How to Integrate Blackboard and Campus Solutions Using Oracle's SAIP

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About Me

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- Part of the team at KU responsible for integrating our Student Information System (Campus Solutions) with our Learning Management System (Blackboard)

References

- Blackboard – Student Information System Integration
  - https://help.blackboard.com/en-us/Learn/9.1_SP_12/Administrator/140_System_Integration/010_Student_Information_System_(SIS)
- Learning Information Services
  - http://www.imsglobal.org/lis/
- Oracle SAIP
  - http://www.oracle.com/us/industries/education-and-research/052367.html

Requirement

- Integrate Oracle's Campus Solutions Student Information System (SIS) with Blackboard's Learning Management System (LMS)
  - Campus Solutions is system of record for classes, enrollments, grades
  - Blackboard is system students and faculty use to assist learning and instruction
  - Blackboard needs data on people, classes, and enrollments
- Automate the creation of all courses and enrollments in Blackboard

KU Systems

- Oracle PeopleSoft Campus Solutions 9.1
- Blackboard Learn 9.1 Service Pack 12

It Requires A Team

- Blackboard Administrators
- Blackboard Developers
- Blackboard Support Technicians
- PeopleSoft Administrators
- PeopleSoft Developers
- Network Administrators
- Vendor support

Data Exchange Between CS and Bb

- Both systems support the Learning Information Services (LIS) 2.0 Core Profile

- Oracle supports LIS 2.0 with its Student Administration Integration Pack (SAIP)

- Blackboard supports LIS 2.0 with its SIS data integration IMS LIS module

Learning Information Services IMS 2.0 Standards

- Vendor-neutral standards
  - Sponsored by the [IMS Global Learning Consortium](#)
- Specifies data formats and services related to the data
  - Person
  - Course
  - Member (enrollment)
  - Group (term)
  - Outcomes (grades)
  - Bulk (initial load)

Learning Information Services

- Specifies data exchange methods
  - SOAP – Simple Object Access Protocol
  - LDAP – Lightweight Directory Access Protocol (future)
- Version 2.0 released June 2011

LIS 2.0 Core Profile

- Data and services for
  - Person
  - Group (Term)
  - Course section
  - Enrollment (Membership)
- Provisioning data includes
  - Full batch snapshot (bulk)
  - Incremental snapshot (since last update)
  - Event-driven via SOAP web services
    - Near real time

Student Administration Integration Pack (SAIP)

- Oracle add-on for providing user, course, and enrollment data to external systems
  - Follows IMS LIS 2.0 standards
    - Supports core profile
    - http://www.oracle.com/us/products/applications/peoplesoft-enterprise/campus-solutions/learning-management-integration/ overview/index.html

KU INFORMATION TECHNOLOGY
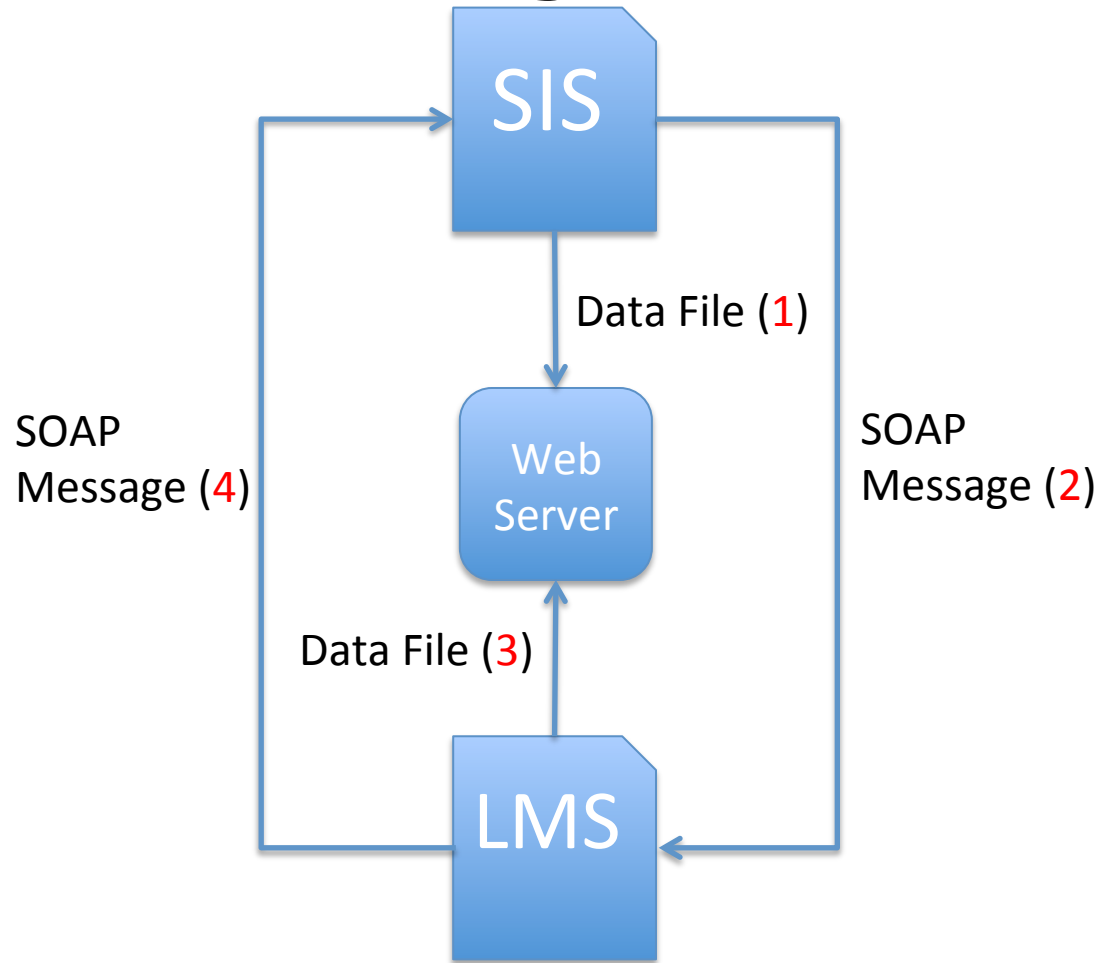The University of Kansas

