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

- 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
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
Shipping Notice
Invoice
820 Payment Order / Remittance Advice

Seller

EDI

843 Response to RFQ
856 Shipping Notice
810/811 Invoice
810/811 Payment Order / Remittance Advice

FEDI
Financial EDI

Buyer

Payment Order and
Remittance Advice
820

Buyer’s Financial Institution

CTX with 820 Remittance Advice

Seller

Invoice
810

Payment Notification and
Remittance Advice
820

Seller’s Financial Institution

ACH
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

<table>
<thead>
<tr>
<th>Source Account</th>
<th>Destination Account</th>
<th>Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 101088811</td>
<td>1010888119810081119</td>
<td><strong>$100.00</strong></td>
<td><strong>SURESOURCE INC</strong></td>
</tr>
<tr>
<td><strong>$100.00</strong></td>
<td><strong>$100.00</strong></td>
<td><strong>5200US TREASURY</strong></td>
<td><strong>CTXEDI MISC</strong></td>
</tr>
<tr>
<td><strong>$100.00</strong></td>
<td><strong>$100.00</strong></td>
<td><strong>First National Bank</strong></td>
<td><strong>First National Bank</strong></td>
</tr>
</tbody>
</table>

**Note:** This is a sample ACH file with EDI. Actual transactions would include specific details such as account numbers, amounts, and bank names.
Sample ACH File with EDI

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 101088811 1010888119810081119A094101</td>
<td>First National Bank</td>
</tr>
<tr>
<td>5200 US TREASURY</td>
<td>First National Bank</td>
</tr>
<tr>
<td>62210108881100000008902079490000272393</td>
<td>009 SURESOURCE INC</td>
</tr>
<tr>
<td>705 ISA 00<em>000000000</em>00<em>0000000000</em>ZZ*11111111 TRS</td>
<td><em>ZZ</em> US TREASURY</td>
</tr>
<tr>
<td>705 U 00200<em>0000000463</em>0P*</td>
<td>GS RA 111111111 TRS</td>
</tr>
<tr>
<td>705 T 820*008004284</td>
<td>IBPR C 2723.93</td>
</tr>
<tr>
<td>705 ST 820*008004284</td>
<td>IBPR C 2723.93</td>
</tr>
<tr>
<td>705 DA 8900207949</td>
<td>980313 VEN REF</td>
</tr>
<tr>
<td>705 132529596 N1 PR VA 92 11111111</td>
<td>ENT 1 M1 15 AUSTIN TX</td>
</tr>
<tr>
<td>705 98 N1 PE SURESOURCE INC</td>
<td>RM R M267039 **2660 *0</td>
</tr>
<tr>
<td>705 23 01 SE 19 *008004284</td>
<td>GE 1 *463</td>
</tr>
<tr>
<td>82000000100010108881000000000000000272393123456789</td>
<td>10308810000100</td>
</tr>
<tr>
<td>9000001000000200000010001010888100000000000000000272393</td>
<td>10308810000100</td>
</tr>
</tbody>
</table>

**Note:** This is a sample ACH file used for financial transactions. The numbers and names are placeholders and do not represent real financial information.
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>M</td>
<td>M</td>
<td>O</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>

### 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>O</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

<table>
<thead>
<tr>
<th>Record Type Code</th>
<th>Payment Related Information</th>
<th>Entry Detail Sequence Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 05 132529596</td>
<td>N1<em>PR</em>VA<em>92</em>11111111\ENT<em>1\M1</em>15*AUSTIN TX</td>
<td>VAFC\N3*P.O. 005 0000110</td>
</tr>
</tbody>
</table>

Addenda Type Code
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’s computer reads the BPR / BPS data segment
Financial EDI flow through the ACH Network

820 Payment Order / Remittance Advice

CTX with 820 in addenda

ACH

Payment Notification & Remittance Advice

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
EDIFACT PAYMENT: SETT 346 OSC 1
EFFECTIVE ENTRY DATE: 01-04-97
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
### Tax Payment (TXP) Convention

<table>
<thead>
<tr>
<th>TXP<em>123456789</em>94105<em>070301</em>1<em>10000</em>2<em>5000</em>3*15000\</th>
</tr>
</thead>
</table>

- **Taxpayer Identification Number**: 123456789
- **Tax Payment Type Code**: 94105
- **Tax Period End Date**: March 1, 2007
- **Amount Type - Subcategory Code**
  - 1 (Social Security): $100.00
  - 2 (Medicare): $50.00
  - 3 (Withholding): $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

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>BIG EQUIPMENT CO</th>
<th>3001315010</th>
<th>SETT</th>
<th>346</th>
<th>OSC</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI/EFT PAYMENT</td>
<td>EFFECTIVE ENTRY DATE</td>
<td>12-02-07</td>
<td>CCD ORIGIN NO.</td>
<td>1000-0000</td>
<td>BATCH ID NO.</td>
<td>0000031</td>
</tr>
</tbody>
</table>

**RECEIVING FINANCIAL INSTITUTION**

<table>
<thead>
<tr>
<th>INDIVIDUAL NAME</th>
<th>ID NUMBER</th>
<th>TRACE NUMBER</th>
<th>ENTRY TYPE</th>
<th>ACCT-NUM</th>
<th>DISC</th>
<th>DR AMT</th>
<th>CR AMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1010-1111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACTORS INTL</td>
<td>071000141009993</td>
<td>DEMAND CR</td>
<td>666020</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE 05 ADDN</td>
<td><strong>RMR<em>IV</em>101078</strong></td>
<td><strong>5000.21</strong></td>
<td><strong>5000.21</strong></td>
<td><strong>.00</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is a CCD+ Payment Format
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*

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>ABC COMPANY</th>
<th>1510014090</th>
<th>SETT 346</th>
<th>OSC 1</th>
<th>CTX</th>
</tr>
</thead>
</table>

*This Is A CTX Payment Format*

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*0000000001\BPR*C*3644.38*C*ACH*CTX*01*102222225*DA*00006355*9044
036205*1*01011115*DA*54005969*970104\TRN*1*0440362000000052\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*.0\RE
F*PO*SKH95G0715D768\DTM*140*970106\RMR*IV*SJKPD01122696**117.12*117.12*.0\REF*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*0102222225*DA*00006355*9044036205**01*011011115*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\n
• 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...

...and post that payment
EDL 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**