DNFA"/>
    <xs:enumeration value="CINV"/>
    <xs:enumeration value="CREN"/>
    <xs:enumeration value="DEBN"/>
    <xs:enumeration value="HIRI"/>
    <xs:enumeration value="SBIN"/>
    <xs:enumeration value="CMCN"/>
    <xs:enumeration value="SOAC"/>
    <xs:enumeration value="DISP"/>
    <xs:enumeration value="BOLD"/>
    <xs:enumeration value="VCHR"/>
    <xs:enumeration value="AROI"/>
    <xs:enumeration value="TSUT"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="EquivalentAmount2">
  <xs:sequence>
    <xs:element name="Amt" type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element name="CcyOfTrf" type="ActiveOrHistoricCurrencyCode"/>
  </xs:sequence>

```



```

</xs:complexType>
<xs:complexType name="ExchangeRate1">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="UnitCcy" type="ActiveOrHistoricCurrencyCode"/>
    <xs:element maxOccurs="1" minOccurs="0" name="XchgRate" type="BaseOneRate"/>
    <xs:element maxOccurs="1" minOccurs="0" name="RateTp" type="ExchangeRateType1Code"/>
    <xs:element maxOccurs="1" minOccurs="0" name="CtrctId" type="Max35Text"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="ExchangeRateType1Code">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SPOT"/>
    <xs:enumeration value="SALE"/>
    <xs:enumeration value="AGRD"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalAccountIdentification1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalCashAccountType1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalCategoryPurpose1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalClearingSystemIdentification1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="5"/>
  </xs:restriction>
</xs:simpleType>

```

```

<xs:simpleType name="ExternalDiscountAmountType1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalDocumentLineType1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalFinancialInstitutionIdentification1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalGarnishmentType1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalLocalInstrument1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="35"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalOrganisationIdentification1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ExternalPersonIdentification1Code">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>

```

```

        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="ExternalServiceLevel1Code">
        <xs:restriction base="xs:string">
            <xs:minLength value="1"/>
            <xs:maxLength value="4"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="ExternalTaxAmountType1Code">
        <xs:restriction base="xs:string">
            <xs:minLength value="1"/>
            <xs:maxLength value="4"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="FinancialIdentificationSchemeName1Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalFinancialInstitutionIdentification1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="FinancialInstitutionIdentification8">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="BICFI" type="BICFIIdentifier"/>
            <xs:element maxOccurs="1" minOccurs="0" name="ClrSysMmbld"
type="ClearingSystemMemberIdentification2"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max140Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="PstlAdr" type="PostalAddress6"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Othr" type="GenericFinancialIdentification1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="Garnishment1">
        <xs:sequence>
            <xs:element name="Tp" type="GarnishmentType1"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Grnshee" type="PartyIdentification43"/>
            <xs:element maxOccurs="1" minOccurs="0" name="GrnshmtAdmstr" type="PartyIdentification43"/>
            <xs:element maxOccurs="1" minOccurs="0" name="RefNb" type="Max140Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Dt" type="ISODate"/>
            <xs:element maxOccurs="1" minOccurs="0" name="RmtdAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
            <xs:element maxOccurs="1" minOccurs="0" name="FmlyMdcllnsrncInd" type="TrueFalseIndicator"/>
            <xs:element maxOccurs="1" minOccurs="0" name="MplyeeTermntnInd" type="TrueFalseIndicator"/>
        </xs:sequence>
    </xs:complexType>

```

```

        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GarnishmentType1">
        <xs:sequence>
            <xs:element name="CdOrPrtry" type="GarnishmentType1Choice"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GarnishmentType1Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalGarnishmentType1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="GenericAccountIdentification1">
        <xs:sequence>
            <xs:element name="Id" type="Max34Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="SchmeNm" type="AccountSchemeName1Choice"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GenericFinancialIdentification1">
        <xs:sequence>
            <xs:element name="Id" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="SchmeNm"
type="FinancialIdentificationSchemeName1Choice"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GenericOrganisationIdentification1">
        <xs:sequence>
            <xs:element name="Id" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="SchmeNm"
type="OrganisationIdentificationSchemeName1Choice"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GenericPersonIdentification1">
        <xs:sequence>
            <xs:element name="Id" type="Max35Text"/>

```

