

# Inside the ACH File: A Walk on the Technical Side

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# Disclaimer

- This course provides an introduction to ACH specifications and files. Responsibility for compliance with ACH rules remains at all times with individual users, including compliance with all legal and regulatory requirements. This presentation and the information contained in it are not intended to be used as legal advice and UMACHA and Viewpointe provides this material “as is” without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. This document could include technical inaccuracies or typographical errors and individual users are responsible for verifying any information contained herein.

# Objectives

- Identify ACH data specifications
- Recognize the six ACH record types
- Interpret the data in an ACH file
- Build an ACH file

# Agenda

- Introduction
- Part 1: ACH Data Specifications
- Part 2: ACH File Record Sequence
- Part 3: ACH File Record Formats
- Part 4: Activity—Building an ACH File
- Wrap Up

# Part 1: ACH Data Specification

- Alphanumeric and numeric fields
- Left-justified and right-justified fields
- Record length restrictions
- File blocking requirements
- Field inclusion requirements

# Alphanumeric and Numeric Fields

Alphanumeric fields contain

- 0-9
- A-Z
- Blank
- Printable special characters

Numeric fields contain

- 0-9

# Left-Justified and Right-Justified Fields

## Left-justified fields

- Alphanumeric and alphabetic
  - Space filled

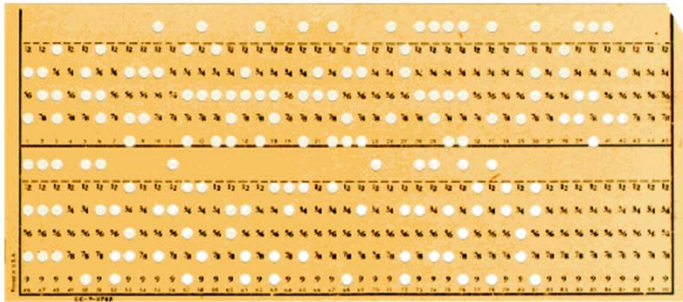
## Right-justified fields

- Numeric
  - Zero filled
  - Unsigned
- Dollar value field formatted the same



# Record Length Restrictions

- Computers read information
- Punch card technology
- Magnetic tape technology
- ACH uses 94 characters per record





# File Blocking Requirements

- Data written to magnetic tapes in blocks
- ACH requires ten records per block
- Incomplete blocks filled with 94 nines

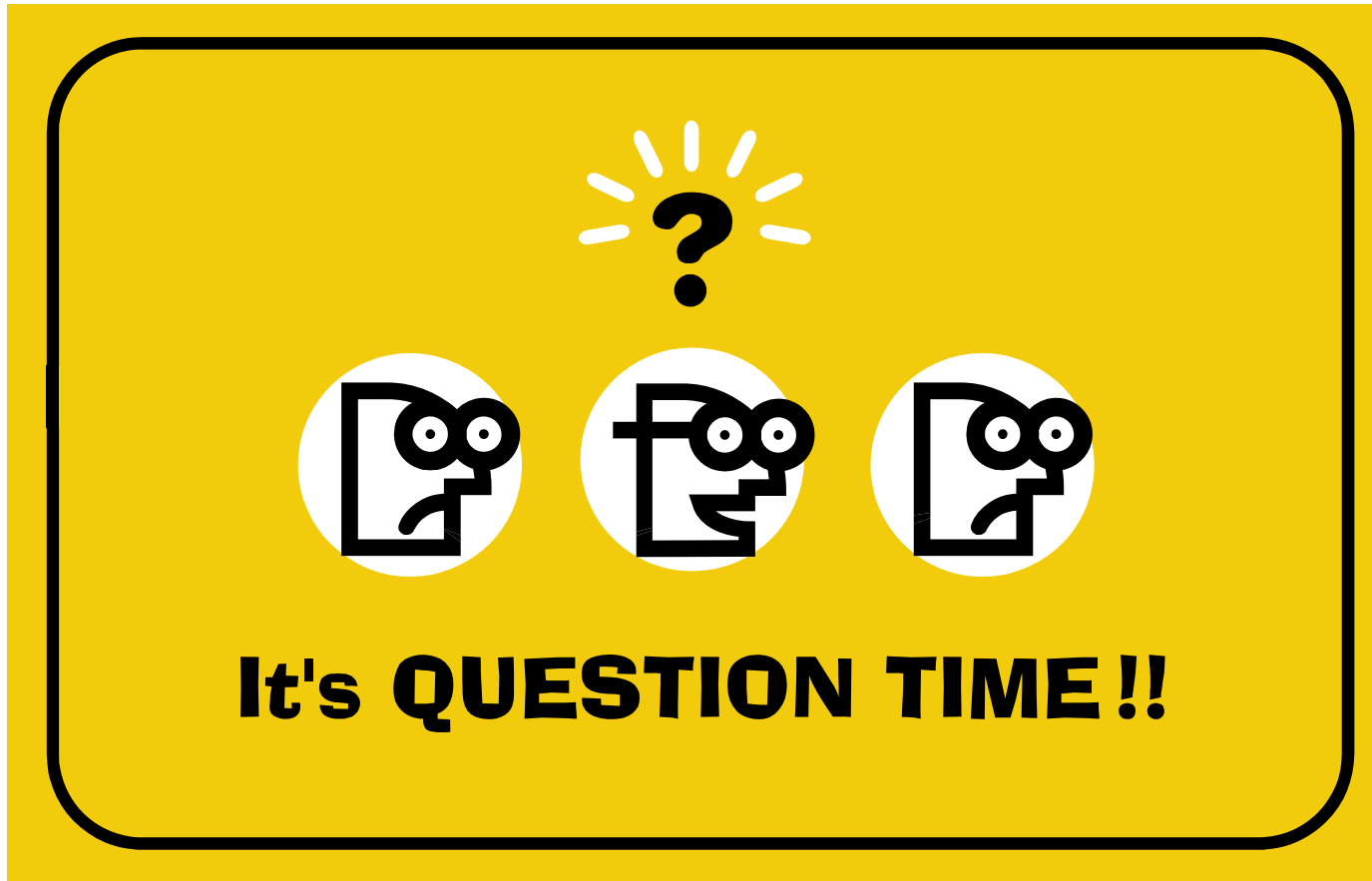
[illegible]

