

# Fundamentals of Financial EDI



# Federal Reserve System's Role Includes

- ✓ Supporting financial institutions
- ✓ Supporting increased use of electronic payment options
- ✓ Supporting federal government initiatives

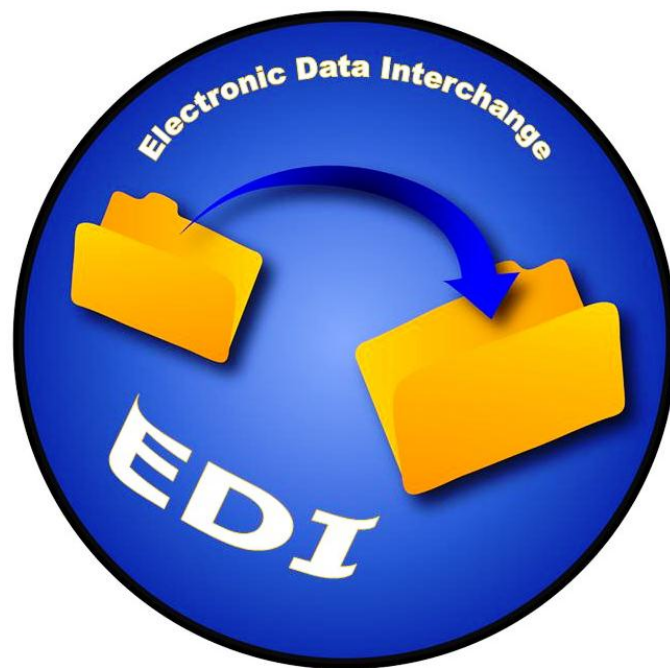




- Educate you about the basics of Electronic Data Interchange (EDI) and financial EDI (FEDI)
- Introduce the FedPayments<sup>®</sup> Reporter Service: The financial EDI parsing and reporting service provided by the Federal Reserve Banks



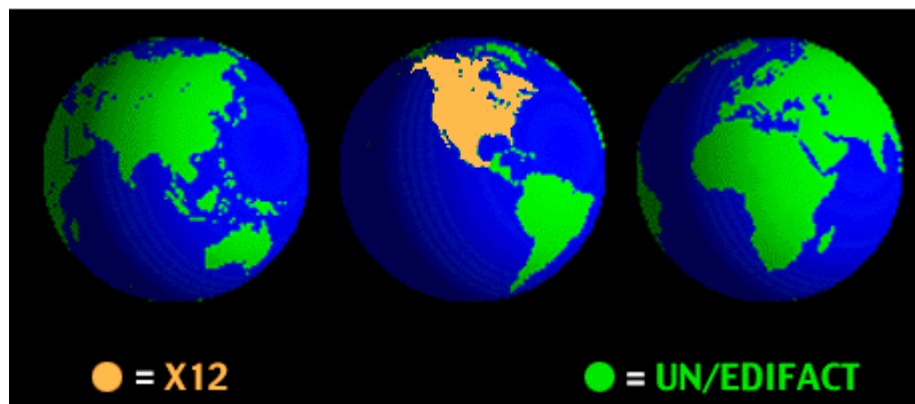
- What EDI is and how it works
- What financial EDI is and how it works
- How and why financial EDI impacts you and your corporate customers
- What receiving financial institutions need to do to assist corporate customers
- Introduction to the FedPayments Reporter Service



What is EDI? The electronic transfer of business information in a standardized, machine-readable format.

