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Getting Started with

ICLs

aka X9.37 Files

# Personal Introductions

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# Cash Letters & Image Cash Letter

- A cash letter is an inter-bank transmittal letter that accompanies paper check items sent from one financial institution to another.
- Image Cash Letter (ICLs) are also known currently as X9.37 Files and are the electronic equivalent of a physical cash letter



# ICL - 2

- X9.37 File is a file based on the Accredited Standards Committee X9's Specifications for Electronic Exchange of Check and Image Data (DSTU X9.37-2003) – *Draft Standard for Trial Use*
- ICL files combine check *images* and check image *data* in electronic format



# Who Uses An ICL

- Financial Institutions
  - Banks
  - Credit Unions
  - Exchanges
  - Federal Reserve Board
- Lockbox Services
- Corporate - Remote Deposit Sites, Kiosks
- Potentially everyone who receives a check





**Mabel pays by check**



# Benefits Of ICLs

- ICLs Expedite item clearing:
  - Improves cash flow
  - Reduces float
  - Reduces risk
  - Improves fraud mitigation
  - Lower the cost of inbound and outbound return processing.



# How Are ICLs Used

- Federal Reserve Board Check 21 Services
- Exchanges- SVPCO, EndPoint, ViewPoint
- Print IRD – Substitute Check
- Intra-bank (International, Regional)
- Inter-bank
- Remote Deposit Capture - Corporate





# Why A Standard?

- To expedite the flow of data
  - Send
  - Receive
- Ensure accurate flow of data



# Background ICL - 1

- An earlier version of the standard described the interchange of check data, i.e. Electronic Check Presentment (ECP). The file itself was an Electronic Cash Letter (ECL).
- The ANSI X9 Committee for Financial Services produced the Draft Standard for Trial Use DSTU X9.37–2003 Specifications for Electronic Exchange of Check and Image Data.



# Background ICL – 2

- The 2003 Draft Standard describes the interchange of image data in addition to check data or Image Check Presentment (ICP) and the file became an Image Cash Letter (ICL).
- The ICL file consists of variable length record structures containing check and bank data as well as various compressed images of the checks or other transaction data.



# Background ICL – 3

- The ICL file tries to mimic the physical form of cash letters
- Cash Letters
  - Bundles – bundles of checks
    - Items - checks
      - Records – electronic data



# ICL Structure

- Cash Letter
  - Cash Letter 1
    - Bundle 1
      - Item 1
        - Record
        - Record
      - Item 2
    - Bundle 2
      - Item 1
      - Item 2
  - Cash Letter 2
    - Bundle 1 for Cash Letter 2 etc



# Background ICL

- An ICL can contain multiple Cash Letters
- A Cash Letter can consist of multiple Bundles.
- A Bundle can consist of multiple Items
- Items consist of multiple records.
- Control Records for recording the totals in each of the different hierarchies.



# Demo X9.37 Viewer



# ICL Item Record

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File Edit Tools About

Checks  
Fields  
Records

File Header  
01  
Cash Letter 1 - 10111011  
10  
Bundle 1 - BU10111011  
20  
Item 1 - 210041944  
25  
26  
28  
Front 1  
Back 1  
Item 2 - 210041946  
70  
90  
99

210041946

MARTIN VAN BUREN  
LINDENWALD ESTATE  
KINDERHOOK, NY

NO 0496

PAY TO THE ORDER OF John N. Garner

Date \$6,000.00 DOLLARS

PRESIDENTS NATIONAL BANK  
DISTRICT OF COLUMBIA

NOT NEGOTIABLE  
SAMPLE - VOID  
DO NOT CASH

Memo F. Roosevelt V.P.

⑆011000112⑆ 8888888888⑆ 0496 ⑆0000600000⑆

⑆011000112⑆ 8888888888⑆ 0596 ⑆0000600000⑆

Payee:  
Amount: \$6,000.00

Payor Bank  
Routing Number: 011000112

BOFD  
Routing Number: 011000112  
Business Date: 8/9/2004  
Deposit Branch:  
Deposit Account:  
Sequence Number: 210041940

ENDORISING BANKS  
1  
Routing Number: 011000112  
Endorsement Date: 8/9/2004  
Sequence number: 210041940





