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FINANCIAL MANAGEMENT SERVICE

A BUREAU OF THE UNITED STATES DEPARTMENT OF THE TREASURY

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# FMS Transaction XML Schema

Overview of Methodology and Deliverables

September 2007 (2.1)

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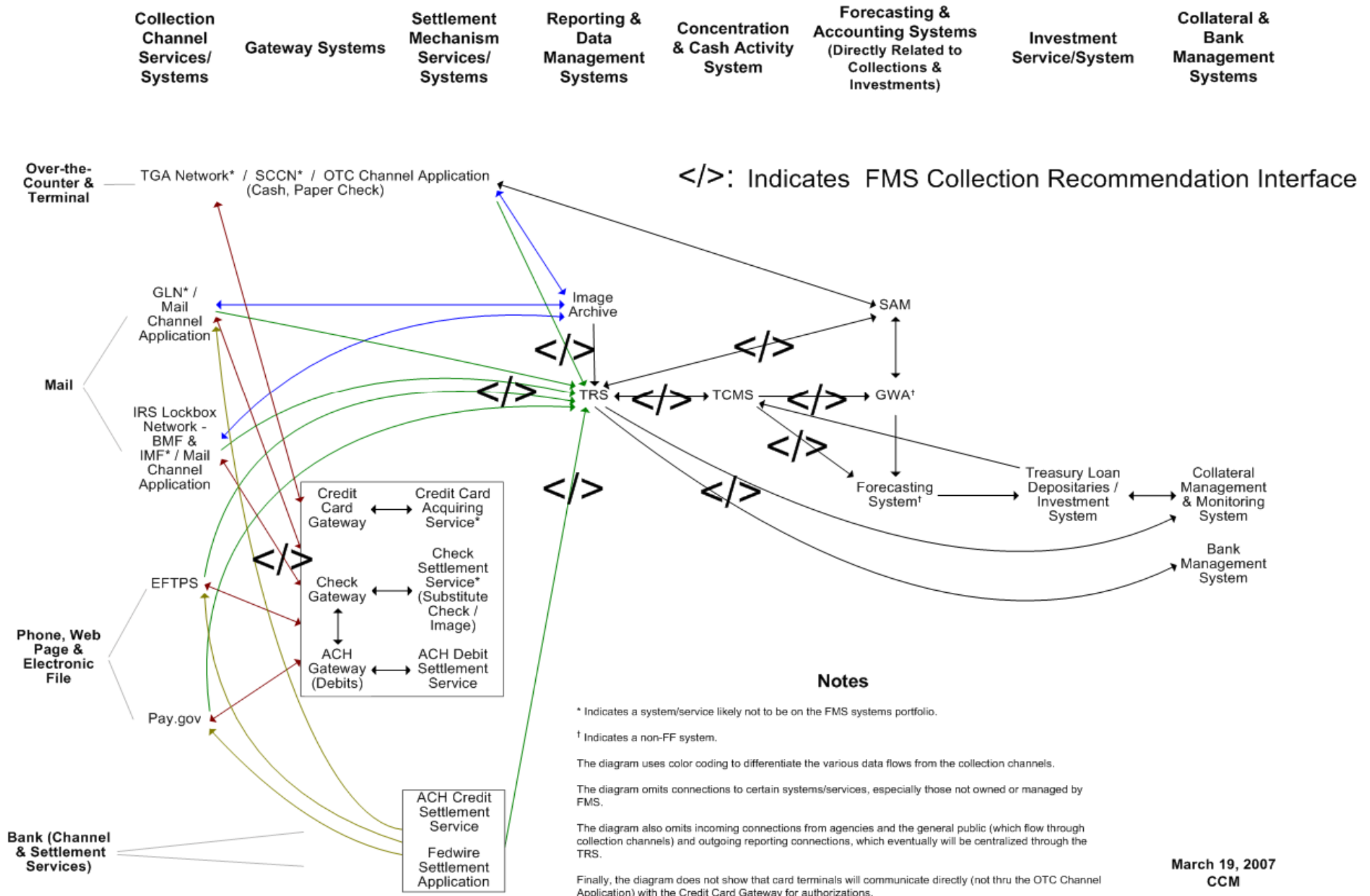


# Agenda

- FMS Collection Transaction Recommendation in Collections and Cash Management Modernization (CCMM)
- Design and Development Methodology
- Deliverables
  - Data Element Dictionary
  - Universal Modeling Language (UML) Diagram
  - W3C XML Schema and XML Sample Instances
  - Implementation Guidance and Channel Mappings
- Next Steps

