Audit Un-Known Cash
draft-iesg-aukc-00.txt

Status of this Memo

Copyright Notice

Abstract

   The issue concerns auditing financial records from several sources
   over time. To validate proper legal money usage and flow is a
   difficult task. Each financial institution has non-common reporting
   methods. Seek to create a common export record to merge transactions
   and easily sort by date , time , and institution. The first goal is
   to create a traceability file of transactions. The second goal is to
   create a "simple" standard record for "anyone" to sift and sort
   records.

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[1](#). Introduction

Audit Financial Records

Each day numerous financial records and transactions occur. People
are put in charge as guardians or trustees for the young or old ,
who cannot handle their own affairs. Additional people may be called
upon after the fact to validate and audit prior actions.

All financial instutions have unique and different reporting
methods. There is no single tool or method to extract a "common"
data format. Institution A may have PDF files , Institution B may
have XLS files. Institution C may only have paper reports. To sow
these records together is a large manual task. The man is working
for the machine.

Eliminate having the user reinventing the wheel each time an audit
is required , or manually key stroking data. Automate the process of
gathering data into a uniform method.

Current Audit Process To Get Records

```
   +------------------------------------------------------------+
   |                                                            |
   |                                                            |
   |       /======/     /======/     /======/     /======/ |
   |      /YEAR n/      /YEAR n/      /YEAR n/      /YEAR n/| |
   |     / ... /      / ... /      / ... /      / ... / | |
   |    /YEAR 3/       /YEAR 3/       /YEAR 3/       /YEAR 3/  | |
   |   /YEAR 2/        /YEAR 2/        /YEAR 2/        /YEAR 2/    | |
   |  /YEAR 1/        /YEAR 1/        /YEAR 1/        /YEAR 1/      | |
   | |======|        |======|        |======|        |======|     / |
   | | INST. |       | INST. |       | INST. |       | INST. |    /  |
   | |  A    |       |  B    |       |  C    |       |  D    |   /   |
   | |       | /     |       | /     |       | /     |       | /    |
   | | BANK  |/      | BANK  |/      | STOCK |/      | SS    |/     |
   | |======|        |======|        |======|        |======|      |
   |     |               |               |               |         |
   |     V               V               V               V         |
   |    =========================================             |
   |    ========== Gather Record Sets ==========             |
   |    =========================================             |
   |                      |                                     |
   |                      V                                     |
   |            ##############                                  |
   |            #            #                                  |
   |            #    AUDIT    #                                  |
   |            #   PROCESS   #                                  |
   |            #            #                                  |
   |            ##############                                  |
   |                                                            |
   |                                                            |
   +---------------------------------------------------------=-+
```

Audit Process

Gather records , filter records , add records to a computer file.
Analyze the data , look for patterns. Report the findings.

2. Conventions used in this document

In examples, "C:" and "S:" indicate lines sent by the client and server respectively.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

In this document, these words will appear with that interpretation only when in ALL CAPS. Lower case uses of these words are not to be interpreted as carrying significance described in RFC 2119.

In this document, the characters ">>" preceding an indented line(s) indicates a statement using the key words listed above. This convention aids reviewers in quickly identifying or finding the portions of this RFC covered by these keywords.

[3](#). Explain New Record Type and Function

    Create common record for any user.

    Target the intended audience !
    Think as a non-computer expert. Think of non-computer people that do
    jobs ; such as accounting , law enforcement , lawyers , judges ,
    banks , credit unions , estate management , and family relatives.
    Think of simple computer users that who want to manipulate data.
    There are numerous standards for computer data , e.g. iCal , vCard.

    A common record type for auditing financial transactions is needed.
    A record that will span time , time zones , dates and currencies.

    If there is a set of records from Instution A , and another set from
    Instution B. Each will provide data that points back to the other
    instution.

    Record set:
    Record Owner A has Affiliate B
          (source points forward to destination)
    Record Owner B has Affiliate A
          (destination points back to source)

    Records should net out.

    The left side of the handshake is always the record owner , the
    right side is always the affiliate.

