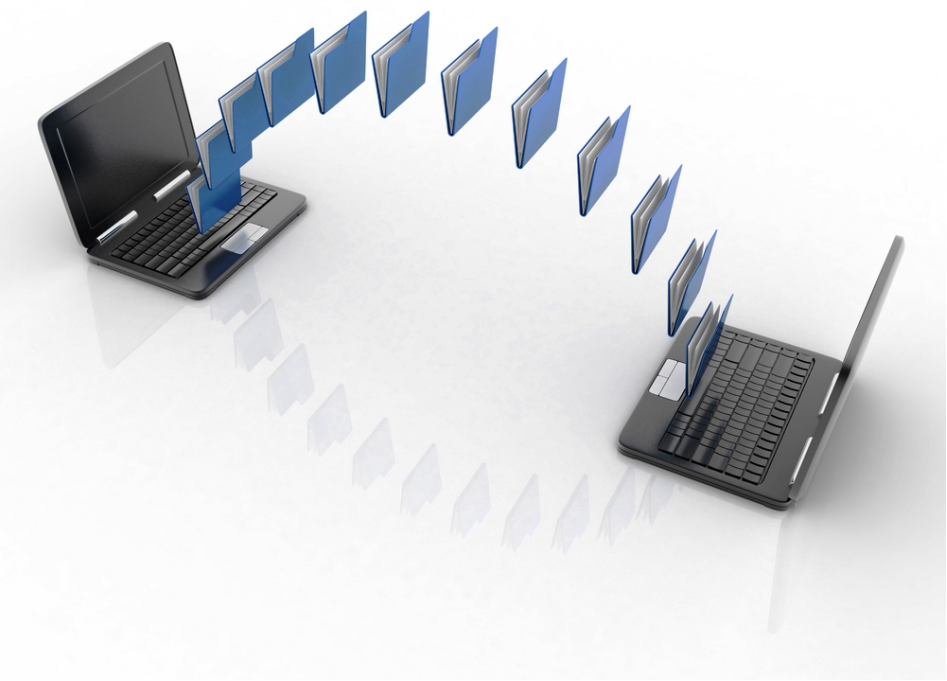
Fundamentals of Financial EDI



Revised 4/9/2015

FEDERAL RESERVE FINANCIAL SERVICES

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)

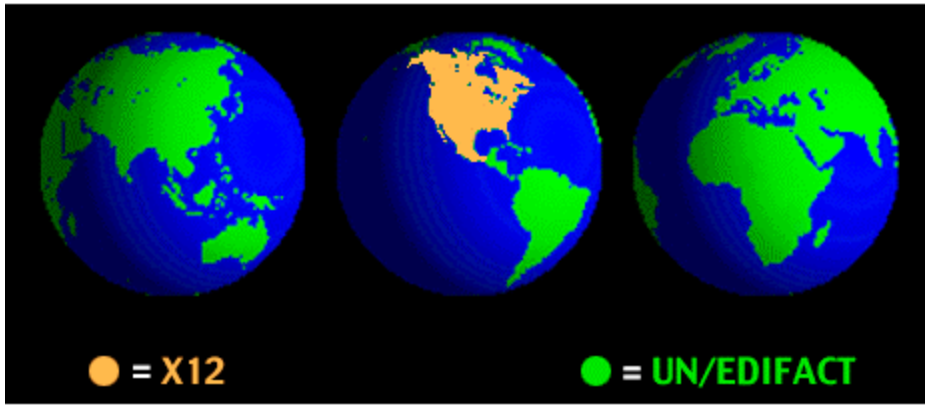
- Introduce the FedPayments® Reporter Service: The financial EDI parsing and reporting service provided by the Federal Reserve Banks