So, what is wrong with this file?

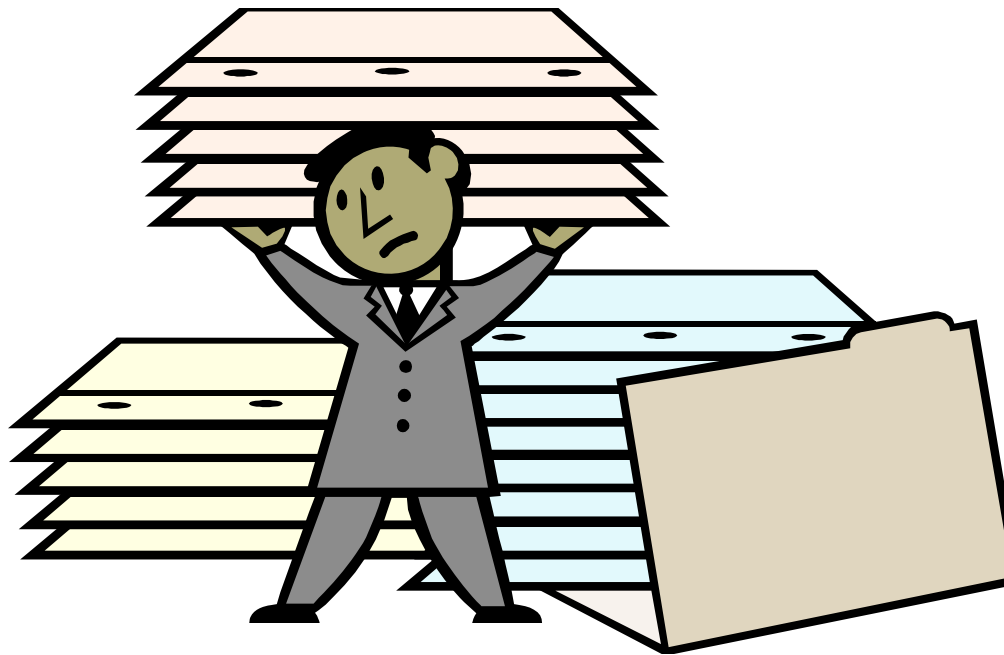
# Field Inclusion Requirements

- Mandatory
  - ACH Operator edits
  - Necessary to ensure proper routing/posting
- Required
  - ACH Operator does not edit
  - RDFI may return for missing information
- Optional
  - Empty field does not create “reject”