# Machine-Readable, Standardized Formats Include

- Proprietary
- Industry Specific
- ANSI X12
- UN/EDIFACT





- Cross-industry standards
- Multi-function: purchase orders, shipping notice, invoice, payment



# Who Uses EDI?

- Large to medium size companies and their trading partners
- Federal government
- State governments





# The Goal of EDI



# Benefits of EDI

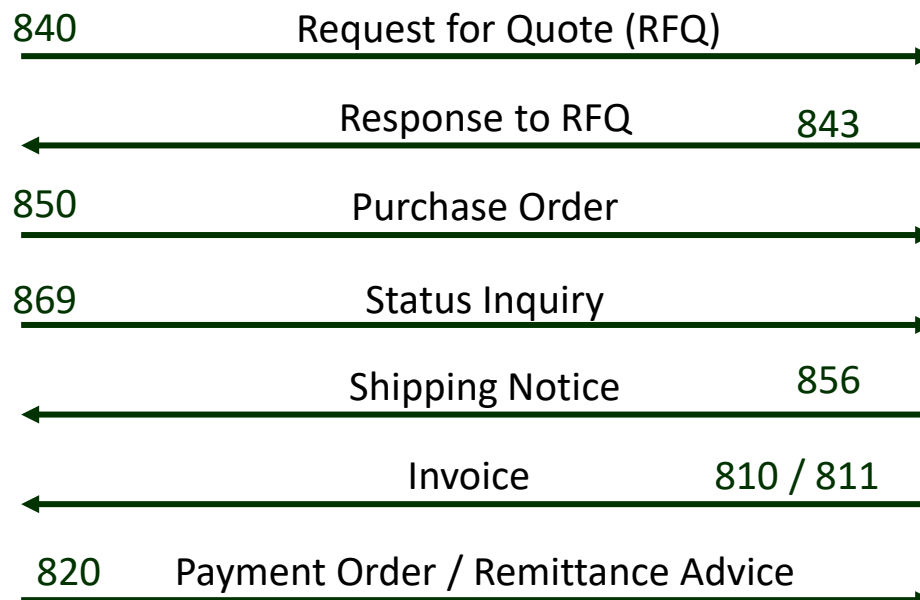
- Better, faster exchange of business information
- Reduced administrative costs
- Fewer errors
- Improved customer service



# Business Activities and EDI

Buyer

Seller



# What Is Financial EDI (FEDI)?

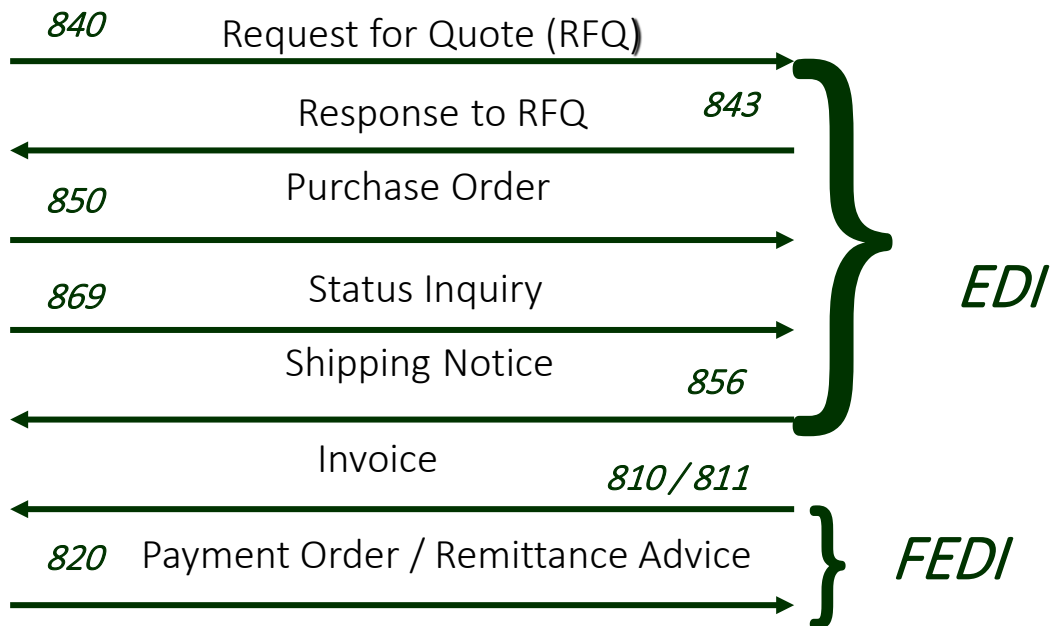
The electronic transfer of payments, payment-related information or other financial documents in a standardized, machine-readable format



