ACH FILE FORMAT SPECIFICATION

ACH File Layout

Overview of NACHA File Record Requirements

There are six types of NACHA records; only five are required for building ACH entries into a data file. The addenda record is not required. The following shows the NACHA file record structure:

(1) File header record
(5) Company/batch header record
(6) Entry detail record
(7) Addenda record
(8) Company/batch control record
(9) File control record

Each file begins with a file header record. After the file header are one or more batches; each batch is identified by a company/batch header record and contains one or more entry detail records. The number of addenda records that accompany each entry is dependent upon the standard entry class code. At the end of each batch is a company/batch control record, and the file is ended with a file control record. Any other sequence will cause the file to be rejected.

File Header Record (Type 1)

The file header record designates physical file characteristics and identifies the immediate origin (sending point or ACH operator) and destination (receiving point or ACH operator) of the entries contained within the file or within the transmitted batch data. In addition, this record includes date, time and file identification fields, which can be used to identify the file uniquely.

Company/Batch Header Record (Type 5)

The company/batch header record identifies the company and briefly describes the prearranged paperless debit or credit. For example, “GAS BILL” or “REG SALARY” indicates the reason for the transaction originated by the originator.

The company/batch header record contains the transit routing/ABA number of the originating depository financial institution (DFI) for settlement, routing of returns, and other control purposes. In addition, the company/batch header record can indicate the intended effective date of all transactions within the batch. The information contained in the company/batch header record applies uniformly to all subsequent entry detail records in the batch.

Entry Detail Record (Type 6)

Entry detail records contain that information sufficient to relate the entry to the receiver; including the individual DFI account number, identification number, name, and the debit or credit amount as indicated by the transaction code.

The information in the company/batch header record must be incorporated with entry detail records to describe fully that entry and all participants in the transaction. The information in the company/batch header record identifies:

- originator
- trace number identifying the originating DFI
- DFI account information identifying both the receiving DFI and the specific receiver’s account

The identification of the ACH operator is implied through the transit routing numbers of the originating and receiving DFIs. In addition to the basic entry format, transaction codes for entry detail records have been defined to accommodate prenotification records, zero dollar entries, and return entries.

Prenotifications are identical to the basic entry format but contain appropriate transaction codes and zeros in the amount field. Prenotifications can be batched with other dollar entries or batched separately.

Zero dollar entries are identical to the basic entry format but contain appropriate transaction codes and zeros in the amount field. Zero dollar entries can be batched with other CCD dollar entries or batched separately. A zero dollar entry must be accompanied by at least one addenda record.

Addenda Record (Type 7)

The entry addenda record is used to supply additional information related to entry detail records. Addenda records associated with the original entry detail record are not included with any entry detail record being returned. Only NACHA-sanctioned formats are permitted in this record.

Company/Batch Control Record (Type 8)

The company/batch control record contains counts, hash totals, and total dollar controls for the preceding detail entries within the indicated batch.

All entry detail records are hashed. Both entry detail records and addenda records are included in the entry/addenda counts; batch header and batch control records are not included.

Since prenotification records and addenda records are non-dollar records, they are excluded from the total dollar control amounts.

Prenotifications are hashed. Addenda records are not hashed. Both prenotification and addenda records are included in the entry/addenda counts.

File Control Record (Type 9)

The file control record contains dollar, entry and hash total accumulations from the company/batch control records in the file. This record also contains counts of the numbers of blocks and the number of batches within the file (or batched data transmitted to a single destination).

Field Content and Usage

Data Specifications

All alphanumeric and alphabetic fields must be left-justified and space-filled. All numeric fields must be right-justified, unsigned, and zero-filled. Characters used in ACH records are restricted to the following:

- Numbers 0-9.
- Space.
- Special characters with an EBCDIC value greater than hexadecimal 3F or an ASCII value greater than hexadecimal 1F. Occurrences of values EBCDIC 00-3F and ASCII 00-1F are not valid.

The following characters are not allowed in an ACH file:

^ * { } [ ] | \

Alphanumeric Fields

Any field defined as alphanumeric can consist of numbers or letters, and ***must be left justified*** with any remaining position spaces.

