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® 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>840</td>
<td>Request for Quote (RFQ)</td>
</tr>
<tr>
<td>850</td>
<td>Purchase Order</td>
</tr>
<tr>
<td>869</td>
<td>Status Inquiry</td>
</tr>
</tbody>
</table>

Response to RFQ 843

Seller

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>843</td>
<td>Response to RFQ</td>
</tr>
<tr>
<td>856</td>
<td>Shipping Notice</td>
</tr>
<tr>
<td>810 / 811</td>
<td>Invoice</td>
</tr>
<tr>
<td>820</td>
<td>Payment Order / Remittance Advice</td>
</tr>
</tbody>
</table>
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**

- **840** Request for Quote (RFQ)
- **850** Purchase Order
- **869** Status Inquiry
- **820** Payment Order / Remittance Advice

**Seller**

- **843** Response to RFQ
- **856** Shipping Notice
- **810 / 811** Invoice

**EDI**

**FEDI**
Financial EDI

- **Buyer**: Payment Order and Remittance Advice 820
- **Buyer’s Financial Institution**: CTX with 820 Remittance Advice
- **Seller**: Invoice 810
- **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)
Financial EDI on the ACH Network

Payments
Addenda

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

<table>
<thead>
<tr>
<th>Account Number</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 101088811 1010888119810081119A094101First National Bank</td>
<td>First National Bank</td>
<td></td>
</tr>
<tr>
<td>5200US TREASURY</td>
<td>123456789 CTXEDI MISC</td>
<td>9803130722103088810000100</td>
</tr>
<tr>
<td>622101088811000000089002079490000272393</td>
<td>009SURESOURCE INC AK1103088810000110</td>
<td></td>
</tr>
<tr>
<td>705ISA<em>00</em>0000000000<em>ZZ</em>11111111TRS</td>
<td><em>ZZ</em>US TREASURY 980312*0020010000110</td>
<td></td>
</tr>
<tr>
<td>7053<em>U</em>00200<em>000000463</em>0P*</td>
<td>GS<em>RA</em>11111111TRS<em>US TREASURY</em>980312<em>0023</em>463<em>X</em>00304000020000110</td>
<td></td>
</tr>
<tr>
<td>705<em>ST</em>820<em>008004284\BPR</em>C<em>2723.93</em>C<em>ACH</em>CTX<em>01</em>103088819<em>ZZ</em>11111111**<em>01</em>1010888100030000110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7051<em>DA</em>8900207949<em>980313</em>VEN\REF<em>72</em>M9803131301\REF<em>55</em>00000009\N1<em>ZZ</em>695925231<em>F1</em>00040000110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>705132529596\N1<em>PR</em>VA<em>92</em>11111111\ENT<em>1\M1</em>15*AUSTIN TX</td>
<td>VAFC\N3*P.O.0050000110</td>
<td></td>
</tr>
<tr>
<td>705 BOX 9999999N4*****BS<em>AUSTIN, TX 78714\PER</em>IC<em>VENDR-INQUIRY</em>TE* (512) 415 - 190006000110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70598\N1<em>PE</em>SURESOURCE INC\RMR<em>IV</em>PM2617039**2660<em>0\REF</em>DD<em>CV5257A216402\DTM</em>0000070000110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7053<em>9702924\RMR</em>IV<em>PM266666**40.93</em>40.93<em>0\REF</em>DD<em>CV5257A216403\DTM</em>003<em>970924\ADX</em>00080000110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70523<em>01\SE</em>19<em>008004284\GE</em>1<em>463\IAE</em>1*000000463\</td>
<td>00090000110</td>
<td></td>
</tr>
<tr>
<td>820000000100101088810000000000000000000272393123456789</td>
<td>10308810000100</td>
<td></td>
</tr>
<tr>
<td>90000010000002000000101088810000000000000000272393</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sample ACH File with EDI
## Example ACH Payment Formats