# Business Activities and EDI

Buyer

Seller



# Financial EDI

Buyer



Invoice  
810

Seller

Payment Order and

Remittance Advice  
820



Buyer's Financial  
Institution



CTX with 820  
Remittance  
Advice



Seller's Financial  
Institution



Payment Notification and

Remittance Advice  
820



# Financial EDI Benefits and Barriers

## Benefits

- Improved processing efficiency and reduction of costs
- Predictable and accurate cash management
- Enhanced security of payments
- Improved customer service

## Barriers

- Complexity and cost of implementation
- Limited EDI/financial EDI capable trading partners
- Limited support in banking system
- Complexity of standards

# Factors Creating Increased Focus on Financial EDI

- Health care payments
- Increased electronic business-to-business payments
- Federal government mandates
- NACHA requirement to provide remittance data
- Electronic Federal Tax Payment System (EFTPS)
- Mandated child support payments
- State tax and vendor payments



# Financial EDI and the Automated Clearing House (ACH)



# ACH File Structure

File Header (Record #1)

Company Batch Header (Record #5)

Entry Detail (Record #6)

Addenda (Record #7)

Entry Detail (Record #6)

Company Batch Control (Record #8)

File Control (Record #9)





# Example ACH Payment Formats

| PAYMENT FORMAT DESCRIPTION |  | EXAMPLES OF FINANCIAL EDI APPLICATIONS                     |
|----------------------------|--|--|
| <i>Corporate Payments:</i> |  |  |
| CCD+                       | Corporate Credit or Debit with Addenda       | Payment of invoices, taxes, and child support withholdings |
| CTX                        | Corporate Trade Exchange                     | Payment of invoices and taxes                              |
| <i>Consumer Payments:</i>  |  |  |
| CIE                        | Customer Initiated Entry                     | Bill payment through home banking services                 |
| PPD+                       | Prearranged Payment and Deposit with Addenda | Direct deposit of Social Security                          |

# Selected ACH Payment Formats with Addenda

CCD+

PPD+

CIE+



One addenda with 80 characters

CTX+

Up to 9,999 addenda with up to 80 characters each (almost 800,000 total characters per transaction)