# Collections & Cash Management Modernization: “To Be”

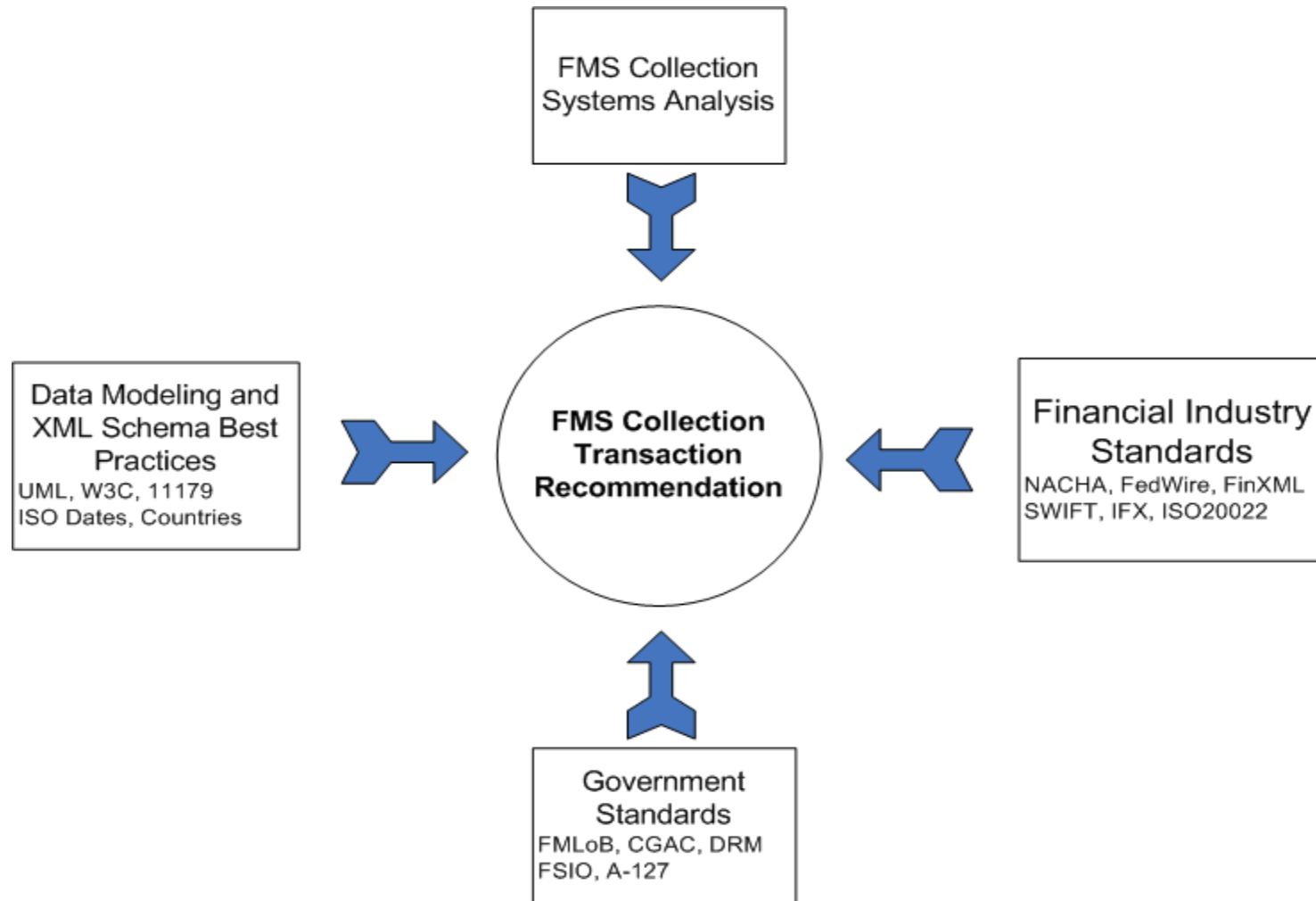
Modified by EDA to show FMS Collection Recommendation Interface



March 19, 2007  
CCM



# Development Methodology Diagram





# Referenced Financial Industry Standards

- **NACHA** - Develops operating rules and business practices for the Automated Clearing House (ACH) Network.
- **Fedwire** - Fedwire is a Real-Time Gross Settlement system owned and operated by the Reserve Banks that enables participants to make final payments in central bank money.
- **ISO 20022** - The Universal Financial Industry Message Standard provides the financial industry with a common platform for the development of messages in a standardized XML syntax.
- **Financial XML (FinXML)** - XML based framework developed to support a single universal standard for data interchange within the Capital Markets.
- **Open Financial Exchange (OFX)** - Specification for the electronic exchange of financial data between financial institutions, business and consumers via the Internet.
- **SWIFT** - Develops set of business standards to support end-to-end business transactions.
- **The Interactive Financial eXchange (IFX)** - Mature, well-designed XML-based, financial messaging protocol, built by financial industry.



