

Kuali Financial System

General Ledger Integration

**Accounting and Financial Services
Administrative Information Technology**

5/9/2017

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1. Version Control

Version #	Date	Author	Description
0.1	1/21/2017	J. Velásquez	Initial Draft
1.0	5/9/2017	J. Velásquez	Version 1.0
1.1	6/1/2017	J. Velásquez	Correct grammatical errors; added more format data and examples.

2. Kuali Financial System General Ledger Integration

2.1 Overview

This document provides the technical specifications for implementing an approved General Ledger feed integration. The information in this document covers file transfer method, standards, testing and business rules. It is not intended to provide any guidance on transaction production from the feed system. Guidance and oversight is conducted by Accounting & Financial Services. A Memorandum of Understanding (MOU) is required to start the implementation process. Prior to the MOU, this document is intended to provide technical information in determining feasibility for the feed system. Please feel free to contact afs-ops@ucdavis.edu for questions about the process.

3. Feed Setup

Configurations are required in the Financial System for feeds in addition to other procedures before any receipt of files can occur.

- Steps 1-4 in the [KFS Integration](#) process must be completed before the feed setup process can proceed.
- Admin IT Operations will send the designated technical contact additional information including an account setup form.
- After the account form is completed and returned, the technical contact will be contacted to set up an initial password; typically within two business days.
 - The account name is designated by Admin IT.
- Secure FTP must be used to transmit your files.
 - Allowable protocols: SSH-SFTP, SCP
 - If files will be sent from outside the UC Davis IP address space then please indicate on the form.
 - A new firewall rule is required to allow the specific SSH connection. Provide the IP address that will be used to send files.
 - For feeder system firewall rules, allow port 22 (SSH) outgoing from the server to fis-depot.ucdavis.edu
 - For automated/scripted file transfers, SSH key exchange must be used.
 - For manual file transfers, an interactive/GUI tool may be used.
 - Note: If a person manipulates the contents of files then the system is not eligible for feeding into the Financial System. Refer to <http://afs.ucdavis.edu/systems/kuali/integration.html> for more information.
- Refer to [Section 5.1.1](#) for File Naming Conventions.
- Departments must complete successful tests of their feeds using the designated testing server.
 - All testing results must be reviewed and approved by Accounting & Financial Services before production approval.
- Upon final approval, a production SFTP account will be assigned by Admin IT Operations and feeds can be sent to the file drop-off location.
 - The production account is different than the test account.

4. Responsibilities

In addition to the responsibilities defined in the Memorandum of Understanding, there are specific operational tasks which are the responsibility of the authorized feed department:

- Departments are responsible for developing a process to create authorized GL collector files.
- Departments are responsible for correcting errors in a file:
 - Admin IT Operations will contact the feed contacts when an error occurs or the system will automatically send an email to the email address on file.
 - Bad files will be removed from processing and must be re-submitted with corrections.
- Departments are responsible for reversing transactions posted in prior, erroneous feeds.
 - For Vendor hosted applications (e.g., SaaS), Departments are responsible for working with Vendor to resolve issues.
- Departments must annually verify the business and technical contacts.

4.1 File Due Dates

- Feed files must be submitted by the third business day of a month in order to post to the prior month.
 - For example for Period 1, files must be submitted by the third business day of August.
- Additional policy regarding service (aka internal) billing transaction posting should be reviewed in order to ensure compliance: <http://manuals.ucdavis.edu/PPM/340/340-20.pdf>

4.2 Testing

- Feed file testing is a hard requirement for feeding into the General Ledger. The minimal amount of testing required will be determined by Accounting & Financial Services.
- AdminIT System Operations will coordinate the testing with the department.
 - A test instance of FIS Decision Support is available to review results the day after general ledger processing is completed.
- Accounting & Financial Reporting is required to formally accept feeds before production approval is granted.

5. GL Collector XML File Requirements

5.1 File Information

5.1.1 File Name Conventions

- XML files (see [Appendix A](#) for schema definition) must be in a specific naming convention to be processed.
- File names must be unique.
- Name convention:
 - transactiontype_originationcode_timestamp.xml (For example, **billing.EP.201705101342.xml**)
 - Transaction types:
 - This is determined during request process and must be adhered.
 - Valid transaction types:
 - journal
 - billing (Recharges)
 - ap (Account Payables)
 - budget (Budget)
 - ar (Account Receivables)
 - payment (Payments)
 - originationcode = assigned feeder code

- Provided by AdminIT
- Timestamp

5.1.2 GL Collector XML Schema Definition

- GL Collector files must follow the schema definition in [Appendix A](#).
- Element tags must come in sequence.
 - The detailType tag, while defined, is not used at UCD. Do not include these records.
- An email address is required to process the file. File process notifications (e.g., errors) will be sent to this address.
 - A distribution list is recommended since only one email address is allowed.
 - It is recommended that the email address is the same one used in Origination Code setup.