# ACH Addenda Record

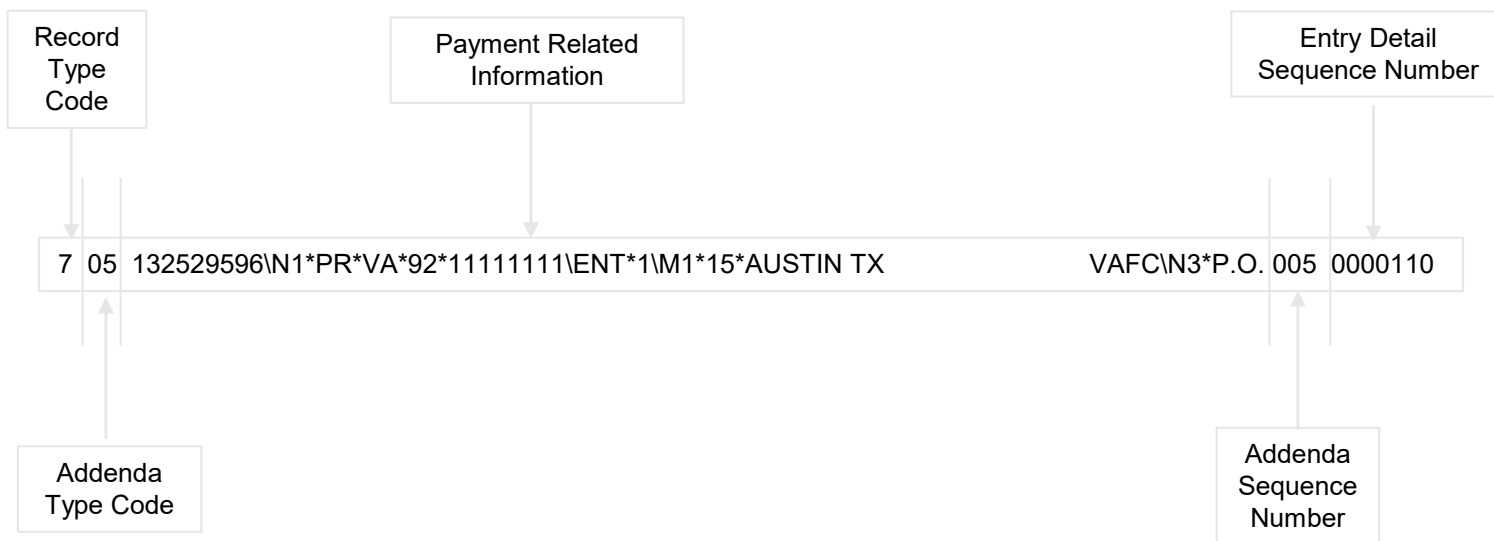
## PPD ADDENDA RECORD

| FIELD                       | 1                | 2                 | 3                           | 4                       | 5                            |
|-----------------------------|------------------|-------------------|-----------------------------|-------------------------|------------------------------|
| DATA ELEMENT NAME           | RECORD TYPE CODE | ADDENDA TYPE CODE | PAYMENT RELATED INFORMATION | ADDENDA SEQUENCE NUMBER | ENTRY DETAIL SEQUENCE NUMBER |
| Field Inclusion Requirement | M                | M                 | O                           | M                       | M                            |
| Contents                    | '7'              | '05'              | Alphameric                  | Numeric                 | Numeric                      |
| Length                      | 1                | 2                 | 80                          | 4                       | 7                            |
| Position                    | 01-01            | 02-03             | 04-83                       | 84-87                   | 88-94                        |

## CCD ADDENDA RECORD

| FIELD                       | 1                | 2                 | 3                           | 4                       | 5                            |
|-----------------------------|------------------|-------------------|-----------------------------|-------------------------|------------------------------|
| DATA ELEMENT NAME           | RECORD TYPE CODE | ADDENDA TYPE CODE | PAYMENT RELATED INFORMATION | ADDENDA SEQUENCE NUMBER | ENTRY DETAIL SEQUENCE NUMBER |
| Field Inclusion Requirement | M                | M                 | O                           | M                       | M                            |
| Contents                    | '7'              | '05'              | Alphameric                  | Numeric                 | Numeric                      |
| Length                      | 1                | 2                 | 80                          | 4                       | 7                            |
| Position                    | 01-01            | 02-03             | 04-83                       | 84-87                   | 88-94                        |

# ACH Addenda Record





# Terms Describing EDI Contents

|   |  |
|---|--|
| <i>Data element</i> - one piece of information  | (Letters)<br>A B C                         |
| <i>Data segment</i> - grouping of data elements   | (Words)<br>D A T A                         |
| <i>Transaction set</i> - combination of data segments representing a standard business document | (Sentences)<br>E D I<br>I S<br>U S E F U L |

# More EDI Terms

- An element separator is a character that separates the various EDI data elements. This character is typically an asterisk “\*” but can be defined to be another character.



- A segment terminator is a character that indicates the end of a segment. This character is typically a back slash “\” but can be defined to be another character.