# End of Part 1

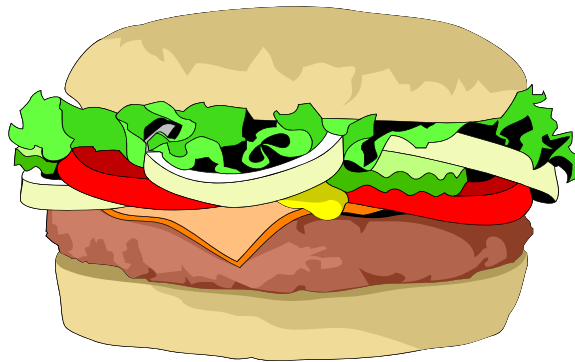


## Part 2: ACH File Record Sequence

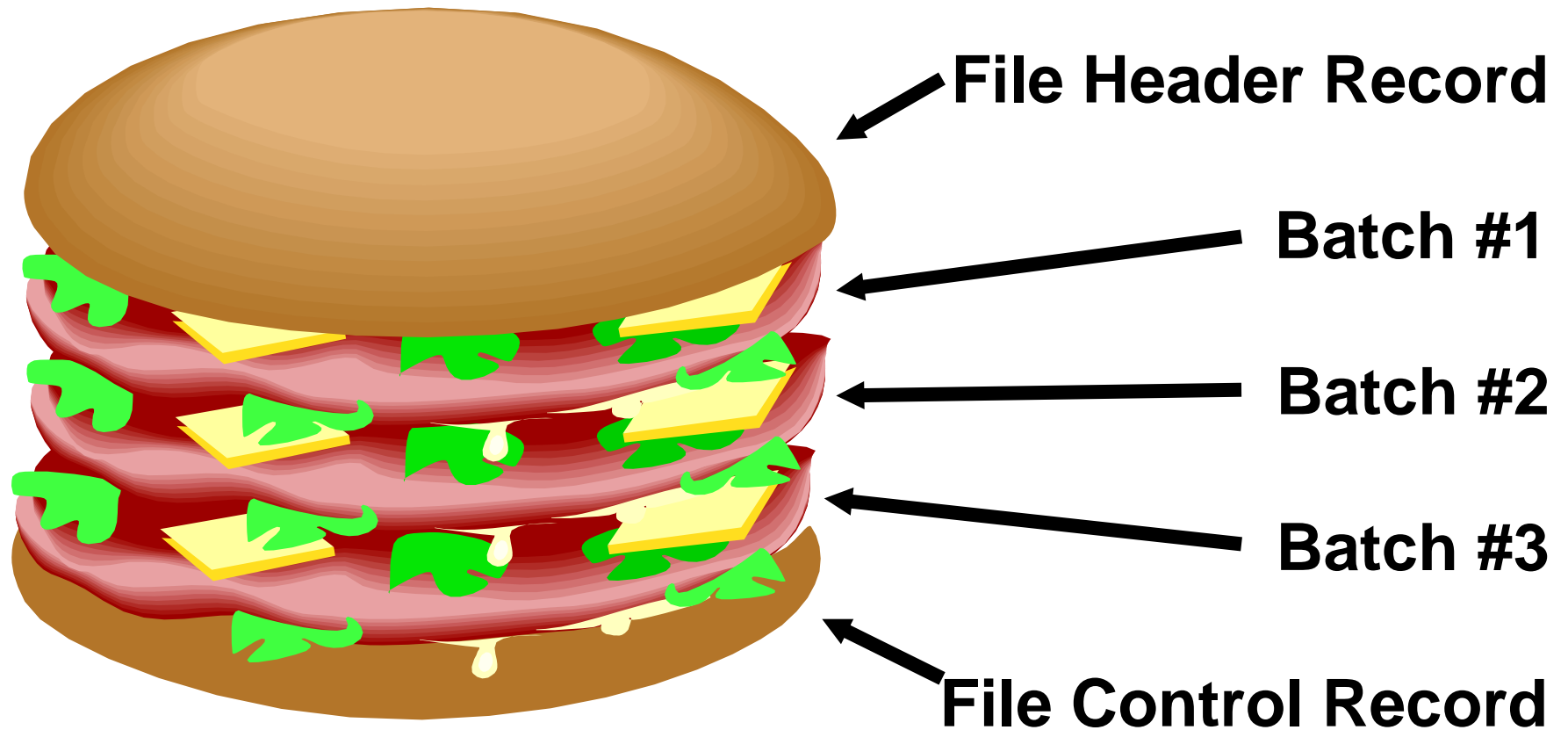


# ACH File Record Sequence

- File Header Record (top piece of bread)
- Company/Batch Header Record (tomato)
- Entry Detail Record (meat)
- Addenda Record (cheese)
- Company/Batch Control Record (mustard)
- File Control Record (bottom piece of bread)



# ACH File Record Sequence Example





# To Review

- File Header Record (Record #1)
- Company/Batch Header Record (Record #5)
- Entry Detail Record (Record #6)
- Addenda Record (Record #7)

### File Header Record (Record #1)

#### Company/Batch Header Record (Record #5)

### Entry Detail Record (Record #6)

### Addenda Record (Record #7)

Entry Detail Record (Record #6)

Addenda Record (Record #7)

