

FSA Integration Partner

United States Department of Education
Federal Student Aid



Enterprise Application Integration (EAI)

SAIG – COD

Common and Legacy Record Schools
Interface

Interface Control Document

Document Reference Name: SAIG_COD_MSG_TRANSFORM_ICD

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Document Change Control

Date	Author	Version	Change Reference
9/17/2003	Scott Van Velsor	1.0	Initial Document Creation

Approval

Created By:	Scott Van Velsor	202.962.0771	Creation Date 9/17/2003
Approved By:			Approval Date: TBD
Tech Sign Off:			Sign Off Date: TBD

Interface Control Specification

Interface Name:	Common Record and Legacy Record Feed from SAIG to COD and from COD to SAIG via the EAI Bus.
Interface Type:	Bi directional Batch interface
Interface Short Description:	When COD receives a Common Record or Legacy input files from the school, COD generates a Common Record format acknowledgement for each record received. When COD processes the input file Common Record and validates its contents, COD will create a Common Record/XML format response.
Source Application:	COD & SAIG are both source and target applications
Destination Application:	COD & SAIG are both source and target applications
Functional Requirement References:	
Related Interface Internal Design(s):	EAI_FILE_TSFR_IID
Related Unit Test Document:	COD_Transformation_Test_Plan_R2.2_v0.1.doc
Other Related Interfaces:	COD-SAIG_ICD_Put_R20 SAIG-COD_ICD_Get_R20
Interface Usage Frequency:	1) When SAIG send school files to COD via the EAI Bus 2) When COD sends the acknowledgement back to SAIG via the EAI Bus
Interface Usage Volume:	The volume for common records average about 23 MB a day. The maximum number of files processed is 5500 files.

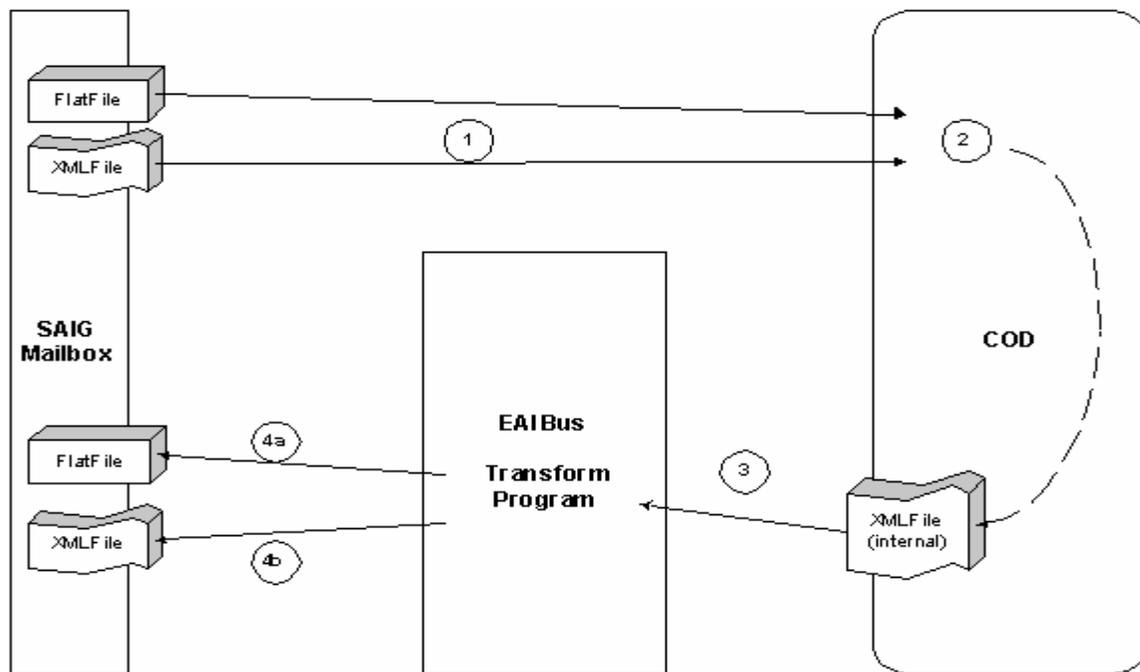
Interface Overview

Usage Scenarios:

This interface provides a bi-directional communication between COD and SAIG.

- Enables COD to send files to schools' mailboxes on SAIG. All school-bound acknowledgements from COD will pass through the EAI Bus to SAIG. All acknowledgements from COD will be transformed on the EAI Bus by a custom Java transformation program, except for reports, which will simply pass through.
- Enables SAIG to send files to COD. All school files will pass through the EAI Bus to COD. No transformation is performed on the EAI Bus for files originating from the schools.