    The record is a constant format , only the handshake flag flips
    direction to indicate source and destination.

    Who owns the record ? The reporting instution is the record owner of
    the data. The affiliate is the other half of the transaction.
    How did the money move in or out and by what method ?

    This new proposed record will show the process and direction of how
    the money moved. All the data should be available in today's
    environment.

    The audit question is: Where did the cash go ?

```
+---------------------------------------------------------------------+
|                                                                     |
|     Explain Audit Steps and Flags                                   |
|                                                                     |
|                                Handshake                            |
|                                Flag                                 |
|                                ||                                   |
|                                ||   Gain or Loss Flag               |
|                                ||   ||                              |
|                Record          ||   ||                              |
|   Record Owner  Owner          ||   ||    Affiliate    Affiliate    |
|   Instution     Account        ||   ||    Instution    Account      |
|   Number        Number         VV   VV    Number        Number      |
|                                                                     |
|   ----09------  ----10-----  11  12   -----13----- ----14-----     |
|   12345678      acc12345678  =>  -1   99997777     acc99997777     |
|   99997777      acc99997777  <=  +1   12345678     acc12345678     |
|                                                                     |
|  Constant record format from the record owner provides:            |
|        a) The instution numbers crisscross:                        |
|           fields (09,10) crisscross fields (13,14)                 |
|           for a given transaction (GUID).                          |
|        b) The Handshake Flags (11) nets out.                       |
|           The source always points to the destination.            |
|        c) The Gain Loss Flags (12) net out.                        |
|        d) Since this netted out and both instutions               |
|           are known - assume proper money flow.                   |
|        e) If there are extra unexplained transactions at          |
|           the destination or a missing destination then           |
|           further investigation is required.                       |
|        f) Get additional accounts and records as needed.          |
+---------------------------------------------------------------------+
```

[4](#). **Prototype Data**

   Below are several screens (RFC ASCII figures) that display a
   potential solution. Each record has date and time stamp information
   and other data. The key is to have the creator of the record as the
   first instution (left). Then the affiliate instution (right) as the
   handshake. Each transaction has an initiator and a receiver. If both
   instutions create the same format record , it becomes a simple
   crisscross reference match.

   This a protype of record layout names:
   Counter - Field Name
   01 - Record Type
   02 - Date
   03 - Time
   04 - AM or PM indicator
   05 - Zone
   06 - UTC
   07 - UTC Offset
   08 - Day Name
   09 - GUID
   10 - Record Owner
   11 - Record Owner Account Number
   12 - Handshake Flag
   13 - Gain/Loss Flag
   14 - Record Affiliate
   15 - Record Affiliate Account Number
   16 - Transaction Type
   17 - Transaction Sub Type
   18 - Teller ID / Station ID
   19 - Amount of Transaction
   20 - Currency Code
   21 - Country and Currency
   22 - DUNS
   23 - Name
   24 - Street/PO Box
   25 - City
   26 - State/Province
   27 - Country
   28 - ZIP/Postal Code
   29 - Comment
   30 - End of Record Marker (FX)