5.2 GL Collector Element Tags

Header Tag				
Element Name	Definition	Required	Data Type/Format / Length /Examples	Validation
chart	Chart of Accounts Code associate with Org Code.	Yes	2 Character H	H, 3, S, and L are valid values.
orgCode	Financial System Organization responsible for GL Feed.	Yes	4 Characters 1060 ACPM	Organization code must be valid
batchDate	Date the file was created from source system	Yes	Date: YYYY-MM-DD 2017-05-08	There is no uniqueness check between files.
batchSequenceNum	Source system batch sequence number	Yes	Positive Integer 00001	Max Value 99999 There is no uniqueness check between files.
contactUserId	Campus User ID of main contact responsible for feed.	Yes	Normalized String jackiev	Kerberos ID Minimum of 2 characters and maximum of 8 characters.
contactEmail	Email address used to send information when errors occur or other events. The email should match the origination code email. A distribution list is highly recommended.	Yes	Normalized String someemail@ucdavis.edu afs-ops@ucdavis.edu	Maximum of 40 characters. Only one email address allowed
campusCode	Financial System only code. Value to be provided by Admin IT to the integration system.	Yes	2 Characters DV	DV (Campus) or DH (Hospital) on valid values.
contactPhoneNumber	Contact number for personnel/unit responsible for feed.	Yes	Numeric Only, 1-10 5307578571	

mailingAddress	Brief mailing address for Department responsible for feed.	Yes	30 Characters 123 Main St	Does not validate. Maximum of 30 characters.
departmentName	Department responsible for feed.	Yes	30 Characters Admin IT	Does not validate. Maximum of 30 characters.
GL Entry Tag				
Element Name	Definition	Required	Data Type/Format / Length /Examples	Validation
fiscalYear	Fiscal Year in which the feed will post. It is recommended to include the fiscal year in all records.	No	Integer 2017	2017 -2099 range only allowed. The file will be rejected if there are invalid entries. Entries will default during general ledger processing based on run date.
chart	Chart Code associated with transaction.	Yes	2 Characters 3	H, 3, S, L, P, M, and N are only valid values.
account	Account used in the general ledger to post transactions. Accounts are specific to a Chart Code.	Yes	7 Characters 6620001	Allowable Characters: [A-Z0-9] An invalid account will cause a transaction to default to the origination code's default chart-account-object code.
subAccount	Sub-Account is an optional accounting unit attribute. Chart Code and Account are part of Sub-Account key.	No	5 Characters KUALI	An invalid Sub-Account will default to '-----' which is considered of no value in the general ledger.
object	Object codes represent all income, expense, asset, liability and fund balance classifications that are assigned to transactions and help identify the nature of the transaction. Object Codes are specific to a Chart Code.	Yes	1 to 4 Characters; most objects are 4 characters with valid pattern: A-Z0-9 8065	Allowable Characters: A-Z0-9. An invalid object code will cause a transaction to default to the origination code's default chart-account-object code. Error Message: "Default object code used for object code not found in database"
subObject	Sub-Object is an optional accounting unit attribute	No	3 Characters	The field length is actually 4 characters but the

	that allows finer distinctions within a particular object code on an account. Sub-Object codes are specific to a Chart Code, Account and Object Code combination.			financial system only allows 3 characters. An invalid sub-object code will default to '----' which is considered of no value in the general ledger.
balanceType	Defines the type of financial balances used in reporting and queries. Feed system will be authorized for specific Balance Types; typically only AC (actuals).	Yes	2 Characters Specific List AC	Valid Values AC CB EX IE PE BB BI FT FI Authorized Balance Types for an origination code are defined in the MOU between the department and Accounting & Financial Services.
objectType	Object Type defines the general use of an object code; such as income, asset, expense, or liability	No	2 characters	Not a required field as the General Ledger will derive the value from the Object Code. It is recommended not to include these values.
fiscalPeriod	Fiscal Year in which the feed will post to the General Ledger It is highly recommended to include the fiscal period in all records. Feed systems are generally only allowed to submit files for accounting periods 1-12. If the fiscal year/period combination referenced on lines in the file is not open for posting, then the entries will be defaulted to	No	2 Characters: Specific List 01	Valid values 01 02 03 04 05 06 07 08 09 10 11 12 13 (For Accounting & Financial Services use only)