### Entry Detail Record (Record #6)

### Entry Detail Record (Record #6)

### Entry Detail Record (Record #6)

**Company/Batch Control Record (Record #8)**

**Company Batch Header Record (Record # 5)**

### Entry Detail Record (Record #6)

### Entry Detail Record (Record #6)

**Company/Batch Control Record (Record #8)**

### Company/Batch Header Record (Record #5)

### Entry Detail Record (Record #6)

### Addenda Record (Record #7)

### Addenda Record (Record #7)

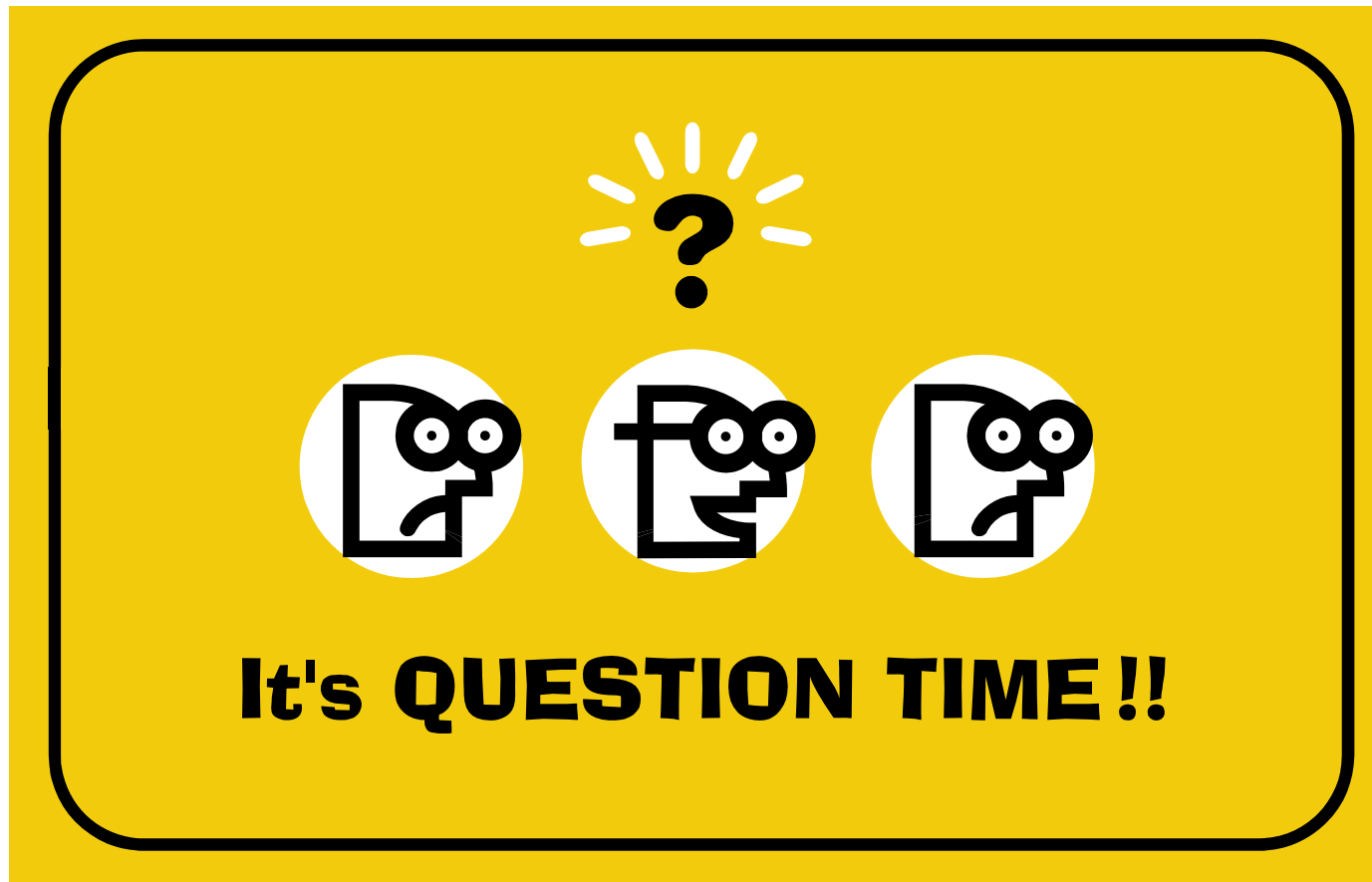
Addenda Record (Record #7)

### Company/Batch Control Record (Record #8)

### File Control Record (Record #9)

[illegible]

# End of Part 2



# Part 3: ACH File Record Formats

- File Header Record
- File Control Record
- Company/Batch Header Record
- Company/Batch Control Record
- Entry Detail Record
- Addenda Record