RFC ASCII figure A.1 Data Examples

```
+-------------------------------------------------------------------+
| Four (4) sets of examples over next five (5) pages.               |
|                                                                   |
|                                                                   |
|                                                                   |
| R T                                         O                     |
| e y                                         f                     |
| c p                         Z               f                     |
| o e                         o               U s                   |
| r                       AM n                T e Day               |
| d     Date       Time    PM e   UTC         C t Name              |
|                                                                   |
| -01- ----02---- --03---- 04 05- ---06--- 07- ----08---            |
| AUKC 2019-01-31 14:45:59 PM CDT 20:45:59 +06 Thursday             |
| AUKC 2019-02-01 04:01:00 AM CDT 10:01:00 +06 Friday               |
| This shows the transactions netted out.                          |
|                                                                   |
| AUKC 2019-01-22 15:53:11 PM CST 21:53:11 +06 Tuesday             |
| AUKC 2019-01-23 05:03:11 AM CST 11:03:11 +06 Wednesday           |
| AUKC 2019-01-25 11:03:11 AM CST 17:03:11 +06 Friday              |
| This shows a large cash withdrawal.                              |
|                                                                   |
| AUKC 2019-01-22 15:53:11 PM CST 21:53:11 +06 Tuesday             |
| AUKC 2019-01-23 05:03:11 AM CST 11:03:11 +06 Wednesday           |
| AUKC 2019-01-25 11:03:11 AM CST 17:03:11 +06 Friday              |
| This show final transfer to an unknown bank "2222222222          |
|                                                                   |
| AUKC 2019-01-22 15:53:11 PM CST 21:53:11 +06 Tuesday             |
| AUKC 2019-01-23 05:03:11 AM CST 11:03:11 +06 Wednesday           |
| AUKC 2019-01-25 11:03:11 AM CST 17:03:11 +06 Friday              |
| AUKC 2019-01-25 11:53:11 AM CST 17:53:11 +06 Friday             |
| AUKC 2019-01-25 14:03:11 PM CST 20:03:11 +06 Friday             |
| This record shows interest , cash withdrawal and fees.          |
|                                                                   |
|                                                                   |
+-------------------------------------------------------------------+
```

RFC ASCII figure A.2

```
+-----------------------------------------------------------------+
|                                                                 |
|                                       Handshake Flag            |
|                                       ||                        |
|                                       ||                        |
|                                       || Gain / Loss Flag       |
|                                       || ||                     |
|                          Record       || ||                     |
|            Record Owner  Owner        || || Affiliate           |
|            Instution     Account      || || Instution           |
|  GUID      Number        Number       VV VV Number              |
|                                                                 |
|  ------09---- ----10------  ----11----- 12 13 -----14-----      |
|  AAAAAZZZZZ   12345678      acc12345678 => -1 99997777          |
|  AAAAAZZZZZ   99997777      acc99997777 <= +1 12345678          |
|                                                                 |
|                                                                 |
|  FX1234-AAFGH 88888888      acc8888888  => -1 444444444444      |
|  FX1234-AAFGH 444444444444  acc4444444  <= +1 88888888          |
|  ZZZZZ99998   444444444444  acc4444444  => -1                  |
|                                                                 |
|                                                                 |
|  FX1234-AAFGH 88888888      acc8888888  => -1 444444444444      |
|  FX1234-AAFGH 444444444444  acc4444444  <= +1 88888888          |
|  MMM55555     444444444444  acc4444444  => -1 2222222222        |
|                                                                 |
|                                                                 |
|  GUIDAAAA     12345678      accAAAAA    => -1 88888888          |
|  GUIDAAAA     88888888      accBBBBBB   <= +1 12345678          |
|  GUIDINTREST  88888888      accBBBBBB   == +0                   |
|  GUIDCASH     88888888      accBBBBBB   => -1                   |
|  GUIDPENETLY  88888888      accBBBBBB   == -0                   |
|                                                                 |
|                                                                 |
|                                                                 |
+-----------------------------------------------------------------+
```

```
RFC ASCII figure A.3
+-----------------------------------------------------------------+
|                                                                 |
|                                                                 |
|                Transaction Type                                 |
|                ||                                   C           |
|                ||                                   u           |
|                || Sub Type                          r           |
|                || ||                                r           |
|                || ||                                e C         |
| Affiliate      || ||                                n o         |
| Account        || || Teller ID /     Amount of     c d         |
| Number         VV VV Station ID      Transaction y e            |
|                                                                 |
| ----15-----    16 17 -------18------- -----19---- 20-           |
| acc99997777    R                      -123,456.78 USD           |
| acc12345678    B                      +123,456.78 USD           |
|                                                                 |
|                                                                 |
| acc4444444     R     Home Phone XMIT  -123,456.99 USD           |
| acc8888888     B                      +123,456.99 USD           |
|                CW    T41 Terminal AAD  -23,456.00 USD           |
|                                                                 |
|                                                                 |
| acc4444444     R     Home Phone XMIT  -123,456.99 USD           |
| acc8888888     B                      +123,456.99 USD           |
| acc222222      R                       -23,456.00 USD           |
|                                                                 |
|                                                                 |
| accBBBBBB      R     Home Phone XMIT    -88777.66 USD           |
| accAAAAA       B                       +88777.66 USD           |
|                I                          +10.00 USD           |
|                CW                      -70,000.00 USD           |
|                F                          -20.00 USD           |
|                                                                 |
|                                                                 |
|                                                                 |
|                                                                 |
+-----------------------------------------------------------------+
```