```

        <xs:element maxOccurs="1" minOccurs="0" name="SchmeNm"
type="PersonIdentificationSchemeName1Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GroupHeader62">
    <xs:sequence>
        <xs:element name="MsgId" type="Max35Text"/>
        <xs:element name="CreDtTm" type="ISODateTime"/>
        <xs:element maxOccurs="2" minOccurs="0" name="Authstn" type="Authorisation1Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CpyInd" type="CopyDuplicate1Code"/>
        <xs:element name="InitgPty" type="PartyIdentification43"/>
        <xs:element maxOccurs="1" minOccurs="0" name="MsgRcpt" type="PartyIdentification43"/>
        <xs:element maxOccurs="1" minOccurs="0" name="FwdgAgt"
type="BranchAndFinancialInstitutionIdentification5"/>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="IBAN2007Identifier">
    <xs:restriction base="xs:string">
        <xs:pattern value="[A-Z]{2,2}[0-9]{2,2}[a-zA-Z0-9]{1,30}"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ISODate">
    <xs:restriction base="xs:date"/>
</xs:simpleType>
<xs:simpleType name="ISODateTime">
    <xs:restriction base="xs:dateTime"/>
</xs:simpleType>
<xs:complexType name="LocalInstrument2Choice">
    <xs:choice>
        <xs:element name="Cd" type="ExternalLocalInstrument1Code"/>
        <xs:element name="Prtry" type="Max35Text"/>
    </xs:choice>
</xs:complexType>
<xs:simpleType name="Max128Text">
    <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
        <xs:maxLength value="128"/>
    </xs:restriction>
</xs:simpleType>

```

```
<xs:simpleType name="Max140Text">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="140"/>
  </xs:restriction>
</xs:simpleType>
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  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="16"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Max2048Text">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="2048"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Max34Text">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="34"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Max350Text">
  <xs:restriction base="xs:string">
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    <xs:maxLength value="350"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Max35Text">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="35"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Max4Text">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>
```

```

        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="Max70Text">
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            <xs:minLength value="1"/>
            <xs:maxLength value="70"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="NamePrefix1Code">
        <xs:restriction base="xs:string">
            <xs:enumeration value="DOCT"/>
            <xs:enumeration value="MIST"/>
            <xs:enumeration value="MISS"/>
            <xs:enumeration value="MADM"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="Number">
        <xs:restriction base="xs:decimal">
            <xs:fractionDigits value="0"/>
            <xs:totalDigits value="18"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="OrganisationIdentification8">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="AnyBIC" type="AnyBICIdentifier"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="Othr"
type="GenericOrganisationIdentification1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="OrganisationIdentificationSchemeName1Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalOrganisationIdentification1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="OriginalPaymentInformation6">
        <xs:sequence>
            <xs:element name="Refs" type="TransactionReferences4"/>
            <xs:element maxOccurs="1" minOccurs="0" name="PmtTpInf" type="PaymentTypeInformation19"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Amt" type="AmountType3Choice"/>

```

```

        <xs:element maxOccurs="1" minOccurs="0" name="XchgRateInf" type="ExchangeRate1"/>
        <xs:element maxOccurs="1" minOccurs="0" name="ReqdExctnDt" type="ISODate"/>
        <xs:element maxOccurs="1" minOccurs="0" name="ReqdColltnDt" type="ISODate"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Dbtr" type="PartyIdentification43"/>
        <xs:element maxOccurs="1" minOccurs="0" name="DbtrAcct" type="CashAccount24"/>
        <xs:element maxOccurs="1" minOccurs="0" name="DbtrAgt"
type="BranchAndFinancialInstitutionIdentification5"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Cdtr" type="PartyIdentification43"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CdtrAcct" type="CashAccount24"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CdtrAgt"
type="BranchAndFinancialInstitutionIdentification5"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="Party11Choice">
    <xs:choice>
        <xs:element name="OrgId" type="OrganisationIdentification8"/>
        <xs:element name="PrvtId" type="PersonIdentification5"/>
    </xs:choice>
</xs:complexType>
<xs:complexType name="PartyIdentification43">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max140Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="PstlAdr" type="PostalAddress6"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Id" type="Party11Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CtryOfRes" type="CountryCode"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CtctDtls" type="ContactDetails2"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="PaymentTypeInformation19">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="InstrPrty" type="Priority2Code"/>
        <xs:element maxOccurs="1" minOccurs="0" name="SvcLvl" type="ServiceLevel8Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="LclInstrm" type="LocalInstrument2Choice"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CtgyPurp" type="CategoryPurpose1Choice"/>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="PercentageRate">
    <xs:restriction base="xs:decimal">
        <xs:fractionDigits value="10"/>
        <xs:totalDigits value="11"/>
    </xs:restriction>
</xs:simpleType>

```