For example, for a field defined as 18 alphanumeric characters, a value of x9x would be “x9xbbbbbbbbbbbbbb”, where b=spaces.

Numeric Fields

Any field defined as numeric can consist of numbers only, unsigned, no decimal point, and ***must be right justified*** with any remaining positions as zeros.

For example, for a field defined as 18 numeric characters, a value of 18.50 would be "000000000000001850".

File Header Record

Field	Field Position	Field Length	Description
record type	1	1	Always "1".
priority code	2-3	2	Always "01".
SFC Bank transit routing number	4-13	10	**086519421** Begins with a space. (Immediate destination)
Company ID	14-23	10	Your company taxpayer ID. Begins with a space (**immediate origin**) **Note:** A new prenotification process is required if you change your customer ID.
file creation date	24-29	6	File creation date (YYMMDD).
file creation time	30-33	4	File creation time (HHMM), military format (2400), company time.
file modifier	34	1	"A" for the first ACH input file each day. Increment to "B", "C", and so on for additional files sent the same day. Must be uppercase.
record size	35-37	3	Always "094".
blocking factor	38-39	2	Always "10".
format code	40	1	Always "1".
origination bank	41-63	23	**Springfield First Commu** (immediate destination name)
company name	64-86	23	Your company name (immediate origin name)
reference code	87-94	8	Use for reference or leave blank.

Company Batch Header Record

Field	Field Position	Field Length	Description
record type	1	1	Always "5".
service class	2-4	3	Always "200".
company name	5-20	16	Your company name. Should be identical to the company name in the file header record.
company discretionary data	21-40	20	Optional field. Information in this field is significant to the company alone for reporting purposes only.

Field	Field Position	Field Length	Description
company ID	41-50	10	Your company ID. Normally identical to the company ID/taxpayer ID in the file header record. Starts with "1" (ICD Code) If a file has multiple batches and the offset account number is different for each batch, the company id must be different for each batch.
standard entry class	51-53	3	See description of standard entry class codes following this table.
company entry description	54-63	10	Company-defined description of the entry to the receiver ("GAS BILL", "PAYROLL").
company descriptive date	64-69	6	Company-defined reference date for the receiver (for descriptive purposes only). Never used to control timing of settlement/posting. Examples of possible entries in this field: "090697" "09 97" "SEPT 06" "SEPT 97".
effective entry date	70-75	6	Format YYMMDD. Company-defined date on which entries in the batch are to be settled/posted to the accounts. For credit batches, the company is responsible for funding settlement account for full amount of the batch on the effective entry date. The effective entry date for credit entries (such as direct deposit of payroll) should generally be two banking days following the date the file is received by SFC Bank. This allows the receiving DFI to make the credits available to the receivers at the opening of business on the settlement/posting date.
Julian Settlement date	76-78	3	Settlement date in Julian format (Blank-Fed enters).
status code	79	1	Always "1".
transit/routing number	80-87	8	ODFI Transit/routing number of SFC Bank.
batch number	88-94	7	Assigned starting from "1" in ascending sequence for each batch header record.

For the standard entry class field, enter one of the following:

- "CCD" (cash concentration or disbursement—corporate entries). For debits and credits used to distribute or consolidate funds between corporate entities. May be accompanied by an addenda record that relays information in the ANSI ASC X12.4 standard or NACHA-endorsed banking conventions.
- "PPD" (prearranged payment and deposit entries—consumer entries). For credits or debits which transfer funds into or from consumers accounts. Direct deposit (credits) can represent a variety of products, such as payroll, interest, pension, dividends, and expense reimbursements. Direct payments (debits) can represent a variety of products, including loans, mortgages, and insurance premiums. A PPD entry may be accompanied by one addenda record that relays information using data segments on the ANSI ASC X12.4 standard or NACHA endorsed banking conventions.

Entry Detail Records

Prearranged payment or deposit (PPD) is a credit or debit application which transfers funds into or from a consumer's account. Direct deposit (credits) can represent products such as payroll, interest, pension, dividends, and expense reimbursements. Direct payments (debits) can represent products such as loans, mortgages, and insurance premiums.

A PPD entry can be accompanied by one addenda record that relays additional information using data segments of the ANSI ASC X12.4 standard or NACHA endorsed banking conventions. This is termed PPD+.