# ICL Check Front & Back

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File Edit Tools About

Records | Fields | Checks

1

2

F B

beg prev 1 of 2 next end

Item Details

ANDREW JACKSON  
THE HERMITAGE  
NASHVILLE, TN

NO 0377

Pay TO  
THE ORDER  
OF Charles Dawes

Date \$9000 <sup>00</sup> DOLLARS

PRESIDENTS NATIONAL BANK  
DISTRICT OF COLUMBIA

NOT NEGOTIABLE  
SAMPLE - VOID  
DO NOT CASH

Memo

⑆011000112⑆ 7777777777 0377 ⑈0000900000⑈

FEB 20 07 02:00  
CCUS TEST LAB-VOID  
ENT=0954 DEC=0954  
0210119460

ENDORSED HERE



# ICL Records

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File Edit Tools About

| Index | Type | Field | Description                               | Value       |
|-------|------|-------|---|-------------|
| 1     | 01   | 1     | Record Type                               | "50"        |
| 2     | 10   | 2     | Image Indicator                           | "1"         |
| 3     | 20   | 3     | Image Creator Routing Number              | "301171285" |
| 4     | 25   | 4     | Image Creator Date                        | "20040809"  |
| 5     | 26   | 5     | Image View Foramt Indicator               | "00"        |
| 6     | 28   | 6     | Image View Compression Algorithm Ident... | "00"        |
| 7     | 50   | 7     | Image View Date Size                      | "0005620"   |
| 8     | 52   | 8     | View Side Indicator                       | "0"         |
| 9     | 50   | 9     | View Descriptor                           | "00"        |
| 10    | 52   | 10    | Digital Signature Indicator               | "0"         |
| 11    | 25   | 11    | Digital Signature Method                  | "00"        |
| 12    | 26   | 12    | Security Key Size                         | "00000"     |
| 13    | 28   | 13    | Start Of Protected Data                   | "00000000"  |
| 14    | 50   | 14    | Length Of Protected Data                  | "00000000"  |
| 15    | 52   | 15    | Image Recreate Indicator                  | "0"         |
| 16    | 50   | 16    | User Field                                | " "         |
| 17    | 52   | 17    | Reserved                                  | " "         |
| 18    | 70   |       |   |             |
| 19    | 90   |       |   |             |
| 20    | 99   |       |   |             |



# ICL Fields

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File Edit Tools About

Checks

Fields

Records

File Header

- 01
  - Cash Letter 1 - 10111011
    - 10
      - Bundle 1 - BU10111011
        - 20
          - Item 1 - 210041944
            - 25
            - 26
            - 28
              - Front 1
              - Back 1
                - 50
                - 52
          - Item 2 - 210041946
            - 70
  - 90
  - 99

| Field | Description                               | Value       |
|-------|---|-------------|
| 1     | Record Type                               | "50"        |
| 2     | Image Indicator                           | "1"         |
| 3     | Image Creator Routing Number              | "301171285" |
| 4     | Image Creator Date                        | "20040809"  |
| 5     | Image View Foramt Indicator               | "00"        |
| 6     | Image View Compression Algorithm Ident... | "00"        |
| 7     | Image View Date Size                      | "0003330"   |
| 8     | View Side Indicator                       | "1"         |
| 9     | View Descriptor                           | "00"        |
| 10    | Digital Signature Indicator               | "0"         |
| 11    | Digital Signature Method                  | "00"        |
| 12    | Security Key Size                         | "00000"     |
| 13    | Start Of Protected Data                   | "0000000"   |
| 14    | Length Of Protected Data                  | "0000000"   |
| 15    | Image Recreate Indicator                  | "0"         |
| 16    | User Field                                | " "         |
| 17    | Reserved                                  | " "         |



# ICL Components

- An Item is basically a check for forward presentment or for return processing described by records
- A check item within the X9.37 standard consists of multiple records. This is required since different records are needed to record the parts of a check such as endorsements, front image and back image.