- 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



ANSI
American National Standards Institute

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

DISA
Data Interchange Standards Association

ASC X12
The Accredited Standards Committee

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

840 Request for Quote (RFQ) →

← Response to RFQ 843

850 Purchase Order →

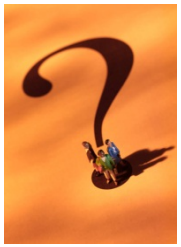
869 Status Inquiry →

← Shipping Notice 856

← Invoice 810 / 811

820 Payment Order / Remittance Advice →

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

840 Request for Quote (RFQ) →

← Response to RFQ 843

850 Purchase Order →

869 Status Inquiry →

← Shipping Notice 856

} EDI

← Invoice 810 / 811

820 Payment Order / Remittance Advice →

} FEDI

Financial EDI

Buyer

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

Invoice
810

Seller

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

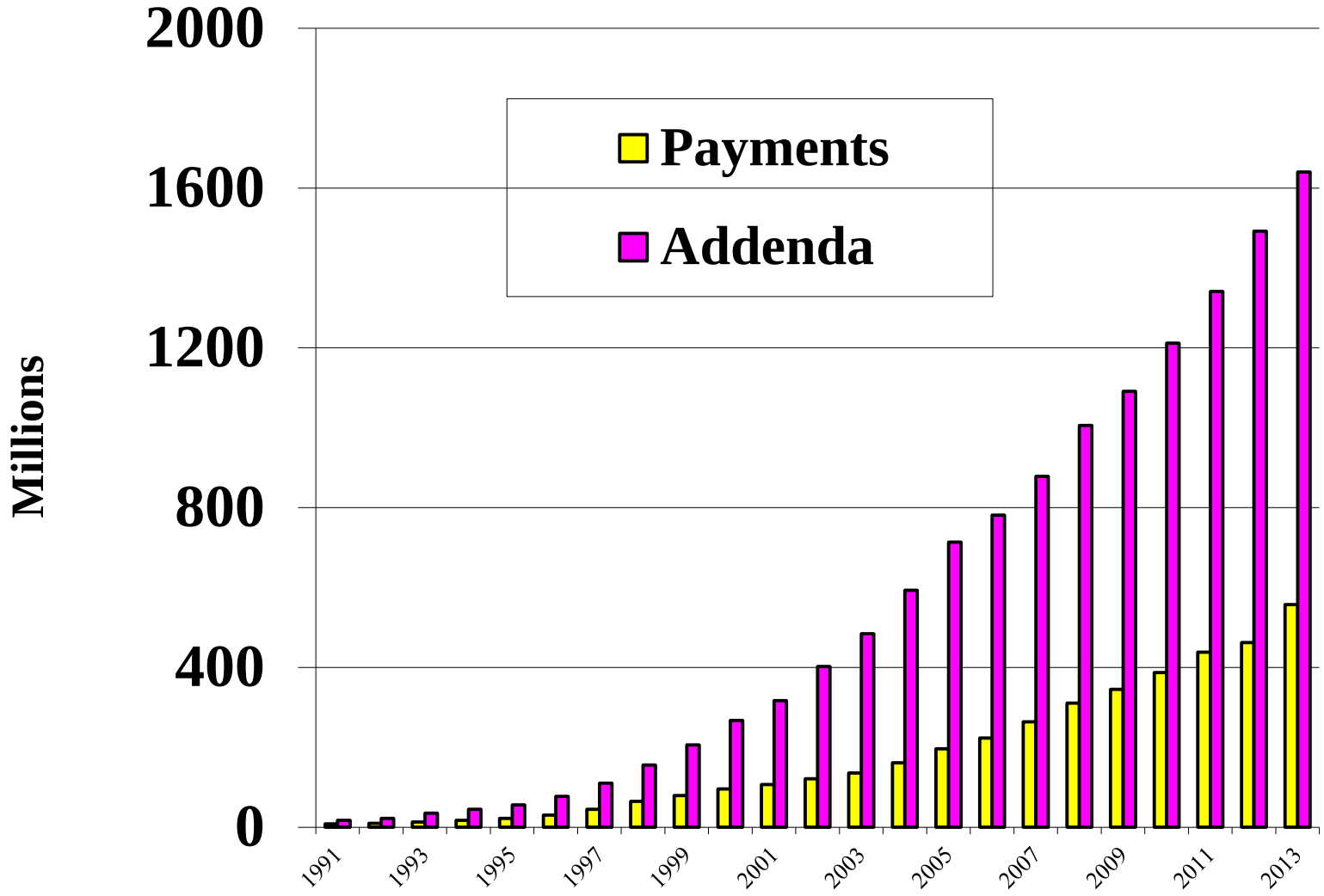
- Complexity and cost of implementation
- Limited EDI/financial EDI capable trading partners
- Limited support in banking system
- Complexity of standards

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)

Financial EDI on the ACH Network



Source: NACHA; does not include estimates of on-us payments.

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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)