```

        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="PersonIdentification5">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="DtAndPlcOfBirth" type="DateAndPlaceOfBirth"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="Othr" type="GenericPersonIdentification1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="PersonIdentificationSchemeName1Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalPersonIdentification1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:simpleType name="PhoneNumber">
        <xs:restriction base="xs:string">
            <xs:pattern value="\+[0-9]{1,3}-[0-9()+\-]{1,30}"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="PostalAddress6">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="AdrTp" type="AddressType2Code"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Dept" type="Max70Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="SubDept" type="Max70Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="StrtNm" type="Max70Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="BldgNb" type="Max16Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="PstCd" type="Max16Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="TwnNm" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="CtrySubDvsn" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Ctry" type="CountryCode"/>
            <xs:element maxOccurs="7" minOccurs="0" name="AdrLine" type="Max70Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="Priority2Code">
        <xs:restriction base="xs:string">
            <xs:enumeration value="HIGH"/>
            <xs:enumeration value="NORM"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="ReferredDocumentInformation4">

```

```

        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="ReferredDocumentType2"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Nb" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="RltdDt" type="ISODate"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="LineDtls" type="DocumentLineInformation1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ReferredDocumentType1Choice">
        <xs:choice>
            <xs:element name="Cd" type="DocumentType5Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="ReferredDocumentType2">
        <xs:sequence>
            <xs:element name="CdOrPrtry" type="ReferredDocumentType1Choice"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Issr" type="Max35Text"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="RemittanceAdviceV01">
        <xs:sequence>
            <xs:element name="GrpHdr" type="GroupHeader62"/>
            <xs:element maxOccurs="unbounded" minOccurs="1" name="RmtInf" type="RemittanceInformation8"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="SplmtryData" type="SupplementaryData1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="RemittanceAmount2">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="DuePyblAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="DscntApldAmt"
type="DiscountAmountAndType1"/>
            <xs:element maxOccurs="1" minOccurs="0" name="CdtNoteAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="TaxAmt" type="TaxAmountAndType1"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="AdjstmntAmtAndRsn"
type="DocumentAdjustment1"/>
            <xs:element maxOccurs="1" minOccurs="0" name="RmtdAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
        </xs:sequence>
    </xs:complexType>

```

```

<xs:complexType name="RemittanceAmount3">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="DuePyblAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="DscntApldAmt"
type="DiscountAmountAndType1"/>
    <xs:element maxOccurs="1" minOccurs="0" name="CdtNoteAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="TaxAmt" type="TaxAmountAndType1"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="AdjstmntAmtAndRsn"
type="DocumentAdjustment1"/>
    <xs:element maxOccurs="1" minOccurs="0" name="RmtdAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="RemittanceInformation8">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="Rmtd" type="Max35Text"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="Ustrd" type="Max140Text"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="Strd"
type="StructuredRemittanceInformation10"/>
    <xs:element name="OrgnlPmtInf" type="OriginalPaymentInformation6"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ServiceLevel8Choice">
  <xs:choice>
    <xs:element name="Cd" type="ExternalServiceLevel1Code"/>
    <xs:element name="Prtry" type="Max35Text"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="StructuredRemittanceInformation10">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="RfrdDocInf"
type="ReferredDocumentInformation4"/>
    <xs:element maxOccurs="1" minOccurs="0" name="RfrdDocAmt" type="RemittanceAmount2"/>
    <xs:element maxOccurs="1" minOccurs="0" name="CdtrRefInf" type="CreditorReferenceInformation2"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Invcr" type="PartyIdentification43"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Invcee" type="PartyIdentification43"/>
    <xs:element maxOccurs="1" minOccurs="0" name="TaxRmt" type="TaxInformation4"/>
    <xs:element maxOccurs="1" minOccurs="0" name="GrnshmtRmt" type="Garnishment1"/>
    <xs:element maxOccurs="3" minOccurs="0" name="AddtlRmtInf" type="Max140Text"/>
  </xs:sequence>
</xs:complexType>

```