	the current fiscal period as derived from the system's date table			
docType	<p>Financial System document type associated with the feed.</p> <p>Feed systems will be authorized to use a specific value based on transactions.</p>	Yes	<p>4 Characters: Specific List</p> <p>GLIB</p>	<p>Valid Values</p> <p>GLIB GLJV GLCC GLJB GLBB GLCB GLDE</p> <p>Authorized Document Types for an origination code are defined in the MOU between the department and Accounting & Financial Services.</p>
originCode	<p>Unique feed origination identifier given to the Feed System. The origination code is validated in during file receipt and in the processing.</p> <p>Refer to File Naming Conventions</p>	Yes	<p>2 Characters</p> <p>EP</p>	Assigned by AdminIT.
docNum	<p>Unique identifier for a set of related transactions per origination code.</p> <p>A file can have multiple document numbers but the file must balance by document number (aka net zero) and by total amount. Debits = Credits</p> <p>Once a document number posts to the general ledger then it cannot be used again.</p>	Yes	<p>1 Character Minimum 14 Characters Maximum Pattern: A-Z0-9</p> <p>12Cust1223 12354643</p>	<p>Error message:</p> <p>"The document number has been used."</p>
sequenceNum	A sequential number for a transaction in document number set.	No	<p>Positive Integer</p> <p>00001</p>	<p>Max Value 99999</p> <p>The system will auto-assign if not provided.</p>

description	A brief description of the specific transaction. Displays in reporting.	Yes	40 Characters	PCI, HIPPA, FERPA and PII information is prohibited.
amount	Dollar amount associated with the transaction	Yes	Decimal (19,2) 51222.02	Negative numbers are not allowed.
debitCredit	Debit or Credit Code associated with the transaction.	Yes	1 Character D	Valid Values D C Blank (Budget use only)
transDate	Date the transaction occurred.	Yes	Date: YYYY-MM-DD 2017-05-08	
trackingNumber	Primarily used in Decision Support reporting for additional transaction identification Equivalent to the KFS Organization Document Number.	No	1 Character Minimum 10 Characters Maximum 2015FEB	Do not use 9 digits as they could be mistaken for PII data.
project	Project is an optional accounting unit attribute that allows assignment of an identifier to particular transactions that might span multiple accounts. Because Project Code is not specific to an account it can be used to track project activity that is shared across multiple accounts within an organization or even across multiple organizations.	No	1 Character Minimum 10 Characters Maximum KUALI	An invalid Project Code will default to '-----' which is considered of no value in the general ledger. Do not use 9 digits as they could be mistaken for PII data.
referenceId	Optional field for organizational reference purposes.	No	1 Character Minimum 8 Characters Maximum 3A235	
refDocType	Reference Document Type associated with transaction. Usage is not recommended unless reversing transactions from prior feed.	No	4 Characters: Specific List GLIB	Valid Values GLIB GLJV GLCC GLJB GLBB GLCB GLDE
refOriginCode	Reference Origination Code.	No	2 Characters EP	Must be assigned origination code.

	Usage is not recommended unless reversing transactions from prior feed.			
refDocNum	Reference Document Number. Usage is not recommended unless reversing transactions from prior feed.	No	1 Character Minimum 14 Characters Maximum Pattern: A-Z0-9 12Cust1223 12354643	Must be an existing document number associated with the Reference Document Number
reversalDate	For Accounting & Financial Services use only.	No	For Accounting & Financial Services use only.	For Accounting & Financial Services use only.
encumbCode	For Accounting & Financial Services use only.	No	For Accounting & Financial Services use only.	For Accounting & Financial Services use only.
Trailer Tag				
Element Name	Definition	Required	Data Type/Format / Length /Examples	Validation
totalRecords	The total number of GL Entry Tags	Yes	Positive Integer 13	
totalAmount	Total amount of the transactions being processed in a file.	Yes	Decimal (19,2) 51222.02	Negative numbers are not allowed.

Table 1 – GL Collector Element Definitions

5.3 KFS GL Collector Rules

5.3.1 KFS GL Collect File Rules

Files contain a collection of general ledger entries and each element must adhere to specific business rules. Files will be rejected based on the following rules:

- File cannot have mixed Origination Codes.
- File must have a valid trailer total amount (sum of either credit or debit amount)
- File must have a valid trailer total record count; based on GL Entry Records
- File must balance by document number, debit/credit code and fiscal period (net zero by document number).
- Duplicate Document Numbers: Document Numbers used in previous files are not allowed.
- Usage of invalid characters (non-printable characters, "~") are not allowed.
- The file will fail if optional data elements are included but have no values.
- The file will fail if specified values, where explicitly defined, are not used.
- The file will fail if required fields are missing in Header Record, GL Entry Records and/or Trailer Tags.
- The file will fail if data element names do not match the schema definition.