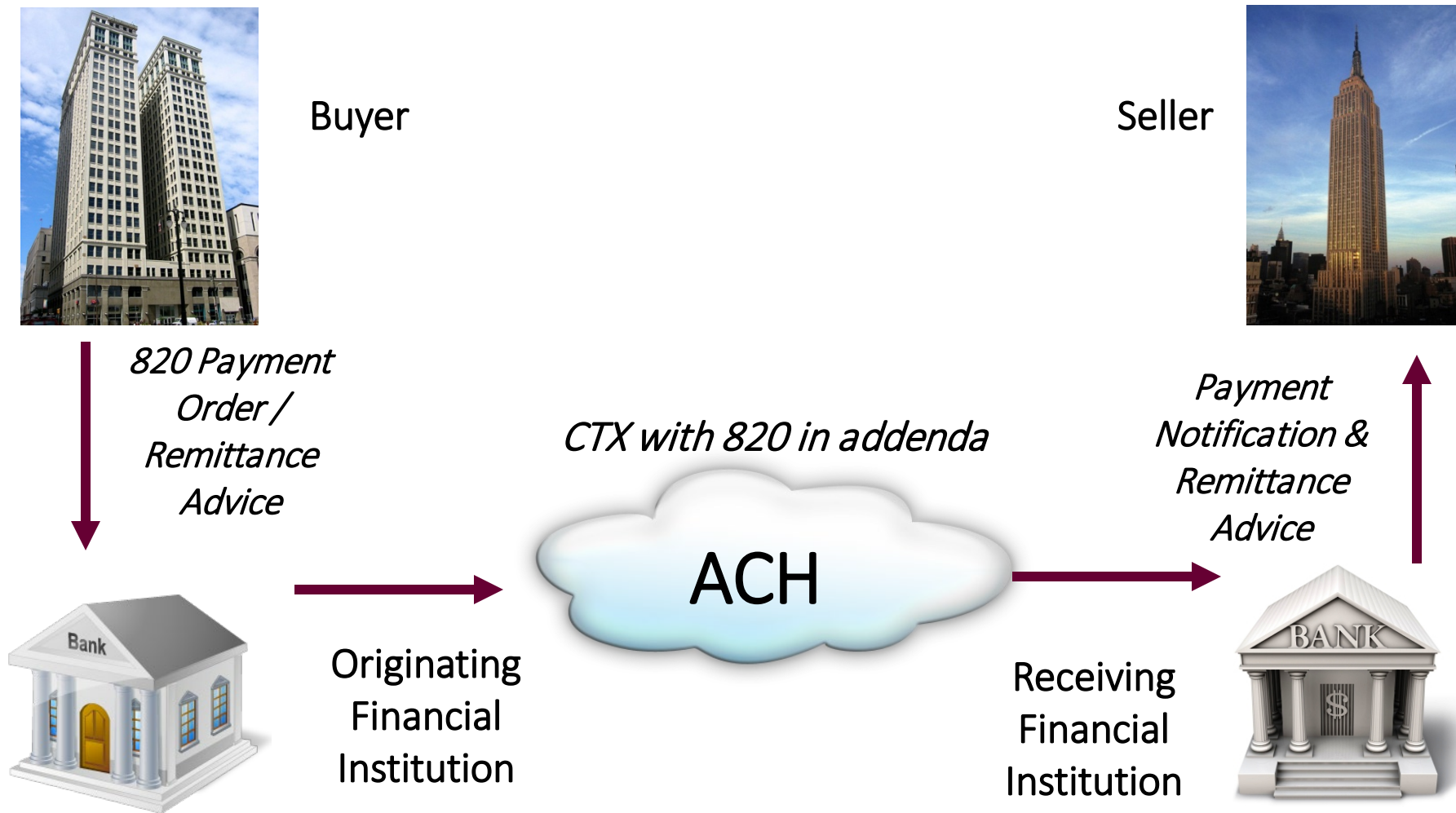
# ANSI X12 Transaction Sets in the ACH Network

- 820 - Payment Order / Remittance Advice
  - ✓ Including the “STP 820” limited segments
- 835 - Health Care Claim Payment / Advice
- 813 - Electronic Filing of Tax Return Data
- 823 – Lockbox deposit records
- 521 – Income or asset offset for child support
- 103 - Abandoned property filings

# BPR / BPS Data Segment

- BPR / BPS = Beginning segment for Payment Order / Remittance Advice
- Data segment containing the payment instructions
- Originating financial institution's computer reads the BPR / BPS data segment

# Financial EDI flow through the ACH Network



# CTX Item with 820 Transaction Set

Data Element Identifying this as an 820 Transaction Set

This Is A CTX Payment Format

COMPANY ABC COMPANY 1510014090 SETT 346 OSC 1  
 EDI/EFT PAYMENT EFFECTIVE ENTRY DATE 01/04/97 **CTX** ORIGIN NO. 1000-0000 BATCH ID NO. 0000026