RFC ASCII figure A.4

```
+----------------------------------------------------------------+
|                                                                |
|                                                                |
|                                                                |
|                                                                |
|                               Mailing                          |
| Country and Currency    DUNS    Name          Street/PO Box    |
|                                                                |
| ---------21----------  ----22--- ------23--- -------24------   |
| United States, Dollar            Big Bank    123 Long St       |
| United States, Dollar            Little Bank 123 Short St      |
|                                                                |
|                                                                |
| United States, Dollar            Big Bank    123 Some Rd       |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
|                                                                |
|                                                                |
| United States, Dollar            Big Bank    123 Some Rd       |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
|                                                                |
|                                                                |
| United States, Dollar            Big Bank    123 Some Rd       |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
| United States, Dollar            Little Bank 888 Lonesome Rd   |
|                                                                |
|                                                                |
|                                                                |
+----------------------------------------------------------------+
```

```
   RFC ASCII figure A.5
   +------------------------------------------------------------------+
   |                                                                  |
   |                                                                  |
   |              C                                                   |
   |              o                                                M  |
   |           S  u                                                a  |
   |           tP n                                                r  |
   |           ar t   ZIP                                          Ek |
   |           to r   Postal                                      ne  |
   | City      ev y   Code        Comment                        dr  |
   |                                                                  |
   | ----25----- 26 27- --28------ ---29---------------------- 30    |
   | Big City    WI USA 555555     None today                    FX  |
   | Little Town WI USA 777777                                   FX  |
   |                                                                  |
   |                                                                  |
   | InTown      WI USA 99999-8889 None Today                    FX  |
   | OutTown     WI USA 77777-8889 Lots of Money I'm Flush !      FX  |
   | OutTown     WI USA 77777-8889 Stole This for Friday Night   FX  |
   |                                                                  |
   |                                                                  |
   | InTown      WI USA 99999-8889 None Today                    FX  |
   | OutTown     WI USA 77777-8889 Lots of Money I'm Flush !      FX  |
   | OutTown     WI USA 77777-8889 Stole This for Vacation       FX  |
   |                                                                  |
   |                                                                  |
   | InTown      WI USA 99999-8889 None                          FX  |
   | OutTown     WI USA 77777-8889                               FX  |
   | OutTown     WI USA 77777-8889 Interest                      FX  |
   | OutTown     WI USA 77777-8889 Cash                          FX  |
   | OutTown     WI USA 77777-8889 Fee Bad Check                 FX  |
   |                                                                  |
   |                                                                  |
   |                                                                  |
   |                                                                  |
   +------------------------------------------------------------------+
```

5. **File Naming**

   Since there might be several years of records requested ,
   there is a need for a specific naming convention of the
   downloaded files and the amount of data.

   Each file will contain data for only one full year:
   from - January 01 , or start date of account.
   to   - December 31 , or the current date of the current year ,
        - or closing date of account.

   Each file will contain data for only one account.

   The file name will have an extension of ".aukc".
   The file name will be as follows:
        YYYY - four-digit year
        Underscore - "_"
        Institution number - alpha/numeric
        Underscore - "_"
        Last five digits of account - alpha/numeric
        Underscore - "_"
        Last name of records requestor - alpha

   Examples:
           YYYY_Instution_Last5Acc_Name.aukc

           2017_1234567_88888_fields.aukc
           2018_1234567_88888_fields.aukc
           2019_1234567_88888_fields.aukc

           2017_9876543aaa_20x20_fields.aukc
           2018_9876543aaa_20x20_fields.aukc
           2019_9876543aaa_20x20_fields.aukc

   The data will be in a .csv format in a flat file.