5.3.2 KFS GL Processing and Business Rules

In addition to file validations defined in Section [5.3.1](#), all entries in a file are checked against business rules during the nightly General Ledger process. If errors are encountered in this step then some values will default to the assigned default values associated with Origination Code or be rejected by the process.

- Chart Number not valid: transaction defaults to origination code default chart-account-object code.
- Chart Number not active: transaction defaults to origination code default chart-account-object code.
- Account Number not valid: transaction defaults to origination code default chart-account-object code.
- Account Number not active: system will attempt to find continuation account; if found and valid/active transaction posted using continuation account. If valid/active continuation account is not found then transaction defaults to origination code default chart-account-object code.
- Sub Account Number not valid: transaction defaults sub-account code to '-----'
- Sub Account Number not active: transaction defaults sub-account code to '-----'
- Object Code not valid: transaction defaults to origination code default chart-account-object code.
- Object Code not active: transaction defaults to origination code default chart-account-object code.
- Sub-Object Code not valid: transaction defaults sub-object code to '---'
- Sub-Object Code not active: transaction defaults sub-object code to '---'
- Project Code not valid: transaction defaults project code to '-----'
- Project Code not active: transaction defaults project code to '-----'
- Capital Asset Object Codes (object sub-type CM) not allowed: transaction defaults to origination code default chart-account-object code.
- Budget, Salary/Wages and Benefit Object codes are not allowed.
- Income object codes (Object Code Type IN) are not allowed with Subfund Group Types: Reserves for Renewal and Replacement, Reserves, Endowment Funds Income, and Endowments Prin Opp Funds.
- Balance Sheet object codes (Object Code Consolidation BLSH) are only allowed in Balance Sheet, Reference Control and Unexpended Balance Accounts
- Income object codes (Object Code Consolidation INC0) are only allowed in Income Accounts.
- Reference document types and document numbers must be valid.
- Account period must be valid and active.
- Origination Code must exist.
- Origination Code default chart and account must be active.
- Transaction Date must be a valid date in the University Date table in KFS; the invalid date will be replaced with the current date.
- Invalid characters (non-printable characters, "~", spaces) will cause the file to reject.
- Document number is required.
- Transaction entry sequence number must be numeric. Null and blank values will be replaced with zeroes; non-numeric transactions will be demerged for correction.
- Transaction ledger entry amount must be numeric.
- If the transaction encumbrance update code is R, then the reference document number cannot be blank.

6. Notifications

KFS will send out email notifications during processing. A valid email address in the XML file is required to send messages upon file error and processing.

6.1 Sample Notifications

6.1.1 File Rejected

```

Origination File:

        billing.EP.201701200099.xml

Header Information:

Chart: 3
Org: ACCT
Campus: DV
Department: AdminIT
Mailing Address: 1441 Research Park Drive
Contact: jackiev
Email: javelasquez@ucdavis.edu
Phone Number: 5307578571
Transmission Date: 2017-01-20

        Group Credits      = 00001          $2,031.20
        Group Debits       = 00011          $1,868.98
        Group Not C/D      = 00000           $0.00
        Valid Group Count = 00013          $2,031.20

Reported Errors:
Count in trailer 13 does not match number of entry/detail elements 12 File does not balance. Credit amount 2031.20
should equal debit amount 1868.98. Total amount of gl entries 2031.20 should equal trailer total amount 2031.20.
Debit and credit amount is not balanced or signed values summing is not $0 for record (EP-017012007-GLIB-AC).

----- THIS FILE WAS NOT PROCESSED AND WILL NEED TO BE CORRECTED AND RESUBMITTED -----

```

Figure 1 – File rejected: Out of Balance and Wrong Total Counts in Trailer Tag

6.1.2 File – No Errors

```

Chart: 3
Org: AVAC
Campus: DV
Department: AdminIT
Mailing Address: 1441 Research Park Drive
Contact: jackiev
Email: javelasquez@ucdavis.edu
Phone Number: 5307578571
Transmission Date: 2017-03-02

        Group Credits      = 00001          $162.22
        Group Debits       = 00001          $162.22
        Group Not C/D      = 00000           $0.00
        Valid Group Count = 00002          $162.22

***** Scrubber Summary Report *****
* UNSCRUBBED RECORDS READ      : 2
* SCRUBBED RECORDS WRITTEN    : 2
* ERROR RECORDS WRITTEN       : 0
* EXPIRED ACCOUNTS FOUND      : 0
*****

```

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The document number has been used.