# File Header Record (1)

## **The first logical record in an ACH file**

- One file header record per ACH file

## **What does a file header record tell us?**

- Who is sending the file
- Where the file is going
- File creation date and time

# File Control Record (9)

## The last logical record in an ACH file

- Only one file control record per ACH file
- Batch count
  - Total number of batches within file
- Block count \*
  - Sum of all physical blocks within the file
- Entry addenda counts
  - Sum of entry/addenda count totals from all batch control records
- Entry hash totals
  - Sum of entry hash totals from all batch control records
- Total dollar controls
  - Sum of all debit and credit totals from all batch control records

**\*A “block” consists of 10 records, each record is 94 characters, which equals 940 characters (94 character records x 10 records)**





# Company/Batch Header (5)

Information about the company/originator and the type of detail records to follow:

- One batch header record per batch
  - Can be multiple batches within file
- Service class code
  - Debit/credit entries or both are contained in batch
- Company name and company identification
  - Identifies the originator – Who received authorization
- Standard entry class (SEC) code
  - Type of entry – rules that apply

# Service Class Code

- What does the Service Class Code do?
  - Identifies the general classification of dollar entries to be exchanged (i.e., debit and/or credit entries)
- Different types of Service Class Codes
  - 200 ACH Entries Mixed Debits and Credits
  - 220 ACH Credits Only
  - 225 ACH Debits Only
  - 280 ACH Automated Accounting Advices

# Standard Entry Class (SEC) Code

- Identifies the payment type found within an ACH batch-using a 3-character code
  - PPD, CCD, CTX, ARC, POP
- The SEC code pertains to all entries within batch
  - Determines format of the detail records
  - Determines addenda records (required or optional and one or up to 9,999)
  - Determines rules to follow
- SEC codes are used throughout the NACHA rules book referencing fields by data element name
  - Some SEC codes require specific data in predetermined fields within the ACH record

# Standard Entry Class Codes

<b>SEC Code</b>	<b># Addenda Records</b>	<b><u>O</u>ptional-<u>M</u>andatory</b>	<b>Debit or Credit Tran-Codes <u>or</u> Both</b>	<b>Consumer <u>or</u> Corporate <u>or</u> Receiver</b>
<b>ACK</b>	1	O	Credit	Corporate
<b>ADV</b>	0	N/A	Both	N/A
<b>ARC</b>	0	N/A	Debit	Receiver
<b>ATX</b>	1	O	Credit	Corporate
<b>BOC</b>	0	N/A	Debit	Receiver
<b>CCD</b>	1	O	Both	Corporate
<b>CIE</b>	1	O	Credit	Corporate
<b>COR</b>	1	M	Both	ALL
<b>CTX</b>	9,999	O	Both	Corporate
<b>DNE</b>	1	M	Credit	Consumer
<b>ENR</b>	9,999	M	Credit	Consumer
<b>IAT</b>	7/5	M/O	Both	Both

# SEC Codes (continued)

SEC Code	# Addenda Records	Optional-Mandatory	Debit or Credit Tran-Codes or Both	Consumer or Corporate or Receiver
<b>MTE</b>	1	M (unless pre-note)	Both	Consumer
<b>POS</b>	1	M (unless pre-note)	Debit	Consumer
<b>PPD</b>	1	O (unless pre-note)	Both	Consumer
<b>POP</b>	0	N/A	Debit	Receiver
<b>RCK</b>	0	N/A	Debit	Consumer
<b>SHR</b>	1	M (unless pre-note)	Debit	Consumer
<b>TEL</b>	0	N/A	Debit	Consumer
<b>TRC</b>	0	N/A	Both	Both
<b>TRX</b>	9,999	M	Both	Both
<b>WEB</b>	1	O	Debit	Consumer
<b>XCK</b>	0	N/A	Debit	Both

# Company/Batch Header

- Company Entry Description
  - Describes purpose of entry, i.e., gas bill, payroll, mortgage
- Effective Entry Date (wish date)
  - The date the originator would like settlement
- Originator Status Code
  - 0 - ADV file - prepared by an ACH Operator
  - 1 - Originator is an FI (from the Operator's point of view)
  - 2 - Originator is a Government Agency or other agency not subject to the ACH Rules
- Originating DFI Identification
  - ODFI's ABA number -- FI transmitting entry

**Information in the “Batch Header” record applies to all detail records in batch**



# Batch Header Record for IAT

IAT Batch Header is different

- Pos. 21-22 - Foreign exchange indicator
- Pos. 23-23 - Foreign exchange ref indicator
- Pos. 24-38 - Foreign exchange reference
- Pos. 39-40 - ISO destination country code
- Pos. 64-66 - ISO originating currency code
- Pos. 67-69 - ISO destination currency code