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

<table>
<thead>
<tr>
<th>FIELD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA ELEMENT NAME</td>
<td>RECORD TYPE CODE</td>
<td>ADDENDA TYPE CODE</td>
<td>PAYMENT RELATED INFORMATION</td>
<td>ADDENDA SEQUENCE NUMBER</td>
<td>ENTRY DETAIL SEQUENCE NUMBER</td>
</tr>
<tr>
<td>Field Inclusion Requirement</td>
<td>-</td>
<td>M</td>
<td>M</td>
<td>0</td>
<td>M</td>
</tr>
<tr>
<td>Contents</td>
<td>'7'</td>
<td>'05'</td>
<td>Alphabetic</td>
<td>Numeric</td>
<td>Numeric</td>
</tr>
<tr>
<td>Length</td>
<td>1</td>
<td>2</td>
<td>80</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Position</td>
<td>01-01</td>
<td>02-03</td>
<td>04-83</td>
<td>84-87</td>
<td>88-94</td>
</tr>
</tbody>
</table>

## CCD Addenda Record

<table>
<thead>
<tr>
<th>FIELD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA ELEMENT NAME</td>
<td>RECORD TYPE CODE</td>
<td>ADDENDA TYPE CODE</td>
<td>PAYMENT RELATED INFORMATION</td>
<td>ADDENDA SEQUENCE NUMBER</td>
<td>ENTRY DETAIL SEQUENCE NUMBER</td>
</tr>
<tr>
<td>Field Inclusion Requirement</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Contents</td>
<td>'7'</td>
<td>'05'</td>
<td>Alphabetic</td>
<td>Numeric</td>
<td>Numeric</td>
</tr>
<tr>
<td>Length</td>
<td>1</td>
<td>2</td>
<td>80</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Position</td>
<td>01-01</td>
<td>02-03</td>
<td>04-83</td>
<td>84-87</td>
<td>88-94</td>
</tr>
</tbody>
</table>
ACH Addenda Record

Record Type Code: 7 05
Addenda Type Code: 132529596\N1*PR*VA*92*11111111\ENT*1\M1*15*AUSTIN TX
Payment Related Information: VAFC\N3*P.O.
Entry Detail Sequence Number: 005 0000110
Addenda Sequence Number:
Terms Describing EDI Contents

*Data element* - one piece of information

*Data segment* - grouping of data elements

*Transaction set* - combination of data segments representing a standard business document
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 with 820 in addenda

820 Payment Order / Remittance Advice

Starting Financial Institution

ACH

Payment Notification & Remittance Advice

Receiving Financial Institution

Payment

Order / Remittance Advice

Originating Financial Institution

Buyer

Seller
**CTX Item with 820 Transaction Set**

<table>
<thead>
<tr>
<th>Item</th>
<th>Company Name</th>
<th>Audit Number</th>
<th>Trace Number</th>
<th>Entry Type</th>
<th>Account Number</th>
<th>Discount</th>
<th>DR Amount</th>
<th>CR Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1010-1111</td>
<td>BIG J FOOD DISTRIBUTOR INC</td>
<td>101000014819993</td>
<td>DEMAND</td>
<td>CR</td>
<td>54005969</td>
<td>3644.38</td>
<td>54005969</td>
<td>3644.38</td>
</tr>
</tbody>
</table>

### Data Element Identifying this as an 820 Transaction Set

- **COMPANY ABC COMPANY**
- **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**
- **Account Number**
- **Discount**
- **DR Amount**
- **CR Amount**

---

**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)

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)
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\n
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 10100014819993 DEMAND CR 54005969 3644.38

Addenda Containing The Transaction Set

BPR Data Segment
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*0440362000000052\REF*72*A32507\DTM* 097*970103\N1*PR*ABC COMPANY\N1*PE*BIG J FOOD DISTRIBUTOR INC*93 \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*SKH95G0715D768\DTM*140*970106\RMR*IV*642842122796**716.88*716.88*.00\RE F*PO*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\n
• 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\n
- 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...

- Receive 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