# Referenced Government Offices and Standards

- **FEA Data Reference Model (DRM)** - Framework whose primary purpose is to enable information sharing and reuse across the federal government via the standard description and discovery of common data and the promotion of uniform data management practices.
- **Common Government-wide Accounting Classification Structure (CGAC)** - Establishes a standard way to classify the financial effect of government business activities.
- **The Financial Management Line of Business (FMLoB)** – Assists agencies with their financial management modernization efforts by leveraging technology investments across government and standardizing the underlying business processes of Federal agencies.
- **OMB Circular A-127** - Prescribes policies and standards for executive departments and agencies to follow in developing, operating, evaluating, and reporting on financial management systems.
- **Financial Systems Integration Office (FSIO)** – The three major areas of responsibilities of FSIO are: Core financial systems requirements development, testing and product certification; Supporting the Federal financial community on priority projects; Conducting outreach through an annual financial management conference and other related activities.



# Data Modeling, XML Best Practices

- **Universal Modeling Language (UML)** - General purpose modeling language that includes a standardized graphical notation used to create an abstract model of a system, referred to as a UML Model.
- **W3C** - W3C primarily pursues its mission through the creation of Web standards and guidelines. W3C created the XML Schema standard which consists of components such as type definitions and element declarations. These can be used to assess the validity of well-formed element and attribute information items and furthermore may specify augmentations to those items and their descendants.
- **ISO 11179-4** - Formulation of Data Definition: provides guidance on how to develop unambiguous data definitions.
- **ISO 11179-5** - Naming and Identification Principles: provides guidance for the identification of administered items.
- **ISO Currency Codes (4217), Countries (3166), and Dates (8601)**



## Referenced TRS Data Requirements

- **Sending Trading Partner (STP)** – This process analyzed data stores from each of the collection channel systems.
- **Operational Data Store** – From the initial STP data analysis, a logical model was created to fit the needs of each STP.
- **Agency feeds** (User Defined Data) – This was the analysis of data sent from the STP to each agency.
- **STP Feedback** - Initially two STPs have provided comments to update the XML Schema. This analysis is ongoing.





## Data Element Dictionary Deliverable

- **Purpose:** To formally define the data elements that were discovered during the analysis phase.
- **Audience:** Project Managers, Requirement Analysts, Developers
- **Content:** Name, Definition, Data Type, Representation Layout, Permissible Values, etc.



# Data Element Dictionary

Data Dictionary - Microsoft Internet Explorer provided by Financial Management Service

E:\saxonb8-9-0-2\DataListing.html

File Edit View Favorites Tools Help

Data Dictionary

Name	Tag	Definition
ABA_Number	attribute	The ABA routing number consists of 9 digits, for example XXXXYYYYC where XXXX is Federal Reserve Check Digit. The first two digits of the nine digit ABA number must be in the ranges 00 through 12, 00 is used by the United States Government 01 through 12 are the normal routing numbers 21 through 99 are used by savings banks) through 1985; currently are still used by the thrift institutions, or their successors 61 through 99 are used by traveler's cheques The first two digits correspond to the 12 Federal Reserve Banks. [reference: http://www.fedreserve.org/branches/aba.htm]
Account	element	Account information for the trading partner, for example, the RDFI (Receiving Depository Financial Institution)
AccountClassification	element	Identifies the Treasury Account information, for example, this would contain the TAS/BETC or CKEY
AccountNumber	attribute	The bank account number.
AccountPartyID	attribute	Unique identifier for this account.
AccountPartyName	attribute	Name on face of credit card or bank account from which the funds will be drawn.
AccountSummary	element	This is a summary for multiple Business Transactions to replicate an SF 215
Addenda	element	Addenda records will be used by the Originator to supply additional information about Entry Detail Record the RDFI
Addendum	element	The container for all Addenda records associated with a financial transaction.
Address	element	Contains the address for the account.
AddressLine	element	Location for the address line.
Agency	element	Identifies the ALC (Agency Location Code) and other supporting data for example treasury account Transaction Code).
AgencyAccountID	attribute	For example, a Lockbox Number.
AgencyIdentifier	attribute	Agency Identifier of account owner. Used in conjunction with the main account code, the Agency Identifier