RECEIVING FINANCIAL INSTITUTION

ITEMS COMPANY NAME AUDIT NUMBER TRACE NUMBER ENTRY TYPE ACCT-NUM DISC DR AMT CR AMT

1010-1111

0009 BIG J FOOD DISTRIBUTOR INC 101000014819993 DEMAND CR 54005969 3644.38

TYPE 05 ADDN ISA\*00\*0000000000\*00\*0000000000\*ZZ\*012345678912345\*ZZ\*543219876543210\*970103\*113  
 TYPE 05 ADDN 6\*U\*00304\*888889340\*0\*T\*\GS\*RA\* 012345678912345 \* 543219876543210 \*970103\*1136\*888889340  
 TYPE 05 ADDN \*X\*003040\ST\***820**\*00000001\ **BPR\*C\*3644.38\*C\*ACH\*CTX\*01\*10222225\*DA\*00006355\*9044**  
 TYPE 05 ADDN **036205\*\*01\*101011115\*DA\*54005969\*970104**\TRN\*1\*044036200000052\REF\*72\*A32507\DTM\*  
 TYPE 05 ADDN 097\*970103\N1\*PR\*ABC COMPANY\N1\*PE\*BIG J FOOD DISTRIBUTOR INC\*93  
 TYPE 05 ADDN \*A691U1F1SAVES\N3\*240 WASHINGTON ST\*SUITE 1425\N4\*CITIES\*KS\*611580201\ENT\*1\RMR\*  
 TYPE 05 ADDN IV\*CAG7010121596\*\*1773.34\*1770.24\*.00\REF\*PO\*CAG95607157010\DTM\*140\*961225\ADX\*3  
 TYPE 05 ADDN .10\*L6\REF\*RB\*07000\REF\*XX\*009\REF\*TD\*B\RMR\*IV\*SJND336122796\*\*1037.04\*1037.04\*.0  
 TYPE 05 ADDN 0\REF\*PO\*SJN95G0715D336\DTM\*140\*970106\RMR\*IV\*642842122796\*\*716.88\*716.88\*.00\RE  
 TYPE 05 ADDN F\*PO\*SKH95G0715D768\DTM\*140\*970106\RMR\*IV\*SJKPD01122696\*\*117.12\*117.12\*.00\REF\*P  
 TYPE 05 ADDN O\*SJK95G0715PD01\DTM\*140\*970106\SE\*27\*000000001\GE\*1\*888889340\IEA\*1\*888889340\

Addenda Containing The Transaction Set

BPR Data Segment

# Tax Payment (TXP) Convention

TXP\*123456789\*94105\*070301\*1\*10000\*2\*5000\*3\*15000\

Taxpayer Identification Number.....123456789

Tax Payment Type Code.....94105

Tax Period End Date.....March 1, 2007

Amount Type - Subcategory Code.....1 (Social Security)

Tax Amount.....\$100.00

Amount Type - Subcategory Code.....2 (Medicare)

Tax Amount.....\$50.00

Amount Type - Subcategory Code.....3 (Withholding)

Tax Amount.....\$150.00

# Child Support (DED)

DED\*II\*ZC146\*071024\*13547\*123456789\*W\*SMITH,HARR\*TX99999\*Y\

Application Identifier.....II (Interstate Income Withholding)

Case Identifier.....ZC146

Pay Date.....October 24, 2007

Payment Amount.....\$135.47

Non-Custodial Parent SS Number...123456789

Medical Support Indicator.....W (Not Applicable)

Non-Custodial Parent Name.....Smith, Harr

FIPS Code.....TX99999 (State, County, & Local Codes)

Employment Termination Indicator..Y (Employee Has Been Terminated)