Figure 3– Sample Scrubber Report with no records posted

6.1.4 File – Invalid Account

Origination File:

billing.EP.201701191613.xml

Header Information:

Chart: 3
 Org: ACCT
 Campus: DV
 Department: AdminIT
 Mailing Address: 1441 Research Park Drive
 Contact: jackiev
 Email: javelasquez@ucdavis.edu
 Phone Number: 5307578571
 Transmission Date: 2017-01-20

Group Credits	= 00001	\$2,031.20
Group Debits	= 00012	\$2,031.20
Group Not C/D	= 00000	\$0.00
Valid Group Count	= 00013	\$2,031.20

***** Scrubber Summary Report *****

* UNSCRUBBED RECORDS READ : 13
 * SCRUBBED RECORDS WRITTEN : 13
 * ERROR RECORDS WRITTEN : 0
 * EXPIRED ACCOUNTS FOUND : 0

***** Demerger Summary Report *****

* ERROR RECORDS READ : 0
 * VALID RECORDS READ : 13
 * ERROR RECORDS REMOVED FROM PROCESSING : 0
 * VALID RECORDS ENTERED INTO ORIGIN ENTRY : 13

***** Scrubber Errors Report *****

Document Type	Document Number	Origination	Error Message
GLIB	017011707	EP	Default account used for account not found in database.[3-1246578]

Figure 4– Sample Scrubber Report with Invalid Account

6.2 Other GL Warnings/Errors

- WARNING_ACCOUNT_NOT_FOUND_USE_DEFAULT
- WARNING_CONTINUATION_ACCOUNT_NOT_FOUND_USE_DEFAULT
- WARNING_ACCOUNT_EXPIRED_USE_CONTINUATION
- WARNING_CHART_NOT_FOUND_USE_DEFAULT
- WARNING_CHART_INACTIVE_USE_DEFAULT
- WARNING_OBJECT_CODE_NOT_FOUND_USE_DEFAULT
- WARNING_PROJECT_CODE_NOT_FOUND_USE_DEFAULT
- WARNING_PROJECT_CODE_INACTIVE_USE_DEFAULT
- WARNING_SUB_OBJECT_CODE_NOT_FOUND_USE_DEFAULT
- WARNING_SUB_OBJECT_CODE_INACTIVE_USE_DEFAULT
- WARNING_SUB_ACCOUNT_NOT_FOUND_USE_DEFAULT
- WARNING_SUB_ACCOUNT_INACTIVE_USE_DEFAULT
- WARNING_OBJECT_CONSOLIDATION_INVALID_FOR_ACCOUNT_TYPE

- WARNING_OBJ_SUB_TYPE_INVALID_FOR_BALANCE_TYPE
- WARNING_SFGT_INVALID_FOR_OBJECT_TYPE
- ERROR_ACCOUNTING_PERIOD_CLOSED
- ERROR_ORIGIN_CODE_NOT_FOUND
- ERROR_DEFAULT_ACCOUNT_INACTIVE
- ERROR_REFERENCE_DOCUMENT_TYPE_NOT_FOUND
- ERROR_REFERENCE_ORIGINATION_CODE_NOT_FOUND
- ERROR_CONTINUATION_ACCOUNT_NOT_FOUND
- ERROR_CIRCULAR_DEPENDENCY_IN_CONTINUATION_ACCOUNT_LOGIC
- ERROR_DESCRIPTION_CANNOT_BE_BLANK
- ERROR_TRANSACTION_DATE_INVALID

7. Appendix A – GL Collector Schema Definition (XSD)

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema elementFormDefault="qualified" targetNamespace="http://www.kuali.org/kfs/gl/collector"
  xmlns="http://www.kuali.org/kfs/gl/collector" xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <xsd:simpleType name="organizationCode">
    <xsd:restriction base="xsd:normalizedString">
      <xsd:maxLength value="4" />
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="personUserID">
    <xsd:restriction base="xsd:normalizedString">
      <xsd:minLength value="2" />
      <xsd:maxLength value="8" />
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="emailAddress">
    <xsd:restriction base="xsd:normalizedString">
      <xsd:maxLength value="40" />
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="campusCode">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="DV" />
      <xsd:enumeration value="DH" />
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:simpleType name="phoneNumber">
    <xsd:restriction base="xsd:normalizedString">
      <xsd:pattern value="[0-9]{1,10}" />
    </xsd:restriction>
  </xsd:simpleType>
```