# Company Batch Control (8)

Summarizes the records/ACH entries within the batch

- One Batch Control Record per batch
  - can be multiple batches in each ACH file
- Entry addenda counts
  - Both entry detail and addenda records (records 6&7) are counted to receive a total within that specific batch (batch header and batch control records are not included in this total)
- Entry hash totals
  - Hash is the arithmetic sum of the 8-digit routing number of each RDFI within each entry detail record - if sum is more than 10 characters in length, the digits on the left are removed
- Total dollar controls
  - Sum of debit and credit totals of all entry detail (6) records in batch

**Service class code, company identification, ODFI routing number and batch number must all match info in batch header record or the batch will be rejected**



# Entry Detail Record (6)

Identifies Receiver's account information

- Can be multiple detail records in each batch
  - Transaction code
    - Identifies whether entry is a debit or credit
    - Identifies what type of account demand, savings, loan
  - RDFI ABA number
    - The routing number of the Receiver's financial institution
  - Individual DFI account number
    - Receiver's account number at their financial institution

# Transaction Code

- What does the transaction code do?
  - Identifies the entry as a debit and credit entry and to what type of account (Savings, DDA, Loan)
- Transaction codes?

<i>Description</i>	<i>Automated Payment/Deposit</i>	<i>Return or NOCs</i>	<i>Prenotes</i>	<i>Zero Dollar Amount w/remittance data CCD &amp; CTX entries only</i>
<b>Demand Credit</b>	22	21	23	24*
<b>Savings Credit</b>	32	31	33	34*
<b>Demand Debit</b>	27	26	28	29
<b>Savings Debit</b>	37	36	38	39
<b>GL Credit</b>	42	41	43	44
<b>GL Debit</b>	47	46	48	49
<b>Loan Credit</b>	52	51	53	54
<b>Loan Debit</b>	55 (Reversals Only)	56	N/A	N/A

\*These transaction codes also represent Acknowledgement Entries for ACK and ATX entries only.

# Entry Detail Record (6) (continued)

- Individual Identification number
  - Additional ID-optional-PPD, becomes mandatory for ARC, POP, BOC and RCK – to contain check serial number
- Individual name
  - Receiver's name (optional for ARC and POP)
  - Can be Receiving Company Name
- Amount
  - Debit or credit to be posted to Receiver's account - indicated by transaction code
- Addenda record indicator
  - Indicates whether an addenda record will follow
  - 0 = none, 1= 1 or more





# Addenda Record (7)

- Addenda records are used by the originator to supply additional payment-related information relating to entry detail records
- When entry detail is being returned, addenda records associated with the entry detail or corporate entry detail records are not included
- Addenda record information is used for transmitting payment-related information only; any other use is prohibited

# Addenda Record (7) (continued)

- Can be multiple addenda records
  - 1 or up to 9,999, based on SEC in batch header
- Addenda type code
  - Describes specific explanation and format for the addenda info contained in the same record
- Addenda sequence number
  - The sequence number assigned to each addenda record consecutively
  - The first addenda record must always be a “1” (0001)
- Entry detail sequence number
  - This number is the same as the last seven digits of the unique trace number (field 13) of the related entry detail or corporate entry detail record

# Addenda Type Code

- What does the addenda type code do?
  - Defines the specific explanation and format for the addenda information contained in the same record

Addenda Type Code	Interpretation/Explanation
02	<b>Point of Sale Entry (POS), Shared Network Transaction (SHR), or Machine Transfer Entry (MTE)</b> (Addenda Record is used for terminal location description information)
05	<b>Addenda Record (Applies to ACK, ATX, CCD, CIE, CTX, DNE, ENR, PPD, TRX, and WEB Entries)</b>
10-18	<b>International ACH Transaction (IAT)</b> (Addenda Records are for mandatory and optional use)
98	<b>Automated Notification of Change (COR) Addenda Record and Automated Refused Notification of Change (COR) Addenda Record</b>
99	<b>Automated Return Entry Addenda Record, Automated Dishonored Return Entry Addenda Record and Automated Contested Dishonored Return Entry Addenda Record</b>

## CCD ENTRY DETAIL RECORD

Field	1	2	3	4	5	6	7	8	9	10	11
DATA ELEMENT NAME	Record Type Code	Transaction Code	Receiving DFI Identification	Check Digit	DFI Account Number	Amount	Identification Number	Receiving Company Name	Discretionary Data	Addenda Record Indicator	Trace Number
Field Inclusion Requirement	M	M	M	M	R	M	O	R	O	M	M
Contents	'6'	Numeric	TTTTAAAA	Numeric	Alphanumeric	\$\$\$\$\$\$\$¢	Alphanumeric	Alphanumeric	Alphanumeric	Numeric	Numeric
Length	1	2	8	1	17	10	15	22	2	1	15
Position	01-01	02-03	04-11	12-12	13-29	30-39	40-54	55-76	77-78	79-79	80-94