Flow Diagram:



COD school files Process Steps:

The COD front-end system at TSYS accepts student loan origination and disbursement data from schools in two formats:

- XML "Common Record" format from full participant schools
 - Legacy "Flat File" format from phase-in schools (schools that have not yet converted their systems to support the new XML format)
1. Both the XML and the Legacy file submissions are wrapped with SAIG headers and trailers, which are used in the SAIG mailbox system.
 2. COD processes the data and sends out all of its responses in XML format. In other words, responses to both XML and Flat Files come back in XML. The XML file that it sends conforms to the internal version of the schema, which contains additional fields used by the COD transform program for constructing the final output (discussed in Step 3).

3. The COD transformation program processes the COD front-end acknowledgement output before it gets placed in the SAIG mailbox system and is returned to the schools. All COD front-end XML output goes through the EAI Bus before it is returned to schools via the SAIG mailbox system. The type of processing performed on the file depends on the type of response that is required.
4. The two major types are:
 - a) For XML submissions and responses from full-participant schools, the COD XML output is read, internal tags are stripped, and the SAIG headers and trailers are built around the XML. Note: COD supports two versions of the Common Record schema (1.0g and 2.0b)
 - b) For Legacy submissions and acknowledgements from phase-in schools, the COD XML output is converted into a flat file acknowledgement format, the type of which is dependent on the message class

The COD transformation program is located on the EAI "Bus" servers. It is written in Java, and uses XML configuration files. In production, there is a mirror instance on each of the Bus machines. Each instance operates independently. The message routing and load balancing is managed by Data Integrator (DI), which runs on top of the MQSeries messaging infrastructure. Data integrator is what actually moves the files between SAIG and COD.

COD (Source) System Hardware/Software Components

#	Type	Vendor	Product Name	Version
1	Production Platform	IBM	IBM Mainframe	
2	Operating System	IBM	OS/390	V2.9
3	DBMS	IBM	DB2	6.1
4	Transmission Protocol	IBM	MQSeries - TCP	V2.1

EAI Bus (Destination) Hardware/Software Components

#	Type	Vendor	Product Name	Version
1	Production Platform	SUN	Solaris	2.7
2	Operating System	SUN	UNIX	V2.10
3	DBMS	N/a	DB2	N/a
4	Transmission Protocol	IBM	MQSeries	V5.2

Source System Additional Information

#	Type	
1	Production System IP Address	206.209.32.1
2	Production System Location	Columbus, GA
3	Contracting Organization	TSYS
4	Developer Location	Union Center Plaza (UPC)

Destination System Additional Information

#	Type	
1	Production System IP Address	4.20.15.136/4.20.15.137
2	Production System Location	VDC
3	Contracting Organization	CSC
4	Developer Location	Union Center Plaza (UPC)

COD System Responsibilities

#	Type	Responsibility
1	System Configuration	In order for SAIG to place the data in the correct mailbox, COD needs to specify the destination Mailbox in the Document Info – Legacy section of the Common Record
2	File Configuration	Data will be formatted according to the Request File Specification section of this document.
3	System Configuration	In order for the EAI Bus to know what type of legacy record to convert the XML to, COD needs to specify the Message class and Batch ID in the Document Info – Legacy section of the Common Record
4	System Configuration	COD is expected to have MQSeries installed and running and utilize the Commerce Quest Data Integrator Tool.
5	System Configuration	COD is expected to send all fields required to create the SAIG header and trailer.
6	System Configuration	COD is expected to send a valid and well-formed XML document.

EAI Bus System Responsibilities

#	Type	Responsibility
1	System Configuration	EAI Bus is expected to have MQSeries running.
2	System Configuration	EAI Bus is expected to accept the COD feed as it is sent.
3	System Configuration	EAI Bus is expected to transform the file to the proper legacy file type based on the message class provided by TSYS.
4	System Configuration	EAI Bus is expected to create the appropriate SAIG Header and Trailer record based on information provided by TSYS in the Legacy Info section of the COD XML Common Record.

SAIG System Responsibilities

#	Type	Responsibility
1	System Configuration	The SAIG application is expected to place the files from COD into mailbox of the appropriate school.
2	System Configuration	SAIG is expected to have MQSeries v5.2 installed
3	System Configuration	SAIG will allow the MQSeries Adapter to reside on the server
4	System Configuration	EAI Bus is expected to create the appropriate SAIG Header and Trailer record based on information provided by TSYS in the Legacy Info section of the COD XML Common Record.

Interface Assumptions

#	Assumption
1	This assumes that COD returns acknowledgements in Common Record schema version 2.01c is used for all award years
2	The functional rules and logic for COD creating responses to SAIG are outside of the scope of this document.