```

<xsd:simpleType name="mailingAddress">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="30" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="departmentName">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="30" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="universityFiscalYear">
  <xsd:restriction base="xsd:integer">
    <xsd:minInclusive value="2017" />
    <xsd:maxInclusive value="2099" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="chartOfAccountsCode">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:length value="1" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="accountNumber">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:pattern value="[A-Z0-9]{7}" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="subAccountNumber">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="5" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialObjectCode">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:pattern value="[A-Z0-9]{1,4}" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialSubObjectCode">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="4" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialBalanceTypeCode">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="AC" />
    <xsd:enumeration value="CB" />
    <xsd:enumeration value="EX" />
  </xsd:restriction>

```

```

        <xsd:enumeration value="IE" />
        <xsd:enumeration value="PE" />
        <xsd:enumeration value="BB" />
        <xsd:enumeration value="BI" />
        <xsd:enumeration value="FT" />
        <xsd:enumeration value="FI" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialObjectTypeCode">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:pattern value="[A-Z]{0,2}" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="universityFiscalPeriodCode">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="" />
        <xsd:enumeration value="01" />
        <xsd:enumeration value="02" />
        <xsd:enumeration value="03" />
        <xsd:enumeration value="04" />
        <xsd:enumeration value="05" />
        <xsd:enumeration value="06" />
        <xsd:enumeration value="07" />
        <xsd:enumeration value="08" />
        <xsd:enumeration value="09" />
        <xsd:enumeration value="10" />
        <xsd:enumeration value="11" />
        <xsd:enumeration value="12" />
        <xsd:enumeration value="13" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialDocumentTypeCode">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="GLIB" />
        <xsd:enumeration value="GLJV" />
        <xsd:enumeration value="GLCC" />
        <xsd:enumeration value="GLJB" />
        <xsd:enumeration value="GLBB" />
        <xsd:enumeration value="GLCB" />
        <xsd:enumeration value="GLDE" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="financialSystemOriginationCode">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:pattern value="(0[2-9A-Z])|([1-9A-Z][0-9A-Z])" /><!-- Disallow 01 -->
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="referenceFinancialSystemOriginationCode">
    <xsd:restriction base="xsd:normalizedString">

```

```

        <xsd:pattern value="[A-Z0-9]{2}" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="fdocNumberType">
    <xsd:restriction base="xsd:string">
        <xsd:pattern value="[A-Z0-9]{1,14}" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="sequenceNumber">
    <xsd:restriction base="xsd:positiveInteger">
        <xsd:maxInclusive value="99999" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="transactionLedgerEntryDescription">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:maxLength value="40" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="amount">
    <xsd:restriction base="xsd:decimal">
        <xsd:fractionDigits value="2" />
        <xsd:totalDigits value="19" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="transactionDebitCreditCode">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value=" " />
        <xsd:enumeration value="D" />
        <xsd:enumeration value="C" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="organizationDocumentNumber">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:maxLength value="10" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="projectCode">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:maxLength value="10" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="organizationReferenceId">
    <xsd:restriction base="xsd:normalizedString">
        <xsd:maxLength value="8" />
    </xsd:restriction>
</xsd:simpleType>

```

```

<xsd:simpleType name="transactionEncumbranceUpdateCode">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="R" />
    <xsd:enumeration value="D" />
    <xsd:enumeration value=" " />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="collectorDetailSequenceNumber">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="2" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="collectorDetailNoteText">
  <xsd:restriction base="xsd:normalizedString">
    <xsd:maxLength value="120" />
  </xsd:restriction>
</xsd:simpleType>

<!-- header fields -->
<xsd:element name="orgCode" type="organizationCode" />
<xsd:element name="batchDate" type="xsd:date" />
<xsd:element name="batchSequenceNum" type="sequenceNumber" />
<xsd:element name="contactUserId" type="personUserID" />
<xsd:element name="contactEmail" type="emailAddress" />
<xsd:element name="campusCode" type="campusCode" />
<xsd:element name="contactPhoneNumber" type="phoneNumber" />
<xsd:element name="mailingAddress" type="mailingAddress" />
<xsd:element name="departmentName" type="departmentName" />