Cash concentration or disbursement (CCD) can be either a credit or debit application where funds are distributed or consolidated between corporate entities. A CCD entry can be accompanied by one addenda record that relays information in the ANSI ASC X12.4 standard or NACHA-endorsed banking conventions. This is termed CCD+.

Field	Field Position	Field Length	Description
record type	1	1	Always "6".
transaction code	2-3	2	For checking accounts, one of the following: "22" credit "23" prenotification credit "27" debit "28" prenotification debit For savings accounts, one of the following: "32" credit "33" prenotification credit "37" debit "38" prenotification debit
receiving DFI transit/routing no.	4-11	8	Transit/routing number of financial institution where the transaction is to be posted.
check digit	12	1	See method for computing check digit following this table (last digit of the RT).
receiving account number	13-29	17	Account number to be credited or debited. Obtained from the "on-us" field of the MICR line of a voided check or other source document provided by the receiving DFI. Account number formats vary among financial institutions. Left-justify and enter only numbers (0-9) and hyphens (-). If information is obtained from another source, alpha characters may be included. If this number must be changed, a new prenotification process is required unless the update is a result of a notification of change.
amount	30-39	10	The dollar amount to post to the receiver's account. Must consist of numbers only, unsigned, no decimal point, and ***right justified*** with remaining positions as zeros. Example: $18.50 would be entered as "0000001850".
individual/ company ID number	40-54	15	Optional field. Typically contains the accounting number by which the receiver is known to the company. Used for further identification and for descriptive purposes.

Field	Field Position	Field Length	Description
individual/ company name	55-76	22	Name of the receiver (individual or company) of the ACH transaction.
spaces	77-78	2	Two spaces.
addenda record indicator	79	1	If "1", indicates that one addenda record follows this record; "0" indicates there is no addenda record. Addenda records are optional and only used for unique applications.
trace number	80-94	15	Uniquely identifies each entry within a batch in an ACH input file. The first eight positions should be the transit/routing number of SFC Bank. The next seven position should be in sequential order, starting with "0000001". **Note:** This field must be filled by your company.

Check Digit

The check digit is computed using Modulus 10 as follows:

1. Multiply each digit in the transit routing number by a weighing factor. The weighing factors for each position are:

   Position: 1 2 3 4 5 6 7 8

   Weights: 3 7 1 3 7 1 3 7
2. Add the results of the eight multiplications.
3. Subtract the sum from the next highest multiple of 10. The result is the check digit.

Example:

transit routing number: 0 7 6 4 0 1 2 5

multiply by weight: 3 7 1 3 7 1 3 7

sum: 0 49 6 12 0 1 6 35 = 109

check digit = 1 (110 minus 109)

Addenda Record

Addenda records are used to provide additional payment related information regarding entry detailed records. There can be one addenda record for each entry.

Addenda records should not be utilized without notifying your Treasury Management Consultant. Files received utilizing addenda records without appropriate bank setup may be rejected by the system.

Field	Field Position	Field Length	Description
record type	1	1	Always "7".
addenda type code	2-3	2	Always "5".

Field	Field Position	Field Length	Description
payment-related information	04-83	80	Use an asterisk (*) as the delimiter between data segments and a backslash (\ ) as the terminator between the data segments. Addenda records contain ANSI ASC X12.4 and X12.85 data segments or NACHA-endorsed banking conventions.
addenda sequence number	84-87	4	Consecutively assigned to each addenda record following an entry detail record.
entry detail sequence number	88-94	7	Same as the last seven digits of the trace number of the related entry detail record.

Company/Batch Control Record

Field	Field Position	Field Length	Description
record type	1	1	Always “8”.
service class code	2-4	3	Always “200”.
entry/addenda count	5-10	6	Tally of entry detail and addenda records in the batch.
batch hash count	11-20	10	Used as a check against inadvertent alteration of data contents due to hardware failure or program error. **Note:** Addenda records are not hashed. The batch hash count is the sum of receiving DFI transit/routing numbers in entry detail records in the batch. The 10-character hash is the **sum of the 8-digit** routing numbers, with leading zeros added as needed and overflow out of the high order (leftmost) position ignored. Example: 12320448 12320545 12320401 12320465 0049281859
total batch debit dollar amount	21-32	12	The sum of entry detail **debit** totals within the batch. Right-justify and zero-fill the field.
total batch credit dollar amount	33-44	12	The sum of entry detail **credit** totals within the batch. Right-justify and zero-fill the field.
company ID number	45-54	10	Must be the same company ID number used in the company/batch header record for this batch.