# CCD-Plus Item with Data Segment

This Is A CCD+ Payment Format

```
COMPANY  BIG EQUIPMENT CO                3001315010  SETT  346 OSC  1
EDI/EFT PAYMENT  EFFECTIVE ENTRY DATE 12-02-07  CCD  ORIGIN NO. 1000-0000  BATCH ID NO. 0000031

RECEIVING FINANCIAL INSTITUTION
INDIVIDUAL NAME  ID NUMBER  TRACE NUMBER  ENTRY TYPE  ACCT-NUM  DISC  DR AMT  CR AMT

1010-1111
TRACTORS INTL                071000141009993  DEMAND CR  666020                5000.21
TYPE 05 ADDN  RMR*IV*101078**5000.21*5000.21*.00\
```

Data Segment

# Remittance Advice (RMR)

RMR\*IV\*101078\*\*5000.21\*5000.21\*.00\

|                              |              |
|------------------------------|--------------|
| Data Element Identifier..... | IV (Invoice) |
| Invoice Number.....          | 101078       |
| Paid Amount.....             | \$5,000.21   |
| Invoice Amount.....          | \$5,000.21   |
| Discount Taken.....          | \$0.00       |



# CTX Item with 820 Transaction Set

Data Element Identifying this is  
an 820 Transaction Set

This Is A CTX Payment  
Format

COMPANY ABC COMPANY 1510014090 SETT 346 OSC 1  
EDI/EFT PAYMENT EFFECTIVE ENTRY DATE 01-07-07 **CTX** ORIGIN NO. 1000-0000 BATCH ID NO. 0000026

RECEIVING FINANCIAL INSTITUTION

ITEMS COMPANY NAME AUDIT NUMBER TRACE NUMBER ENTRY TYPE ACCT-NUM DISC DR AMT CR AMT

1010-1111

0009 BIG J FOOD DISTRIBUTOR INC 101000014819993 DEMAND CR 54005969 3644.38

TYPE 05 ADDN ISA\*00\*000000000\*00\*000000000\*ZZ\*012345678912345\*ZZ\*543219876543210\*970103\*113  
 TYPE 05 ADDN 6\*U\*00304\*888889340\*0\*T\*\GS\*RA\* 012345678912345 \* 543219876543210 \*070104\*1136\*888889340  
 TYPE 05 ADDN \*X\*003040\ST\***820**\*000000001\ **BPR\*C\*3644.38\*C\*ACH\*CTX\*01\*10222225\*DA\*00006355\*9044**  
 TYPE 05 ADDN **036205\*\*01\*101011115\*DA\*54005969\*970104**\TRN\*1\*044036200000052\REF\*72\*A32507\DTM\*  
 TYPE 05 ADDN 097\*970103\N1\*PR\*ABC COMPANY\N1\*PE\*BIG J FOOD DISTRIBUTOR INC\*93  
 TYPE 05 ADDN \*A691U1F1SAVES\N3\*240 WASHINGTON ST\*SUITE 1425\N4\*CITIES\*KS\*611580201\ENT\*1\RMR\*  
 TYPE 05 ADDN IV\*CAG7010121596\*\*1773.34\*1770.24\*.00\REF\*PO\*CAG95607157010\DTM\*140\*961225\ADX\*3  
 TYPE 05 ADDN .10\*L6\REF\*RB\*07000\REF\*XX\*009\REF\*TD\*B\RMR\*IV\*SJND336122796\*\*1037.04\*1037.04\*.0  
 TYPE 05 ADDN 0\REF\*PO\*SJN95G0715D336\DTM\*140\*970106\RMR\*IV\*642842122796\*\*716.88\*716.88\*.00\RE  
 TYPE 05 ADDN F\*PO\*SKH95G0715D768\DTM\*140\*970106\RMR\*IV\*SJKPD01122696\*\*117.12\*117.12\*.00\REF\*P  
 TYPE 05 ADDN O\*SJK95G0715PD01\DTM\*140\*970106\SE\*27\*000000001\GE\*1\*888889340\NEA\*1\*888889340\