<!-- glEntry fields -->
<xsd:element name="fiscalYear" type="universityFiscalYear" />
<xsd:element name="chart" type="chartOfAccountsCode" />
<xsd:element name="account" type="accountNumber" />
<xsd:element name="subAccount" type="subAccountNumber" />
<xsd:element name="object" type="financialObjectCode" />
<xsd:element name="subObject" type="financialSubObjectCode" />
<xsd:element name="balanceType" type="financialBalanceTypeCode" />
<xsd:element name="objectType" type="financialObjectTypeCode" />
<xsd:element name="fiscalPeriod" type="universityFiscalPeriodCode" />
<xsd:element name="docType" type="financialDocumentTypeCode" />
<xsd:element name="originCode" type="financialSystemOriginationCode" />
<xsd:element name="docNum" type="fdocNumberType" />
<xsd:element name="sequenceNum" type="sequenceNumber" />
<xsd:element name="description" type="transactionLedgerEntryDescription" />
<xsd:element name="amount" type="amount" />
<xsd:element name="debitCredit" type="transactionDebitCreditCode" />
<xsd:element name="transDate" type="xsd:date" />
<xsd:element name="trackingNumber" type="organizationDocumentNumber" />
<xsd:element name="project" type="projectCode" />
<xsd:element name="referenceId" type="organizationReferenceId" />
<xsd:element name="refDocType" type="financialDocumentTypeCode" />

```

```

<xsd:element name="refOriginCode" type="referenceFinancialSystemOriginationCode" />
<xsd:element name="refDocNum" type="fdocNumberType" />
<xsd:element name="reversalDate" type="xsd:date" />
<xsd:element name="encumbCode" type="transactionEncumbranceUpdateCode" />

<!-- trailer -->
<xsd:element name="totalRecords" type="xsd:positiveInteger" />
<xsd:element name="totalAmount" type="amount" />

<!-- detail -->
<xsd:element name="createDate" type="xsd:date" />
<xsd:element name="detailSequenceNum" type="collectorDetailSequenceNumber" />
<xsd:element name="detailDescription" type="collectorDetailNoteText" />

<!-- definition of complex type elements -->

<xsd:complexType name="headerType">
  <xsd:all>
    <xsd:element maxOccurs="1" minOccurs="1" ref="chart" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="orgCode" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="batchDate" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="batchSequenceNum" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="contactUserId" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="contactEmail" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="campusCode" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="contactPhoneNumber" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="mailingAddress" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="departmentName" />
  </xsd:all>
</xsd:complexType>

<xsd:complexType name="detailType">
  <xsd:all>
    <xsd:element maxOccurs="1" minOccurs="1" ref="fiscalPeriod" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="fiscalYear" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="createDate" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="chart" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="account" />
    <xsd:element maxOccurs="1" minOccurs="0" ref="subAccount" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="object" />
    <xsd:element maxOccurs="1" minOccurs="0" ref="subObject" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="balanceType" />
    <xsd:element maxOccurs="1" minOccurs="0" ref="objectType" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="detailSequenceNum" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="originCode" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="docType" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="docNum" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="amount" />
    <xsd:element maxOccurs="1" minOccurs="1" ref="detailDescription" />
  </xsd:all>
</xsd:complexType>

<xsd:complexType name="trailerType">
  <xsd:all>

```

```

        <xsd:element ref="totalRecords" />
        <xsd:element ref="totalAmount" />
    </xsd:all>
</xsd:complexType>

<xsd:complexType name="glEntryType">
    <xsd:all>
        <xsd:element maxOccurs="1" minOccurs="0" ref="fiscalYear" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="chart" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="account" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="subAccount" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="object" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="subObject" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="balanceType" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="objectType" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="fiscalPeriod" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="docType" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="originCode" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="docNum" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="sequenceNum" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="description" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="amount" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="debitCredit" />
        <xsd:element maxOccurs="1" minOccurs="1" ref="transDate" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="trackingNumber" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="project" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="referenceId" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="refDocType" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="refOriginCode" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="refDocNum" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="reversalDate" />
        <xsd:element maxOccurs="1" minOccurs="0" ref="encumbCode" />
    </xsd:all>
</xsd:complexType>

<xsd:complexType name="batchType">
    <xsd:sequence>
        <xsd:element name="header" type="headerType" />
        <xsd:sequence maxOccurs="unbounded">
            <xsd:element minOccurs="0" maxOccurs="1" name="glEntry" type="glEntryType" />
            <xsd:element minOccurs="0" maxOccurs="1" name="detail" type="detailType" />
        </xsd:sequence>
        <xsd:element name="trailer" type="trailerType" />
    </xsd:sequence>
</xsd:complexType>

<xsd:element name="batch" type="batchType" />
</xsd:schema>

```

8. Appendix B –Sample File

```

<?xml version="1.0" encoding="UTF-8"?>
<batch xmlns="http://www.kuali.org/kfs/gl/collector">

```