[6](). Formal Syntax

```
     Field ##

                     -Desc    -Rule
                              - all data is CSV format.
                              - double quotes and comma.
                              - empty fields one space character
                              - required.
                              - no double quotes (") or
                              - single quotes (') or
                              - comma's (,) allowed in the data ,
                              - strip off before file creation.


     Record Type ##

                     -Key to identify the data type
                              - 4 position constant value of
                              - capitol "AUKC" ;
                              - first four characters - first field
                              - "Audit Un-Known Cash"


     ############### Date and Time Stamps and Day of Week
                              - Creation of the transaction.
                              -
                              - 2019-01-22 02:47:59 AM CST
                              - 08:47:59 +06 Tuesday
                              -
                              - each value is a separate field.
                              - needed if transaction
                              - crosses time zones or days.
                              - keys to sort / search records.


     Date ##                  - "YYYY-MM-DD"
     Time ##                  - "HH:MM:SS" - local time military format
     AM/PM ##                 - "AM" or "PM" indicator
     Zone ##                  - "CST" or "CDT" - local time zone code
     UTC  ##                  - "HH:MM:SS" - UTC time stamp
     UTC Offset ##            - "+nn" or "-nn" - UTC zone offset
     Day Name ##              - "Wednesday" - Day of Week Name
                              - Full name of local day
```

GUID ##
                    -A unique ID
                            - Probably the ACH number
                            - (ACH) Automated Clearing House
                            - Institution name , date ,
                            - account , ???
                            - this GUID is kept with the sending
                            - instutions , and is received by the
                            - receiving instutions.
                            - It is the traceable element
                            - to track the flow of money.

        Record Owner ##
                    -What entity created the record
                            - 32 position alpha/numeric
                            - Financial Instution Number
                            - Routing Number / DUNS
                            - Unique business number ???

        Record Owner Account Number ##
                    -Financial Instutions Account Number
                            - 32 position alpha/numeric

        Handshake Flag ##
                    -Overall Direction of the trans action
                            - 3 position text symbols.
                            - a leading single quote {'}
                            - "'=>" outbound or
                            - "'==" neutral - internal or
                            - "'<=" inbound.
                            - When tracing a pair of transactions
                            - the arrows should net out.

        Gain/Loss Flag ##
                    -A global money gain/loss flag
                            - in or out or neutral
                            - 3 position signed field.
                            - a leading single quote (')
                            - plus (+) or minus (-) and
                            - zero (0) or one (1).
                            - internal record:
                            - "'+0" is interest or correction - gain.
                            - "'-0" is fee , penalty - loss.
                            - external record:
                            - "'-1" is transferred out - loss.
                            - "'+1" is transferred in - gain.

        Record Affiliate ##
                    -What entity received/sent the record and money.
                            - 32 position alpha/numeric
                            - Financial Instution Number
                            - Routing Number / DUNS
                            - Unique business number ???

        Record Affiliate Account Number ##
                    -Financial Instutions Account Number
                            - 32 position alpha/numeric

        ############### All the following data fields come from the
        ############### record owner's data.

        Transaction Type ##
                    -What type of transaction ?
                            - 2 position field A-Z and 0-9
                            - and space.
                            - "R " = real time
                            - "B " = overnight batch
                            - "CD" = cash deposit
                            - "CW" = cash withdrawal
                            - "KD" = check deposit
                            - "KW" = check withdrawal
                            - "PI" = phone transfer in
                            - "PO" = phone transfer out
                            - "I " = interest
                            - "F " = penalty fee
                            - more needed ????