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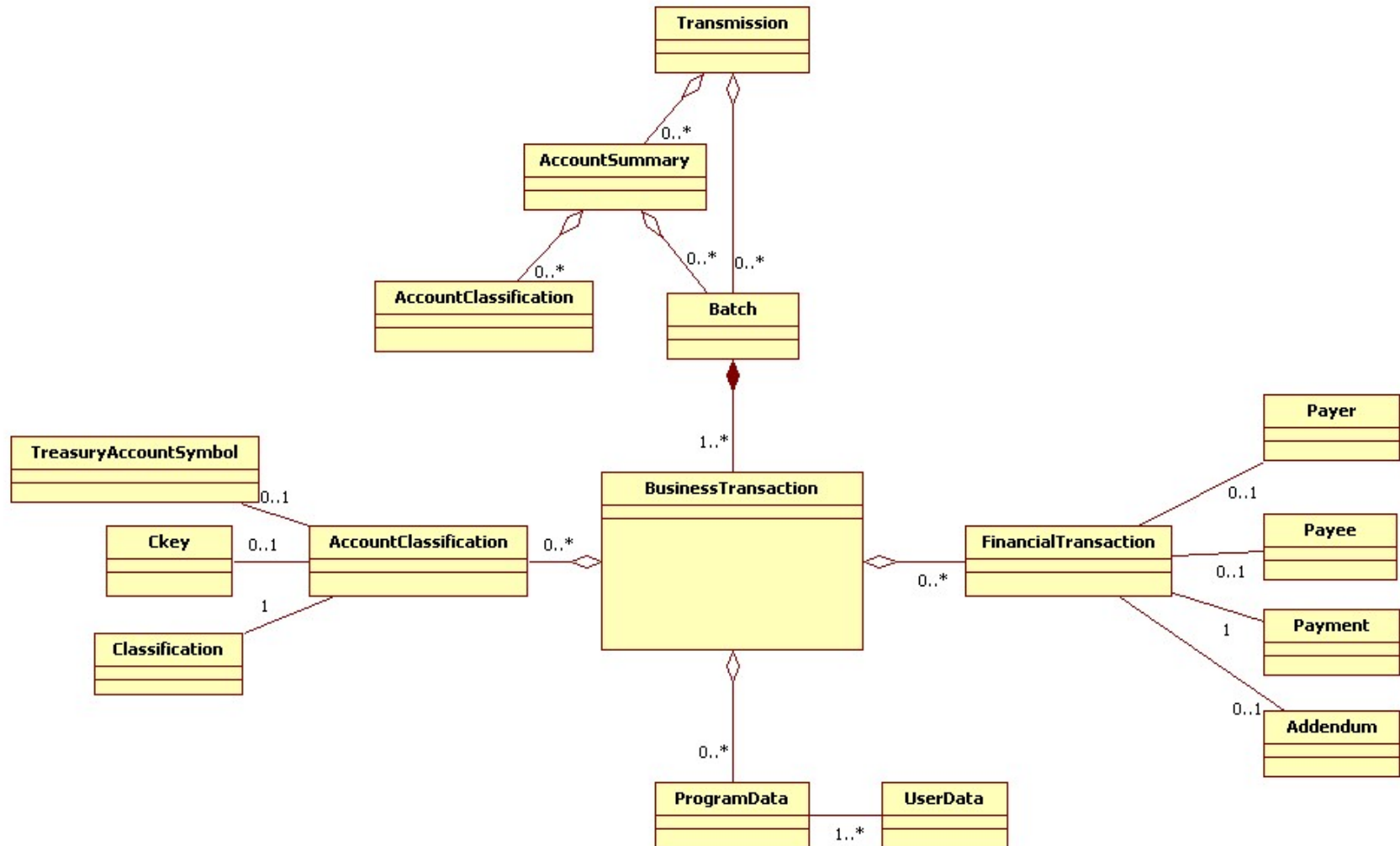


# UML Deliverable

- **Purpose:** General purpose modeling language that includes a standardized graphical notation used to create an abstract model of a system, referred to as a UML Model.
- **Audience:** Requirements Analysts, Developers