Field	Field Position	Field Length	Description
message authentication (MAC)	55-73	19	Optional. Eight-character code derived from a special key used in conjunction with the DES algorithm. The MAC is used to validate the authenticity of ACH entries. DES algorithm and key message standards must be in accordance with standards adopted by the American National Standards Institute. The remaining eleven characters of this field are blank.
blank	74-79	6	Reserved.
SFC Bank transit/routing number	80-87	8	The same as the SFC Bank transit/routing number used in the company/batch header record for the batch (originating bank RT)
batch number	88-94	7	Must be the same batch number used in the company/batch header record for the batch.

File Control Record

Field	Field Position	Field Length	Description
record type	1	1	Always “9”.
file batch count	2-7	6	Number of batches in the file.
file block count	8-13	6	The number of physical blocks in the file. One block equals ten 94-byte records. The file header, company/batch header, entry detail, addenda, company/batch control, and file control records are included in the block count. **Note:** The last block may contain less than 10 records but still counts as a full block. Example: a file with 95 records would have a block count of ‘10’.
file entry count	14-21	8	Tally of entry detail and addenda records in the file.
file entry hash totals	22-31	10	Sum of batch entry hash totals field in all company/batch control records. Add leading zeros as needed, and ignore overflow out of the high order (leftmost) position if the sum is more than ten digits.
total file debit entry amount	32-43	12	The sum of entry detail **debit** totals within the file. Right-justify and zero-fill the field.
total file credit entry amount	44-55	12	The sum of entry detail **credit** totals within the file. Right-justify and zero-fill the field.
filler (spaces)	56-94	39	Must have spaces to make record 94 characters; do not leave blank.

Glossary

ABA number	American Banking Association number. See *transit routing number*.
ACH	See *Automated Clearing House*.
ACH Association	An association of member financial institutions organized to provide ACH services. ACH association members receive standardized specifications, a legal framework for participant protection, a link to the nationwide ACH network, and education materials and programs.
ACH operator	An Automated Clearing House that exchanges and settles ACH transactions between ODFIs and RDFIs.
ACH rules	The Operating Rules and Guidelines of the National Automated Clearing House Association (NACHA) which provide nationally accepted standards and constitutes the cooperative foundation for the ACH payment system, both locally and nationally.
addenda record	Addenda records (Type 7) are used to provide additional payment-related information regarding entry detail records. Entries can have one addenda record.
alphanumeric	Any character 0-9, A-Z, blank, and printable special characters which have an EBCDIC value greater than hexadecimal 3F.
ANSI ASC	American National Standards Institute – Accredited Standards Committee
Article 4A	Refers to Article 4A of the Uniform Commercial Code.
Automated Clearing House (ACH)	A funds transfer system governed by the NACHA Rules which provides for the interbank clearing of electronic entries.
authorization	An agreement between an originating company and its employee/customer whereby the employee/customer authorizes the company to originate electronic entries that affect his or her account.
batch	A group of ACH transactions in a data file sent by a customer to SFC Bank for processing through the ACH network. Each data file includes one or more batches. In the data file, a batch consists of a batch header record, entry detail records and any associated addenda records, and a batch control record.
buffer	A temporary storage space for data.
CCD	Cash Concentration or Disbursement. The Standard Entry Class (SEC) code used to identify debits and credits used to distribute or consolidate funds between corporate entities.
CCD+	A CCD entry accompanied by an addenda record. Only one addenda record can accompany each CCD entry.
CCITT	An international committee that establishes standards for data communication.
company	See *originating company*.
company/ financial institution agreement	An agreement executed between an originating company and its ODFI citing the responsibilities of each regarding the exchange and processing of ACH entries.
compression	An option that can be used to remove embedded blanks when there are more than three consecutive blanks.