Interface Dependencies

#	Dependency

File Specification

All the COD file record layouts that are processed by the EAI Bus are detailed in the table below. For the most up-to-date file information, refer to the links provided below. Note: These links may change from year to year.

Schema/Record Layout	Description	Links
Common Record Schema	COD supports two versions of the Common Record schema. 1) Please reference version 1.0g of the 2002-2003 Award Year COD schema. The schema used will be the internal-use schema including Legacy Info Fields. The filenames for this schema are CommonRecord1.0bi.xsd and CommonRecord1.0b-VR.xsd. However, this schema is used only for 02-03 common records. 2) Please reference version 2.0c of the 2003-2004 Award Year COD schema for all other record types and award year. The schema used will be the internal-use schema including Legacy Info Fields. The filenames for this schema are CommonRecord2.0ci.xsd and CommonRecord2.0c-VR.xsd.	In addition, the current group of documents should be available on the IFAP (Information for Financial Aid Professionals) website, www.ifap.ed.gov , under Current Publications -> Common Origination and Disbursement -> XML Schema.
Award Year 99-00 SAIG Headers and Trailers	This document provides the SAIG Header and Trailers file layout	http://www.sfadownload.ed.gov/mainframeguide.htm
Award Year 99-00 Pell Response Records	This document provides the record layouts for all Pell record types for award year 99-00	http://sfadownload.ed.gov/FedPellTechRef9900.htm
Award Year 99-00 Direct Loan Response Records	This document provides the record layouts for all Direct Loan record types for award year 99-00	http://sfadownload.ed.gov/DLTechRef9900.htm
Award Year 00-01 SAIG Headers and Trailers	This document provides the SAIG Header and Trailers file layout	http://www.sfadownload.ed.gov/mainframeguide.htm
Award Year 00-01 Pell Response Records	This document provides the record layouts for all Pell record types for award year 00-01	http://sfadownload.ed.gov/FedPellTechRef0001.htm
Award Year 00-01 Direct Loan Response Records	This document provides the record layouts for all Direct Loan record types for award year 00-01	http://sfadownload.ed.gov/DLTechRef0001.htm
Award Year 01-02 SAIG Headers and Trailers	This document provides the SAIG Header and Trailers file layout	http://www.sfadownload.ed.gov/mainframeguide.htm

Award Year 01-02 Pell Response Records	This document provides the record layouts for all Pell record types for award year 01-02	http://sfadownload.ed.gov/FedPellTechRef0102.htm
Award Year 01-02 Direct Loan Response Records	This document provides the record layouts for all Direct Loan record types for award year 01-02	http://sfadownload.ed.gov/DLTechRef0102.htm
Award Year 02-03 SAIG Headers and Trailers	This document provides the SAIG Header and Trailers file layout	http://www.sfadownload.ed.gov/mainframeguide.htm
Award Year 02-03 Pell Response Records	This document provides the record layouts for all Pell record types for award year 02-03	http://sfadownload.ed.gov/FedPellTechRef0203.htm
Award Year 02-03 Direct Loan Response Records	This document provides the record layouts for all Direct Loan record types for award year 02-03	http://sfadownload.ed.gov/DLTechRef0203.htm
Award Year 03-04 SAIG Headers and Trailers	The SAIG transmission Header record identifies the beginning of a group of input data records destined for a SAIG mailbox. The Transmission Trailer record identifies the end of this group of records.	http://www.sfadownload.ed.gov/mainframeguide.htm
Award Year 03-04 Pell Response Records	This document provides the record layouts for all Pell record types for award year 03-04	http://sfadownload.ed.gov/CODTechRef0304.htm
Award Year 03-04 Direct Loan Response Records	This document provides the record layouts for all Direct Loan record types for award year 03-04	http://sfadownload.ed.gov/CODTechRef0304.htm

Issues and Additional Considerations

Raised By	Issue	Date Needed	Resolution/Answer	Date Completed	Resolved By

Reviewers

Name	Date	Team
Eric N. Suzuki	4/16/2003	EAI

Appendix A: COD Message Classes

All message classes to be used for Common Origination and Disbursement processing of the Pell Grant Program and the Direct Loan Program for the 02-03 and 03-04 academic year are detailed in the table below for Full Participants as well as Phase-in Participants.