# Abbreviated UML Diagram



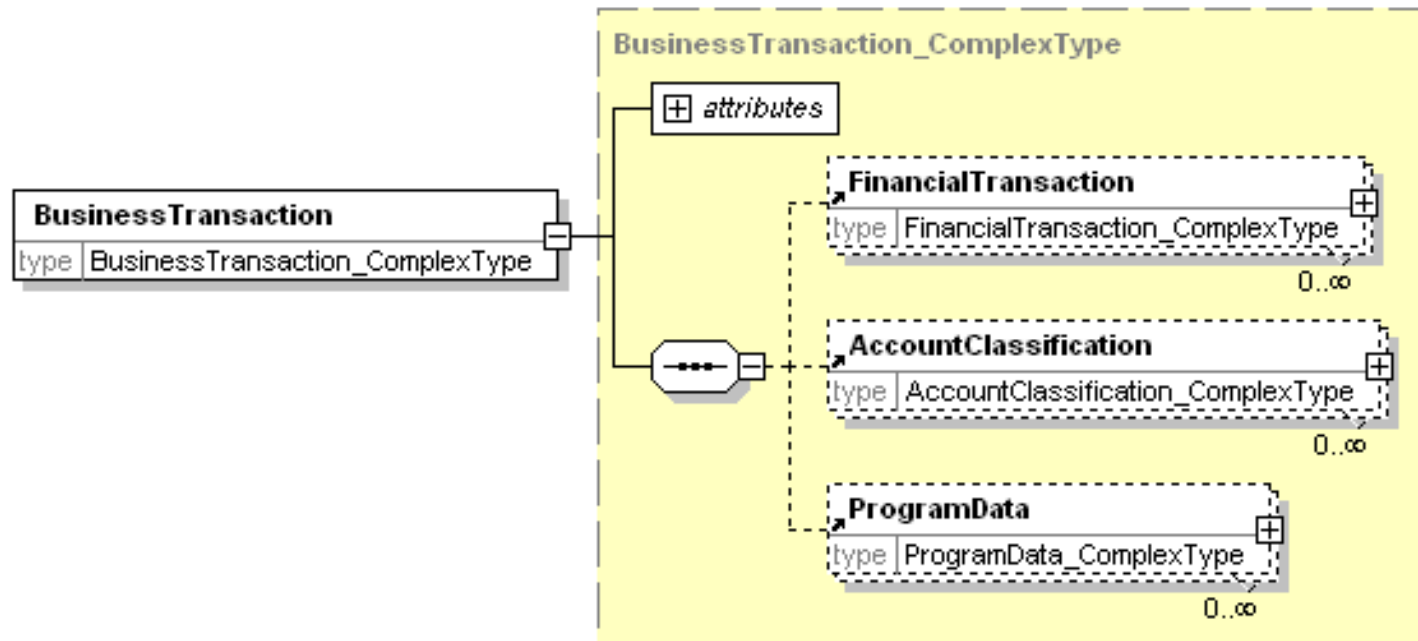


## W3C XML Schema

- **Purpose:** This is the physical implementation of the Data Element Dictionary and the UML Diagram needed for developers to validate their XML instances.
- **Audience:** Developers
- **Content:** Fully validated W3C XML Schema documents.



# XML Schema Diagram of Business Transaction





# Implementation Guidance

- **Purpose:** This supports developers who are implementing the FMS Collection Transaction Recommendation.
- **Audience:** Developers
- **Content:** This document describes how to create, transmissions, batches, business transactions and financial transactions in ACH, Cash, Check, Fedwire and Plastic Cards.



Adobe Reader - [FMS Financial Transaction Implementation Guide Final.pdf]

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### 3.2 Check

Data Element	Value
Release 2.0	20

FMS Collection Transaction Implementation Guide

Name	OHMS TEST
Routing Number	255071981
Check Serial Number	12345
Account Number	111111
Date	2007-30-20
Amount	275.00
ALC	015

XML fragment sample (only showing the BusinessTransaction element and child nodes):

```
<BusinessTransaction ID="342134343">
  <FinancialTransaction ID="" IsCredit="0" SettlementDate="2007-03-20"
    PaymentMedium="Check"
    TraceNumber="AL23C6S4HH1"
    ChannelType="POS-OTC">
    <Payer>
      <Account AccountPartyName="OHMS TEST">
        <BankInfo ABA_Number="255071981" AccountNumber="111111"
          CheckSerialNumber="12345"/>
      </Account>
    </Payer>
    <Payee>
```

21 of 25