Sample ACH File with EDI

```
101 101088811 1010888119810081119A094101First National Bank          First National Bank
5200US TREASURY                          123456789 CTXEDI MISC          9803130722103088810000100
622101088811000000089002079490000272393                 009SURESOURCE INC     AK1103088810000110
705ISA*00*0000000000*00*0000000000*ZZ*11111111TRS       *ZZ*US TREASURY       980312*00200010000110
7053*U*00200*000000463*0P*    \GS*RA*11111111TRS*US TREASURY*980312*0023*463*X*00304000020000110
705\ST*820*008004284\BPR*C*2723.93*C*ACH*CTX*01*103088819*ZZ*11111111***01*1010888100030000110
7051*DA*8900207949*980313*VEN\REF*72*M980311301\REF*55*00000009\N1*ZZ*695925231*F1*00040000110
705132529596\N1*PR*VA*92*11111111\ENT*1\M1*15*AUSTIN TX                    VAFC\N3*P.O.0050000110
705 BOX 999999\N4*****BS*AUSTIN,  TX    78714\PER*IC*VENDR-INQUIRY*TE*  (  512  )  415   -   1900060000110
70598\N1*PE*SURESOURCE      INC\RMR*IV*PM267039**2660*0\REF*DD*CV5257A216402\DTM*0000070000110
7053*9702924\RMR*IV*PM266666**40.93*40.93*0\REF*DD*CV5257A216403\DTM*003*970924\ADX*00080000110
70523*01\SE*19*008004284\GE*1*463\IEA*1*000000463\                                  00090000110
82000000100010108881000000000000000000272393123456789                                10308810000100
90000010000020000001000101088810000000000000000000272393
99999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
99999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
99999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
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99999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
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```

Sample ACH File with EDI

```
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5200US TREASURY                          123456789 CTXEDI MISC              9803130722103088810000100
622101088811000000089002079490000272393                 009SURESOURCE INC     AK1103088810000110
705ISA*00*0000000000*00*0000000000*ZZ*11111111TRS        *ZZ*US TREASURY       980312*00200010000110
7053*U*00200*000000463*0P*    \GS*RA*11111111TRS*US TREASURY*980312*0023*463*X*00304000020000110
705\ST*820*008004284\BPR*C*2723.93*C*ACH*CTX*01*103088819*ZZ*11111111***01*1010888100030000110
7051*DA*8900207949*980313*VEN\REF*72*M980311301\REF*55*00000009\N1*ZZ*695925231*F1*00040000110
705132529596\N1*PR*VA*92*11111111\ENT*1\M1*15*AUSTIN TX                          VAFC\N3*P.O.0050000110
705 BOX 999999\N4*****BS*AUSTIN,  TX    78714\PER*IC*VENDR-INQUIRY*TE*  (  512  )  415   -   1900060000110
70598\N1*PE*SURESOURCE      INC\RMR*IV*PM267039**2660*0\REF*DD*CV5257A216402\DTM*0000070000110
7053*9702924\RMR*IV*PM266666**40.93*40.93*0\REF*DD*CV5257A216403\DTM*003*970924\ADX*00080000110
70523*01\SE*19*008004284\GE*1*463\IEA*1*000000463\                                          00090000110
820000001000101088810000000000000000000272393123456789                                  10308810000100
9000001000002000000100010108881000000000000000000272393
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
```

Example ACH Payment Formats

PAYMENT FORMAT DESCRIPTION		EXAMPLES OF FINANCIAL EDI APPLICATIONS
Corporate Payments:		
CCD+	Corporate Credit or Debit with Addenda	Payment of invoices, taxes, and child support withholdings
CTX	Corporate Trade Exchange	Payment of invoices and taxes
Consumer Payments:		
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

Record Type Code

Payment Related Information

Entry Detail Sequence Number

7	05	132529596\N1*PR*VA*92*11111111\ENT*1\M1*15*AUSTIN TX VAFC\N3*P.O.	005	0000110

Addenda Type Code

Addenda Sequence Number

Terms Describing EDI Contents

Data element - one piece of information

(Letters)

A B C

Data segment - grouping of data elements

(Words)

D A T A

Transaction set - combination of data segments representing a standard business document

(Sentences)

E D I

I S

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

ANSI
American National Standards Institute

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

Buyer

Seller

820 Payment Order / Remittance Advice

CTX with 820 in addenda

Payment Notification & Remittance Advice

ACH

Originating Financial Institution

Receiving Financial Institution

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*000000001\  BPR*C*3644.38*C*ACH*CTX*01*102222225*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 01-04-07        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*0000000000*00*0000000000*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*102222225*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

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*SUITE 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

- Federal Reserve Banks
  http://FRBservices.org/fedach
- National Automated Clearing House Association (NACHA)
  http://www.nacha.org
- American National Standards Institute (ANSI)
  http://www.ansi.org
- Data Interchange Standards Institute (DISA)
  http://www.disa.org
- Financial Management Service of the U.S. Treasury (FMS)
  http://www.fms.treas.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). Detailed descriptions and sample reports are available at the link below.

http://FRBservices.org/serviceofferings/fedach/fededi.html

Additional Resources

More information is available at

http://FRBservices.org/serviceofferings/fedach/fededi.html

Fee information available at

http://FRBservices.org/servicefees/

Who to contact? My FedDirectory®

http://FRBservices.org/contacts/

http://FRBservices.org/fedach

Get all of the details and learn how to activate the FedPayments Reporter Service