Award Year	Production Message Class	School Testing Message Class	Batch Type	Data Description
99-00 00-01 01-02 02-03 03-04	COMRECOP	CRTESTOP		XML Common Record Acknowledgement
99 - 00	PGOA00OP	PTOA01OP	#O	Pell Origination Acknowledgement
	PGDA00OP	PTDA01OP	#D	Pell Disbursement Acknowledgement
00 - 01	PGOA01OP	PTOA01OP	#O	Pell Origination Acknowledgement
	PGDA01OP	PTDA01OP	#D	Pell Disbursement Acknowledgement
01-02	PGOA02OP	PTOA02OP	#O	Pell Origination Acknowledgement
	PGDA02OP	PTDA02OP	#D	Pell Disbursement Acknowledgement
	PGOP02OP	PTOP02OP	#P	Web-Generated Pell Origination Acknowledgement
	PGDW02OP	PTDW02OP	#W	Web-Generated Pell Disbursement Acknowledgement
02-03	DISF03OP	DTSF03OP	#D	Direct Loan Subsidized/Unsubsidized Origination Acknowledgement
	DIPF03OP	DTPF03OP	PF	Direct Loan PLUS Origination Acknowledgement
	DIOC03OP	DTOC03OP	#E	Direct Loan Change File Acknowledgement
	DIPC03OP	DTPC03OP	#C	Direct Loan PLUS Credit Decision Acknowledgement
	DIPA03OP	DTPA03OP	#A/ #D/PF	Direct Loan Promissory Note Acknowledgement -MPN/PLUS
	DIOD03OP	DTOD03OP	#H	Direct Loan Subsidized/Unsubsidized Disbursement Acknowledgement
	DIOD03OP	DTOD03OP	#B	Direct Loan Booking Notification
	DIOD03OP	DTOD03OP	SP	Direct Loan Payment to Servicing
	PGOA03OP	PTOA03OP	#O	Pell Origination Acknowledgement
	PGOP03OP	PTOW03OP	#P	Web-Generated Pell Origination Acknowledgement
	PGDW03OP	PTDW03OP	#W	Web-Generated Pell Disbursement Acknowledgement
	PGDA03OP	PTDA03OP	#D	Pell Disbursement Acknowledgement
	PGDA03OP	PTDA03OP	#G	Pell System-Generated Disbursements Acknowledgement

03-04	DISF04OP	DTSF04OP	#D	Direct Loan Subsidized/Unsubsidized Origination Acknowledgement
	DIPF04OP	DTPF04OP	PF	Direct Loan PLUS Origination Acknowledgement
	DIOC04OP	DTOC04OP	#E	Direct Loan Origination Change
	DIPC04OP	DTPC04OP	#C	Direct Loan PLUS Credit Decision Acknowledgement
	DIPA04OP	DTPA04OP	#A/ #D/PF	Direct Loan Promissory Note MPN Acknowledgement
	DIOD04OP	DTOD04OP	#H	Direct Loan Disbursement Acknowledgement
	DIOD04OP	DTOD04OP	#B	Direct Loan Booking Notification
	DIOD04OP	DTOD04OP	SP	Direct Loan Payment to Servicing
	PGOA04OP	PTOA04OP	#O	Pell Origination Acknowledgement
	PGDA04OP	PTDA04OP	#D	Pell Disbursement Acknowledgement
	PGDA04OP	PTDA04OP	#G	System-Generated Pell Disbursements
	PGOP04OP	PTOW04OP	#P	Web-Generated Pell Origination Acknowledgement
	PGDW04OP	PTDW04OP	#W	Web-Generated Pell Disbursement Acknowledgement

Appendix B: Sample School File

This is an example of Direct Loan Legacy Origination acknowledgement file. The different layout types for all legacy files are detailed below with sample data.

Layout Type	Example lines in legacy files
SAIG Header	O*N05TG12345 ,CLS=DISF03OP,XXX,BAT=12345678901234567890123456,ABCD12
Direct Loan Header	DL HEADER 0095DISF03OP#D3X99999CCYYMMDDHHMMSSCCYYMMDDHHMMSS
Award Level	20010120#D3X99999CCYYMMDDHHMMSS999999999S03X99999999A AE Y
Direct Loan Trailer	DL TRAILER00950001050010000005000000
SAIG Trailer	O*N95TG12345 ,CLS=DISF03OP,XXX,BAT=12345678901234567890123456,ABCD1

This is an example of Common Record acknowledgement file. The different layout types are detailed below with sample data.

Layout Type	Example Common Record Acknowledgement
SAIG Header	O*N05TG12345 ,CLS= COMRECOP,XXX,BAT=12345678901234567890123456,ABCD12
Common Record	<?xml version="1.0" encoding="UTF-8"?> <CommonRecord xsi:schemaLocation="http://www.ed.gov/sfa/COD/v2 CommonRecord2.0a.xsd"> <DocumentID>2003-08-02T11:49:01.0100997799</DocumentID> </ReportedSchool> </CommonRecord>
SAIG Trailer	O*N95TG12345 ,CLS= COMRECOP,XXX,BAT=12345678901234567890123456,ABCD1