```

        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="SupplementaryData1">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="PlcAndNm" type="Max350Text"/>
            <xs:element name="Envlp" type="SupplementaryDataEnvelope1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="SupplementaryDataEnvelope1">
        <xs:sequence>
            <xs:any namespace="##any" processContents="lax"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="TaxAmount1">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="Rate" type="PercentageRate"/>
            <xs:element maxOccurs="1" minOccurs="0" name="TaxblBaseAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
            <xs:element maxOccurs="1" minOccurs="0" name="TtlAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
            <xs:element maxOccurs="unbounded" minOccurs="0" name="Dtls" type="TaxRecordDetails1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="TaxAmountAndType1">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="TaxAmountType1Choice"/>
            <xs:element name="Amt" type="ActiveOrHistoricCurrencyAndAmount"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="TaxAmountType1Choice">
        <xs:choice>
            <xs:element name="Cd" type="ExternalTaxAmountType1Code"/>
            <xs:element name="Prtry" type="Max35Text"/>
        </xs:choice>
    </xs:complexType>
    <xs:complexType name="TaxAuthorisation1">
        <xs:sequence>
            <xs:element maxOccurs="1" minOccurs="0" name="Titl" type="Max35Text"/>
            <xs:element maxOccurs="1" minOccurs="0" name="Nm" type="Max140Text"/>
        </xs:sequence>
    </xs:complexType>

```

```

<xs:complexType name="TaxInformation4">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="Cdtr" type="TaxParty1"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Dbtr" type="TaxParty2"/>
    <xs:element maxOccurs="1" minOccurs="0" name="UltmtDbtr" type="TaxParty2"/>
    <xs:element maxOccurs="1" minOccurs="0" name="AdmstnZone" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="RefNb" type="Max140Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Mtd" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="TtlTaxblBaseAmt"
type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element maxOccurs="1" minOccurs="0" name="TtlTaxAmt" type="ActiveOrHistoricCurrencyAndAmount"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Dt" type="ISODate"/>
    <xs:element maxOccurs="1" minOccurs="0" name="SeqNb" type="Number"/>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="Rcrd" type="TaxRecord1"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TaxParty1">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="TaxId" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Regnld" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="TaxTp" type="Max35Text"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TaxParty2">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="TaxId" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Regnld" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="TaxTp" type="Max35Text"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Authstn" type="TaxAuthorisation1"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TaxPeriod1">
  <xs:sequence>
    <xs:element maxOccurs="1" minOccurs="0" name="Yr" type="ISODate"/>
    <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="TaxRecordPeriod1Code"/>
    <xs:element maxOccurs="1" minOccurs="0" name="FrToDt" type="DatePeriodDetails"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TaxRecord1">
  <xs:sequence>

```

```

        <xs:element maxOccurs="1" minOccurs="0" name="Tp" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Ctgy" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CtgyDtIs" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="DbtrSts" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="CertId" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="FrmsCd" type="Max35Text"/>
        <xs:element maxOccurs="1" minOccurs="0" name="Prd" type="TaxPeriod1"/>
        <xs:element maxOccurs="1" minOccurs="0" name="TaxAmt" type="TaxAmount1"/>
        <xs:element maxOccurs="1" minOccurs="0" name="AddtlInf" type="Max140Text"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="TaxRecordDetails1">
    <xs:sequence>
        <xs:element maxOccurs="1" minOccurs="0" name="Prd" type="TaxPeriod1"/>
        <xs:element name="Amt" type="ActiveOrHistoricCurrencyAndAmount"/>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="TaxRecordPeriod1Code">
    <xs:restriction base="xs:string">
        <xs:enumeration value="MM01"/>
        <xs:enumeration value="MM02"/>
        <xs:enumeration value="MM03"/>
        <xs:enumeration value="MM04"/>
        <xs:enumeration value="MM05"/>
        <xs:enumeration value="MM06"/>
        <xs:enumeration value="MM07"/>
        <xs:enumeration value="MM08"/>
        <xs:enumeration value="MM09"/>
        <xs:enumeration value="MM10"/>
        <xs:enumeration value="MM11"/>
        <xs:enumeration value="MM12"/>
        <xs:enumeration value="QTR1"/>
        <xs:enumeration value="QTR2"/>
        <xs:enumeration value="QTR3"/>
        <xs:enumeration value="QTR4"/>
        <xs:enumeration value="HLF1"/>
        <xs:enumeration value="HLF2"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="TransactionReferences4">

```