Blackboard SIS Integration

- System Admin - Data Integration - Student Information Systems Integration
  - Create Integration - IMS Learning Information Services
- https://help.blackboard.com/en-us/Learn/9.1_SP_12/Administrator/140_System_Integration/010_Student_Information_System_(SIS)

Sending Data From CS to Bb

- Options for sending data are
    - Full batch snapshot (bulk)
    - Incremental snapshot (since last update)
    - Event-driven via SOAP web services
        - Near real time
- University of Kansas does full batch snapshot to get initial semester data
    - Then daily incremental snapshots

Flow of Data – Bulk Processing

1 – CS creates LIS 2 data file and places it on web server

2 – CS sends LMS SOAP message announcing data file is available

3 – Blackboard picks up data file and processes it

4 – Blackboard sends SIS SOAP message that it is finished processing data file

SIS

Data File (1)

Web Server

SOAP Message (4)

SOAP Message (2)

Data File (3)

LMS

Pre-Processing CS Data Using JavaScript

- Blackboard enables processing of the CS Data before updating its database

- Use JavaScript to manipulate the incoming data

- See Advance Configuration - Field Mapping

- We use this to set the value of Blackboard course name, set the data source key, etc.

- Blackboard documentation on custom field mapping - http://bit.ly/114VVsG

- Also see the Sample Documents link in the SIS Integrations page in Blackboard

Blackboard Integration Logs

- Down arrow next to integration name - view logs
- Limited search/filtering capabilities
- Set log level integration properties
- If set at lowest log level you may have hundreds of thousands of log messages

Error Reporting and Fixing Errors

- Find Errors?
  - View log
  - No built in automated error reporter
  - Can query the Blackboard database table that stores integration errors
- How to fix errors?
  - Upload XML file that matches LIS 2.0 format
  - SQL update of row_status value in course_users table

Questions To Consider

- How is data selected in CS for inclusion in the LIS 2.0 feed?
- What is the timing of feeds from CS to Blackboard?
- How do we handle data for multiple semesters?
- Do we need to pre-process the data sent from CS to Blackboard?

Questions To Consider

- What is the effect of LIS 2.0 data values and operations in Blackboard?
- What data should instructors be allowed to change in Blackboard?
- What is the effect on processing the CS feed in Blackboard for merged/cross-listed courses?
- How to detect and correct errors?

Questions To Consider

- What LIS 2.0 data and service is generated by CS for each type of action performed by students and staff?

- What are the known bugs related to LIS 2.0 data exchange for both CS and Blackboard?

Disadvantages
Blackboard – CS Integration

- Vendor systems must agree on how the standards are implemented
- Many hidden aspects of vendor implementation
- Limited support beyond core profile
- Error checking/reporting is undefined – vendor specific

Advantages of Blackboard – CS Integration

- Reduces vendor lock-in
- Blackboard and Oracle are working well together to solve problems
- Can save time and money vs. developing a custom integration solution
- Can support multiple systems
- XML processing is widely supported in other programming languages and enterprise systems

Questions?

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