# Basic Forward Presentment-- Minimal Set of Records

## # Record Description

- 01- File Header
- 10- Cash Letter Header
- 20- Bundle Header
- 25- Item (forward) Detail Record
- 26- Item (forward) BOFD
- 28- Item (forward) Endorsement
- 50- Item Image Detail - Front View
- 52- Item Image data – Front View
- 54- Item Image QA – Front View
- 50- Item Image Detail – Back View
- 52- Item Image Data – Back View
- 54- Item Image QA – Back View
- 70- Bundle Control Record
- 90- Cash Letter Control Record
- 99- File Control Record



# Components of ICL

- Detail – MICR line data
  - Auxillary OnUs
  - External Processing Code
  - ABA routing number
  - OnUs information
  - Amount



# Why A Standard?

- To expedite the flow of data
  - Send
  - Receive
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# Standards and Guidelines

- X9 Committee for Electronic Exchange of Check and Image Data
  - 66 Voting Members
  - Multiple types and each with their own agenda, perspective, interests
    - Banks
    - Software Companies
    - Hardware companies
    - Check printing companies
    - Federal Agencies
    - International Agencies
- Federal Reserve Board Guidelines
  - Subset of standard
  - Sometimes conflicts





# The X9.37 Issues - 1

- Federal Reserve Board is strongly encouraging electronic check *image* clearing – X9.37
- Creating files conforming to the X9.37 ANSI standard is more difficult than anticipated



# The X9.37 Issues - 2

- Like TIFF, X9.37 files have many variations and customizations – sometimes unique to each bank (custom data in various records)
- Deposit Slips
  - No specific record for deposit slips in X9.37 DSTU
  - FRB Guidelines – no deposit slips
  - IRDs – no “This is a legal copy...”



# Deposit Slips

- Three common ways of entering a deposit slips into an ICL
  1. Non-valid ABA routing number
  2. Record 61 (multiple versions)
  3. Trans Code on a valid ABA routing number
- Control Records and Deposit slips
  - Since not in standard will double totals



# Issues with Developing ICLs

- Complex Standard
- Federal Reserve Board Guidelines
  - 53 page modifier to X9.37
- DSTU X9.37-2003
  - 144 page document
  - Lots of details



# Converting Check Images To ICLs

- MICR line data
  - Magnetic read – substitution errors
  - MICR OCR – E13B fonts, find, parse, confidence
- Bank Data Bases
  - EBCDIC
  - ASCII
- Image File Types
  - TIFF
  - Bitonal – Grayscale – Color JPEG



# Types of ICLs

- Forward Presentment
- Return ICL
  - Less than 15 financial institutions
  - Less than 5 vendors



# Return X9.37 Files

- Need to return checks because account officers request returns for:
  - Insufficient Funds
  - Uncollected Funds
  - Lack of Endorsement
  - Can't find account number
  - Bad Signature
  - Not readable
  - Forgery



# Need for X937 Editing

- Fix problem files - \$100 Million Cash Letter
  - Repair MICR line data
    - Account number
    - ABA Routing number
  - Add Bank of First Deposit Information
    - View back of check image to read endorsement
    - Copy BOFD info into correct record and field
  - IRD file that will not print





# New ICL Standard Coming Soon

- X9.100-180-2006
  - X9.37 Draft Standard Trial Use >X.9.100-180
  - Substantive changes 144 pages to 206



# New ICL Standard - 2

- Major Difference Of New Standard
  1. Credit/Reconciliation Record is added
  2. New definition for ABA Routing Numbers (Int'l)
  3. Capture MICR line and Corrected MICR line
  4. Pre-defined User Record for Payee Endorsement
  5. Image Quality Test Results
  6. Digital Signatures



# X9.100-80 Difference Example

- ABA Routing Numbers – “Check 22”
  - X9.37 = 8 digits and a check digit current
  - Exceptions – dashes in the middle, more than 8
- New Standard different
  - Support now for international routing numbers
  - IRDs – IRD has to match data on check
  - FRB only excepts 8 plus check digit – need conversion



# All My Paper's Solutions

- A suite of UNIVERSAL ICL (X9.37) software applications and toolkits
  - Applications
    - X9.37 Viewer/Validator Application
    - X9.37 Editor Application
  - Toolkits
    - AX9LIB – Toolkit of X9.37 File Utilities
    - AX9SQL – Toolkit to convert X9.37 to SQL files



# All My Papers

- All My Papers develops and distributes software products for:
  - Viewing, Creation Editing and Sorting of X9.37 files
  - Fast and accurate printing of valid Image Replacement Documents (IRDs),
  - High accuracy data extraction of the MICR line data on check images
  - Auto location and reading of barcodes.
  - Processes and repairs check images



# Questions



**Thank You**



**The End**