```
<xs:sequence>
  <xs:element maxOccurs="1" minOccurs="0" name="PmtInfld" type="Max35Text"/>
  <xs:element maxOccurs="1" minOccurs="0" name="InstrId" type="Max35Text"/>
  <xs:element name="EndToEndId" type="Max35Text"/>
  <xs:element maxOccurs="1" minOccurs="0" name="TxId" type="Max35Text"/>
  <xs:element maxOccurs="1" minOccurs="0" name="MndtId" type="Max35Text"/>
  <xs:element maxOccurs="1" minOccurs="0" name="CdtrSchmId" type="PartyIdentification43"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="TrueFalseIndicator">
  <xs:restriction base="xs:boolean"/>
</xs:simpleType>
</xs:schema>
```

C.2 XSD Used to Generate the XML Documents

The rules that are defined in the XSD (XML Schema Definition) language are used to create an XML document with values that conform to the source XML Schema.

XSD, which is recommended by W3C is used to generate XML documents and specifies how to formally describe the elements in an XML document. The XSD description of elements can be used to verify that each item of content in an XML document adheres to the description of the element in which the content is to be placed. The XSD defines the structure and data types for XML documents.

12. Appendix D: Technical Glossary for Sections 8-11

ACK	ACH Payment Acknowledgement. Non-Monetary Entry by an RDFI to provide an acknowledgement or receipt by the RDFI of a corporate payment originated using the CCD format
ANSI X12	ANSI X12 is the EDI (Electronic Data Interchange) standard
Attributes	Attributes provide additional information about XML elements. Attributes often provide information that is not a part of the data
ATX	Financial EDI (See EDI below) Acknowledgement. Non-Monetary Entry initiated by an RDFI to provide acknowledgement of receipt by the RDFI of a corporate credit payment originated using the CTX format
BAI file	The BAI file is used for performing electronic cash management balance reporting. The BAI file format was developed and previously maintained by the <u>Bank Administration Institute (BAI)</u>
B2B	Business-to-business
C2B	Consumer-to-business
CCD	Corporate Credit or Debit Entry. Entry initiated by an Organization to transfer funds to or from and account that Organization or another Organization
CIE	Customer Initiated Entry. Credit Entry initiated by or on behalf of the holder of a Consumer Account to transfer funds to the accounts of the Receiver
COR	Notification of Change or Refused Notification of Change. Non-Monetary Entry Transmitted by (1) an RDFI for the purpose of identifying incorrect information contained within an Entry and providing correct data in the precise format to be used on future Entries, or (2) an ODFI to refuse a misrouted NOC or an NOC that contains incorrect information
CTP	The Customer Transfer Plus (CTP) message is a new Fedwire® Funds Service message that the Federal Reserve Banks implemented in November 2011. CTP that allows corporate originators of wire transfer payments to include about 9,000 characters of extended remittance information within a wire transfer payment order. With a CTP message, extended remittance information can be sent in three different ways
CTX	Corporate Trade Exchange. Entry initiated by an Organization to transfer funds to or from the account of that Organization or another Organization that permits the inclusion of payment related remittance information in ANSI or UN/EDIFACT syntax
Data Types	Data types in XML, both simple and complex types, define the valid content that elements and attributes contain
DTD	A Document Type Definition (DTD) is a set of rules about which elements and child elements can exist in an XML document and what attributes they can have
EDI	Electronic Data Interchange. Financial EDI is the electronic exchange of payments, payment-related information or financial-related documents in standard formats between business partners. . The most popular EDI standard for North American companies is ANSI X12 maintained by the Accredited Standards Committee

Element	Everything that lies between two tags
ENR	Automated Enrollment Entry. Non-Monetary Entry initiated by a Participating DFI to an agency of the Federal Government of the United States on behalf, and at the request, of an account holder at the Participating DFI to enroll in a service that will enable Entries to such Person's account at the Participating DFI
EPS	Expedited Processing and Settlement
Fedwire ERI	Extended Remittance Information
ERI	Fedwire Extended Remittance Information message service. See <i>CTP</i> above
IAT	International ACH Transaction. Entry that is part of a payment transaction involving a Financial Agency's office that is not located in the territorial jurisdiction of the United States. An office of a Financial Agency is involved in the payment transaction if (1) holds an account that is credit or debited as part of the payment transaction, (2) receives payment directly from a Person or makes payment directly to a Person as part of a payment transaction, or (3) serves as an intermediary in the settlement of any part of the payment transaction.
iDoc	Intermediate Document is the native structure of data housed in the popular ERP system. It can be used to share information between different applications in the same enterprise or between two businesses with B2B e-Commerce