Addenda Containing The  
Transaction Set

BPR Data Segment

# 820 Payment Order/Remittance Advice

ISA\*00\*0000000000\*00\*0000000000\*ZZ\*012345678912345\*ZZ\*543219876543210 \*070104\*113  
6\*U\*00304\*888889340\*0\*T\*:\GS\*RA\* 012345678912345 \* 543219876543210 \*070104\*1136\*888889340  
\*X\*003040\ST\*820\*000000001\BPR\*C\*3644.38\*C\*ACH\*CTX\*01\*102222225\*DA\*00006355\*9044  
036205\*\*01\*101011115\*DA\*54005969\*970104\TRN\*1\*044036200000052\REF\*72\*A32507\DTM\*  
097\*970103\N1\*PR\*ABC COMPANY\N1\*PE\*BIG J FOOD DISTRIBUTOR INC\*93  
\*A691U1F1SAVES\N3\*240 WASHINGTON ST\*SUITE 1425\N4\*CITIES\*KS\*611580201\ENT\*1\RMR\*  
IV\*CAG7010121596\*\*1773.34\*1770.24\*.00\REF\*PO\*CAG95607157010\DTM\*140\*961225\ADX\*3  
.10\*L6\REF\*RB\*07000\REF\*XX\*009\REF\*TD\*B\RMR\*IV\*SJND336122796\*\*1037.04\*1037.04\*.0  
0\REF\*PO\*SJN95G0715D336\DTM\*140\*970106\RMR\*IV\*642842122796\*\*716.88\*716.88\*.00\RE  
F\*PO\*SKH95G0715D768\DTM\*140\*970106\RMR\*IV\*SJKPD01122696\*\*117.12\*117.12\*.00\REF\*P  
O\*SJK95G0715PD01\DTM\*140\*970106\SE\*27\*000000001\GE\*1\*888889340\IEA\*1\*888889340\

# Explanation of 820 Transaction Set

BPR\*C\*3644.38\*C\*ACH\*CTX\*01\*102222225\*DA\*00006355\*9044036205  
\*\*01\*101011115\*DA\*54005969\*070104\

- Payment to be accompanied by remittance advice
- \$3,644.38 = total payment amount
- Credit receiver and debit originator
- Use ACH for funds transfer
- Use CTX format

# Explanation of 820 Transaction Set

BPR\*C\*3644.38\*C\*ACH\*CTX\*01\*102222225\*DA\*00006355\*  
9044036205\*\*01\*101011115\*DA\*54005969\*070104\

- Originating financial institution's RTN = 102222225
- Debit account number 00006355
- Originating Company Identifier = 9044036205
- Receiving financial institution's RTN = 101011115
- Credit account number 54005969
- Effective entry date is January 4, 2007

# Explanation of 820 Transaction Set

N1\*PR\*ABC COMPANY\N1\*PE\*BIG J FOOD DISTRIBUTOR INC\*93\*  
A691U1F1SAVES\N3\*240 WASHINGTON ST\*SUIE  
1425\N4\*CITIES\*KS\*611580201\

- Payor is ABC Company
- Payee is Big J Food Distributor Inc.
- Payee's address is:

240 Washington St  
Suite 1425  
Cities, KS 61158-0201

# Explanation of 820 Transaction Set

RMR\*IV\*CAG7010121596\*\*1773.34\*1770.24\*.00\

- Seller's invoice number = CAG7010121596
- This is a payment for an open item
- \$1,773.34 = net amount paid
- \$1,770.24 = total invoice amount
- No discount was taken



# The RDFI is required to...



Receiving  
Financial  
Institution

*ACH Addenda  
Information*

*Deliver  
information to  
receivers*

Human-  
Readable  
Report  
Format



Machine-  
Readable Data  
Format



*...and post that payment*

# EDI Resources

- National Automated Clearing House Association (Nacha)  
<https://www.nacha.org>
- American National Standards Institute (ANSI)  
<https://www.ansi.org>
- Financial Management Service of the U.S. Treasury (FMS)  
<https://www.fiscal.treasury.gov/>
- Accredited Standards Committee X12  
<http://www.X12.org>



The [FedPayments Reporter service](#) can parse EDI and generate a wide variety of human-readable reports and machine-readable files for different audiences (RDFI, ODFI, Receiver, Originator).



Get all of the details and activate  
the [FedPayments Reporter Service](#)