        Transaction Sub Type ##
                    -Additional Flags
                            - 2 position wide open
                            - reserved for future growth
                            - A-Z & 0-9 and space

        Teller ID / Station ID ##
                            - 20 position Identifier of
                            - instutions employee /
                            - station / terminal

```
         Amount of Transaction ##
                         -Numeric Currency
                                 - floating point number.
                                 - signed value required
                                 - plus (+) or minus (-).
                                 - plus  +123456.78 or
                                 - minus -123456.78.
                                 - with a 2 position decimal value.


         Currency Code ##
                                 - 3 position currency code.
                                 - USD / BBD / etc.


         Country and Currency ##
                                 - 30 position country and
                                 - domination codes:
                                 - United States , Dollar
                                 - Barbados , Dollar.


         DUNS ##
                         -DUNS Number
                                 - 9 position


                         -Mailing address
         Name   ##               - 60 position field
         Street/PO Box ##        - 60 position field
         City ##                 - 40 position field
         State/Province ##       - 12 position field
         Country ##              -  3 position field
         ZIP/Postal Code ##      - 14 position field


         Comment ##
                                 - 40 position field
         End Of Record Marker
                                 - Text Constant "FX"
```

Security Considerations

There are numerous security concerns. We are dealing with people's
accounts and records. Preferred method to transfer the data is have
the instutions send an email to the requester. Requester opens the
email , then clicks a link and an automatic download of all files is
started. The link should be valid for a maximum of four (4) days.
The files (data) on the host should be available for thirty (30)
days ; then destroyed.

IANA Considerations

IANA should create a new code "AUKC" to identify the record type.

Conclusions

If this standard is adopted numerous manhours (time) and expense
(money) could be saved. There would be a single universal tool to
preform consistent audits of the flow of cash (money).
People doing the auditing could expedite the findings. This would
assist law enforcement and the courts to find and resolve issues
rapidly. "Punish the guilty". This would stop the creation of
different methods and reports ; one common solution could fit all
future data inquires.

History Lesson: I spent the last year auditing two (2) niece-like
girl 's information:
                for six (6) years of data -
                        of two (2) bank accounts each
                        of one (1) stock account each
                        of Federal and State Income Taxes each
                        of Social Security Accounts each
                        of Fillings with the State Court for Minors each
There were:
(2 girls x 6 years) x (2 bank + stock + 2 tax + SS + minors)
for a total of:
(12 girl-years x 7 accounts) = 84 girl-year-account record sets.

It's all been a manual process to create data records and
manufacture keys and sub-keys. A many months long process could have
been finished in weeks.

Now , I respectively submit this RFC to create a standard record.
And , ask the expert computer people to assist in its creation and
implementation. Need help to take a complex process and make into a
simple user-friendly gathering , merging ; and sorting and filtering
operation.

7. References

None currently.

7.1. Normative References

[1]   Bradner, S., "Key words for use in RFCs to Indicate
        Requirement Levels", BCP 14, RFC 2119, March 1997.

[2]   Crocker, D. and Overell, P.(Editors), "Augmented BNF for
        Syntax Specifications: ABNF", RFC 2234, Internet Mail
        Consortium and Demon Internet Ltd., November 1997.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
          Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2234] Crocker, D. and Overell, P.(Editors), "Augmented BNF for
          Syntax Specifications: ABNF", RFC 2234, Internet Mail
          Consortium and Demon Internet Ltd., November 1997.

7.2. Informative References

[3]   Faber, T., Touch, J. and W. Yue, "The TIME-WAIT state in TCP
        and Its Effect on Busy Servers", Proc. Infocom 1999 pp. 1573-
        1583.

[Fab1999] Faber, T., Touch, J. and W. Yue, "The TIME-WAIT state in
          TCP and Its Effect on Busy Servers", Proc. Infocom 1999
          pp. 1573-1583.

8. Acknowledgments

None currently.

This document was prepared using 2-Word-v2.0.template.dot.

Appendix A.   **First Appendix**

A.1. **Header level - open for future**

   None currently.

A.2. **Second Header - open for future**

  None currently.

Authors' Addresses

    SCOTT FIELDS
    RETIRED
    4315 E MILWAUKEE ST
    JANESVILLE, WI 53546 USA

    Phone: 608-201-0473
    Email: cash_fields@yahoo.com