IFX	The Interactive Financial eXchange, a forum for an open, interoperable standard for financial data exchange
ISO 20022 Standard	Defines a methodology for the development of financial message standards. It relies on UML (Unified Modeling Language) models representing financial business processes, flows and transactions in a neutral notation. These business transaction models are then subsequently converted into physical messages in the desired syntax, like XML
Namespace	Namespaces in XML provide a method to avoid element name conflicts.
Originator	Corporation or other entity that initiates entries into the Automated Clearing House Network
ODFI	Originating Depository Financial Institution. A participating financial institution that initiates entries into the Automated Clearing House Network
OFX	Open Financial Exchange is a data stream format for exchanging financial information that evolved from Microsoft's Open Financial Connectivity (OFC) and Intuit's Open Exchange file formats
Pacs.008	ISO 20022 Payments Clearing message for FI to FI Customer Credit Transfer
Pain.001	ISO 20022 Payments Initiation message, Customer Credit Transfer Initiation
SEPA	Single European Payments Area
Receiver	Corporation, or other entity that has authorized an originator to initiate a credit or debit entry to an account held at an RDFI

Relax NG	A schema language that specifies a pattern for the structure and content of an XML document
RDFI	Receiving Depository Financial Institution. Any financial institution qualified to receive ACH entries that agree to abide by the NACHA Operating Rules and Guidelines
SEC	Standard Entry Class Code. A three character code within an ACH Company/Batch Header Record to identify the payment types contained within an ACH batch
Schematron	A rule-based <u>validation</u> structured schema language for making assertions about the presence or absence of patterns in <u>XML trees</u>
SOX	Sarbanes-Oxley compliance requirements
STP 820	Expanded format CHIPS message
XML	eXensible Mark-up Language
XML Declaration	Declares the XML version and encoding that is being used in the XML document
XSD	XSD, XML Schema Definition, is an XML-based language used to describe and control XML document contents
XDR	XML-Data Reduced (XDR) was a previous schema language for specifying and validating <u>XML</u> documents
W3C	WorldWideWeb Consortium

13. Appendix E: Reference Documents

For additional related documentation on payments processing, extended remittance information, and XML please refer to the following:

CHIPS Extended Remittance Information and Payment Notification	http://www.chips.org/reference/docs_payresearch/072249.pdf
Fedwire Funds Extended Remittance Information	http://www.frbervices.org/campaigns/remittance/index.html
ISO 20022 Message Formats	http://www.iso20022.org/payments_messages.page
The Payment Market Practices Group (PMPG) Guidance	http://www.swift.com/resources/documents/PMPG_Ext_Remittance_v1_4.pdf
W3C Specifications	http://www.w3.org/TR/#tr_XML

14. Appendix F: Character Sets

ACH file formats use the ASCII Character set. In XML messages, the UNICODE character set, encoded in UTF-8 (8-bit Unicode Transformation Format), is the official ISO 20022 character set that must be used. However, SWIFT added a rule to restrict the set of allowed characters to Basic Latin.

Listed below are the two different character sets and the handling of special characters.

F.1 Key Board ASCII Character Set

Valid characters permitted in ACH file formats include: A-Z, a-z, 0-9, blanks, and special characters as noted below:

Space	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
`	{		}	~											

F.2 Basic Latin Character Set

The following table highlights the characters used in Basic Latin.

Table 2: Basic Latin Character Set

a - z	26 small characters of the Latin alphabet
A - Z	26 capital characters of the Latin alphabet
0 - 9	10 numeric characters
/	solidus (slash)
-	hyphen
?	question mark
:	Colon
(open parenthesis
)	close parenthesis
.	full stop
,	comma
'	apostrophe
+	plus
	space
=	equal to
!	exclamation mark
"	quotation mark
%	percent
&	ampersand
*	asterisk
<	less than
>	greater than
;	semi-colon
@	at
#	pound (hash)
\$	dollar
{	open curly bracket

}	close curly bracket
CR	carriage return
LF	line feed
[left square bracket
]	right square bracket
\	back slash
_	underscore
^	circumflex
`	grave accent
	vertical line
~	tilde
	a set of control characters

F.3 Special Characters in XML Content

Certain characters, referred to as special characters, are used by the XML structure and cannot be included in within the data content itself. Use of these characters will cause a validation error even when opening the file. Wherever these special characters appear in the data, alternate character sets, known as XML entities, must be substituted for them before the data may be included in the XML file to be exported. The special characters and corresponding XML entities are listed in the Table 4 below.

Table 3: Special Character XML Representation

" (double quote)	"
' (single quote)	'
< (left brace)	<
> (right brace)	>
& (ampersand)	&

This method for handling special characters applies irrespective of whether the full Unicode character set, or only the restricted Basic Latin character set, is used.