consumer account	A deposit account established by a natural person primarily for personal, family, or household and not for commercial purposes.
CRC	Cyclical redundancy check. A method of error checking to ensure data integrity of a transmitted file.
credit entry	A paperless, electronic entry used to credit a customer's account.
data collection	The process of sending batch files from customers to SFC Bank. Examples include the submission of payroll data to SFC's host computer from a remote site.
debit entry	A paperless, electronic entry used to debit a customer's account.
DFI	Depository financial institution.
EBCDIC	A standard developed by IBM that is used to define how data is encoded.
effective entry date	A date in the company/batch header record that designates the effective date an item should be posted to the account.
EFT	Electronic funds transfer.
entry	A preauthorized paperless electronic deposit (credit) or payment (debit).
file	A group of entries complying with the standard ACH record format specifications.
host site	SFC Bank's mainframe computer that receives batch files and stores them as VSAM batch files for processing through the ACH network.
Julian date	A consecutive number assigned to each calendar day of the year. For example, January 1st has a Julian date of 001 while December 31st has a Julian date of 365 (except in a leap year, when it is 366).
mainframe computer	A large, multi-user computer used for large applications.
microcomputer	A personal computer.
mini-computer	A multi-user computer which is smaller than a mainframe computer.
NACHA	National Automated Clearing House Association. An association of banks and other institutions whose purpose is to establish standards for ACH transactions.
notification of change (NOC)	An ACH entry created by an RDFI to notify the originator that previously valid information contained in a posted entry has become outdated or that information contained in a prenotification is erroneous and should be changed.
OACH	Originating Automated Clearing House.
ODFI	Originating Depository Financial Institution.
On-us entries	ACH entries (transactions) extracted by the ODFI that apply solely to accounts maintained by that ODFI. These entries are not sent through the ACH.
organization	A corporation, partnership, association, or other entity (government of private), or natural person (provided that, in the case of a natural person, any deposit account of such person to be debited or credited with the amount of any entry is maintained primarily for commercial, not personal, family, or household purposes).

Originating Automated Clearing House (OACH)	An ACH operator that receives ACH entries from an ODFI which are to be forwarded to the RACH for posting that the receiver's account at the RDFI.
originating company	Also called "originator." An organization that transmits ACH entries (credits and debits) to an ODFI which are processed through the ACH network for posting to the receivers' accounts.
Originating Depository Financial Institution (ODFI)	A participating depository financial institution which receives ACH entries from originators. The ODFI transmits the entries to an ACH operator for transmittal to the RDFI.
prenotification	A non-dollar entry sent through the ACH network to allow the RDFI to verify account information. Prenotifications convey the same information (with the exception of the dollar amount and transaction code) that will be carried on subsequent entries and must be sent 6 calendar days prior to the live entries.
RACH	See *Receiving Automated Clearing House*.
RDFI	See *Receiving Depository Financial Institution*.
receiver	An entity, a natural person, or corporation which has authorized an originator to initiate an entry to the receiver's deposit account with a RDFI.
Receiving Automatic Clearing House	An ACH operator that receives ACH entries from an OACH to be forwarded to the RDFIs for posting to the receivers' accounts.
Receiving Depository Financial Institution (RDFI)	A participating depository financial institution which receives ACH entries from an ACH operator. The RDFI posts the entries to the receivers' accounts.
remote site	Customer's computer system and data communication equipment.
returned item	A paperless electronic entry that is returned back to the originator by the RDFI or receiver for reasons such as closed account and non-sufficient funds (NSF).
settlement date	The date on which the entries are posted to the accounts of the originator and receiver.
Standard Entry Class (SEC) code	A three-character mnemonic in ACH files to distinguish standard ACH entries. For example, PPD represents a prearranged payment and deposit.
trace number	A 15-digit number assigned by an ODFI to a paperless, electronic entry. The first eight digits of the trace number consist of the ABA transit/routing number of the ODFI. The last seven digits are assigned in ascending sequence.
transit/routing number	An eight-digit number used to identify a financial institution involved with an ACH transaction.
truncate	To remove trailing blanks from records.
warehousing	The practice of holding future-dated ACH credits and debits for processing on the basis of effective entry dates.
zero dollar entry	An entry which carries a zero amount but does include payment-related remittance data.