6	22	12391871	0	123456-789	0002500000	121222213	ABC COMPANY	01	1	059999990000001
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6|2|2|1|2|3|9|1|8|7|1|0|1|2|3|4|5|6|-|7|8|9|_|_|_|_|_|_|_|_|0|0|0|2|5|0|0|0|0|0|1|2|1|2|2|2|2|1|3|_|_|_|_|_|_|_|_|A|B|C|_|C|O|M|P|A|N|Y|_|_|_|_|_|_|_|_|_|_|_|_|0|1|1|0|5|9|9|9|9|9|9|0|0|0|0|0|0|1|
```

## ADDENDA RECORD

FIELD	1	2	3	4	5
<i>DATA ELEMENT NAME</i>	Record Type Code	Addenda Type Code	Payment Related Information	Addenda Sequence Number	Entry Detail Sequence Number
<i>Field Inclusion Requirement</i>	M	M	O	M	M
<i>Contents</i>	'7'	'05'	Alphameric	Numeric	Numeric
<i>Length</i>	1	2	80	4	7
<i>Position</i>	01-01	02-03	04-83	84-87	88-94

7	05	RMR*IV*43978564*5005.78\	0001	0000001
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[illegible]

## CTX ENTRY DETAIL RECORD

FIELD	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>DATA ELEMENT NAME</i>	Record Type Code	Transaction Code	Receiving DFI Identification	Check Digit	DFI Account Number	Amount	Identification Number	Number of Addenda Records	Receiving Company Name /ID number	Reserved	Discretionary Data	Addenda Record Indicator	Trace Number
<i>Field Inclusion Requirement</i>	M	M	M	M	R	M	O	M	R	N/A	O	M	M
<i>Contents</i>	'6'	Numeric	TTTTAAA	Numeric	Alphameric	\$\$\$\$\$\$\$€	Alphameric	Numeric	Alphameric	Blank	Alphameric	Numeric	Numeric
<i>Length</i>	1	2	8	1	17	10	15	4	16	2	2	1	15
<i>Position</i>	01-01	02-03	04-11	12-12	13-29	30-39	40-54	55-58	59-74	75-76	77-78	79-79	80-94

6	22	09101298	7	918171615	0000218885	98453pay	0009	395554443	1	099912340000055
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[illegible]

## CTX ADDENDA RECORD

FIELD	1	2	3	4	5
<i>DATA ELEMENT NAME</i>	Record Type Code	Addenda Type Code	Payment Related Information	Addenda Sequence Number	Entry Detail Sequence Number
<i>Field Inclusion Requirement</i>	M	M	O	M	M
<i>Contents</i>	'7'	'05'	Alphameric	Numeric	Numeric
<i>Length</i>	1	2	80	4	7
<i>Position</i>	01-01	02-03	04-83	84-87	88-94

7	05	ISA*00*0000000000*00^0000000000 *ZZ*012345678912345*ZZ*543278912546118*110405*113	0001	0000055