```

<header>
  <chart>3</chart>
  <orgCode>ACCT</orgCode>
  <batchDate>2017-05-08</batchDate>
  <batchSequenceNum>00002</batchSequenceNum>
  <contactUserId>jackiev</contactUserId>
  <contactEmail>javelasquez@ucdavis.edu</contactEmail>
  <campusCode>DV</campusCode>
  <contactPhoneNumber>5307578571</contactPhoneNumber>
  <mailingAddress>1441 Research Park Drive</mailingAddress>
  <departmentName>AdminIT</departmentName>
</header>
<glEntry>
  <fiscalYear>2017</fiscalYear>
  <chart>3</chart>
  <account>6620001</account>
  <object>7259</object>
  <balanceType>AC</balanceType>
  <fiscalPeriod>11</fiscalPeriod>
  <docType>GLJV</docType>
  <originCode>92</originCode>
  <docNum>ADOCUMENT1</docNum>
  <sequenceNum>00001</sequenceNum>
  <description>Some useful description</description>
  <amount>162.22</amount>
  <debitCredit>D</debitCredit>
  <transDate>2017-05-01</transDate>
  <trackingNumber>TESTTHIS1</trackingNumber>
</glEntry>
<glEntry>
  <fiscalYear>2017</fiscalYear>
  <chart>3</chart>
  <account>6620002</account>
  <object>8065</object>
  <balanceType>AC</balanceType>
  <fiscalPeriod>11</fiscalPeriod>
  <docType>GLJV</docType>
  <originCode>92</originCode>
  <docNum>ADOCUMENT1</docNum>
  <sequenceNum>00002</sequenceNum>
  <description>Another Useful Description</description>
  <amount>190.46</amount>
  <debitCredit>D</debitCredit>
  <transDate>2017-05-01</transDate>
  <trackingNumber>TESTTHIS2</trackingNumber>
</glEntry>
<glEntry>
  <fiscalYear>2017</fiscalYear>
  <chart>3</chart>
  <account>6620042</account>
  <object>8065</object>
  <balanceType>AC</balanceType>
  <fiscalPeriod>11</fiscalPeriod>
  <docType>GLJV</docType>

```

```

        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00003</sequenceNum>
        <description>Some useful description</description>
        <amount>192.42</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS2</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00004</sequenceNum>
        <description>Describe this transaction</description>
        <amount>109.36</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS2</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620002</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00005</sequenceNum>
        <description>Descriptions are cool</description>
        <amount>563.03</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS3</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00006</sequenceNum>

```



```

        <description>Supplies of some sort</description>
        <amount>47.03</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS4</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>4</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00007</sequenceNum>
        <description>1 ea pencil eater</description>
        <amount>86.34</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS5</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00008</sequenceNum>
        <description>3 CS 102.233 EXAMGLV NITR 12IN S</description>
        <amount>306.7</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS6</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00009</sequenceNum>
        <description>1 CS 102.230 EXAMGLV NITR 12IN S</description>
        <amount>102.23</amount>
        <debitCredit>D</debitCredit>

```

```

        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS6</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00010</sequenceNum>
        <description>3 CS    35.553 95% DEHYDRANT 1GL 4</description>
        <amount>106.66</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS7</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620001</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00011</sequenceNum>
        <description>2 CS    45.630 80% DEHYDRANT 1GL 4</description>
        <amount>91.26</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS6</trackingNumber>
    </glEntry>
    <glEntry>
        <fiscalYear>2017</fiscalYear>
        <chart>3</chart>
        <account>6620050</account>
        <object>8065</object>
        <balanceType>AC</balanceType>
        <fiscalPeriod>11</fiscalPeriod>
        <docType>GLJV</docType>
        <originCode>92</originCode>
        <docNum>ADOCUMENT1</docNum>
        <sequenceNum>00012</sequenceNum>
        <description>1 CS    73.490 GLV LTX EVOLUT 1 PF</description>
        <amount>73.49</amount>
        <debitCredit>D</debitCredit>
        <transDate>2017-05-01</transDate>
        <trackingNumber>TESTTHIS6</trackingNumber>
    </glEntry>

```

```
<glEntry>
  <fiscalYear>2017</fiscalYear>
  <chart>3</chart>
  <account>1010280</account>
  <subAccount>-----</subAccount>
  <object>0299</object>
  <subObject>---</subObject>
  <balanceType>AC</balanceType>
  <fiscalPeriod>10</fiscalPeriod>
  <docType>GLJV</docType>
  <originCode>92</originCode>
  <docNum>ADOCUMENT1</docNum>
  <sequenceNum>00013</sequenceNum>
  <description>Test Clearing</description>
  <amount>2031.2</amount>
  <debitCredit>C</debitCredit>
  <transDate>2017-05-01</transDate>
  <trackingNumber>*CLEARING*</trackingNumber>
</glEntry>
<trailer>
  <totalRecords>13</totalRecords>
  <totalAmount>2031.20</totalAmount>
</trailer>
</batch>
```