7	05	6*U*00304*SEE889740*0*T\GS*RA*012345678912345*5432198765*030415*1136*SEE889740*X	0002	0000055
7	05	*003040\ST*820*000010\BPR *C*55241.12*C*ACH*CTX*01*0916798765*DA*00006355*9044036	0003	0000055
7	05	20*01*091712345*DA*5400596*030531\TRN*1*04401620000052\REF*72*A32507\DTM*097*980	0004	0000055
7	05	530\N1*P*ABC COMPANY\N1*PE*XYZ FOODS INC.*93*A69UIPISAVES\N3*240WASHINGTON AVE.	0005	0000055
7	05	SOUTH*SUITE1425\N4*PODUNKVILLE*MN*556081234\ENT*1\RMR*IV*87945216547**21188.85*	0006	0000055
7	05	21354.10*00\REF*PO*87946598\ DTM*122*110401\ADX*3* .10*L6\REF*98*A32599\REF*TD*B\R	0007	0000055
7	05	MR*IV*8794217863**34052.27*34052.27\DTM*165*110404 \SE*27*0000000001 \GE*1*8888934	0008	0000055
7	05	0\IEA*1*888889340\	0009	0000055



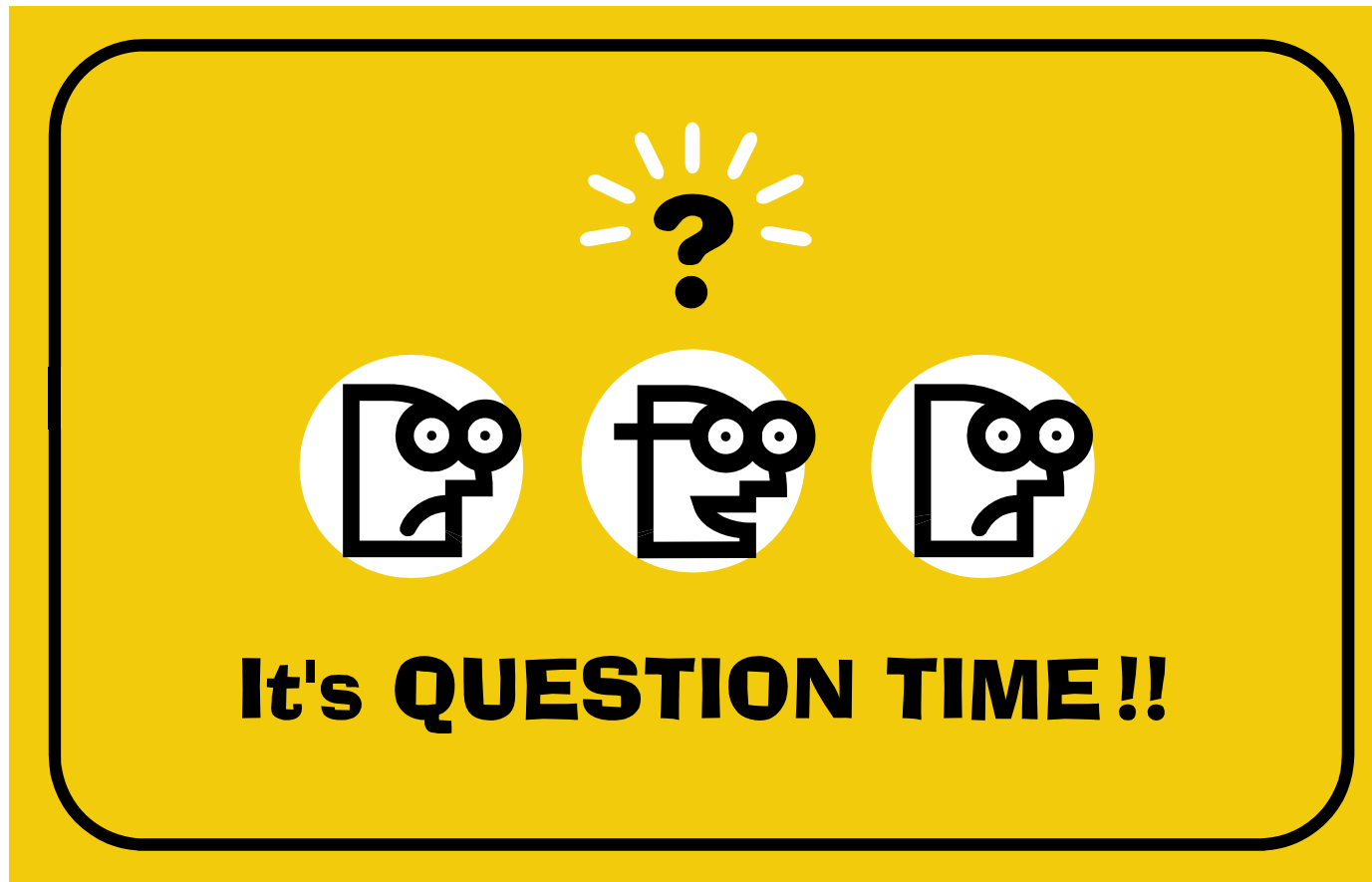
# File or Batch Rejection

- File reject
  - File cannot be read
  - Invalid sending point
  - Mandatory field errors
  - Invalid characters
  - Invalid immediate destination or origin routing number
  - Out-of-balance condition (\$ amounts/hash totals)
- Batch reject
  - Invalid SEC code
  - Mandatory field errors
  - Invalid characters
  - Out-of-balance format condition
    - ODFI/trace numbers

# File Reject or Batch Reject?

- Which reject level will you choose?
- Specific errors will always cause the entire ACH file to reject
  - Mandatory field errors in the file header or file control record
  - Incorrect immediate origin or destination information
  - Out-of-balance entry hash total, block count
- File-Level Reject – the entire ACH file will reject even if the error is specific to one batch
- Batch-Level Reject – when there is only a batch-level error, only the batch with the error will reject (instead of the entire ACH file)
- Rule of Thumb: If you have the ability to recreate at the batch level – choose the batch-level reject option.

# End of Part 3



# Part 4: Activity - Building an ACH File

- Tools for building the file
- The scenario
- Working in groups

# What We Have Learned Today

- ACH data specifications
- Six types of ACH records
  - Sequence
  - Contents
- File and batch rejection

# Closing Comments

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