

Eli Review: Integration with Desire2Learn at MSU

Overview: This document layout out the requirements for the work to integrate Eli Review into Desire2Learn at Michigan State University. It lays out the specifications from MSU of its itegrated vendors, the specific scope of this integration, and documents the various configurations of MSU's D2L instance that influence the integration.

MSU Requirements for all Vendor Integration

- Only 1 key and 1 secret for all of MSU and all courses - they are applied at the administrative level and access is applied downward to all courses
 - Instructors should never need to know a key or a secret - all instructors can use the integrated app, but no instructor has the permissions to add one manually
 - Access to the LTI Valence API is possible for advanced integration (roster and gradebook) but access to it is severely restricted.
 - Storage of course information exposes Eli to FERPA requirements
 - Insistence on WCAG 2.0 accessibility standards AA-rating all vendors (AAA-rating is impossible)
-

Scope of Eli Review Integration with Desire2Learn

While the expanded APIs available via Desire2Learn enable access to expanded functionality and integration, the scope of this integration effort is limited to the following:

- Sign Up: creating a new Eli Review account via D2L
- Course Creation: starting a new Eli Review course via D2L
- Single Sign On: allowing users to pass through from D2L into Eli Review
- Normalizing existing accounts and courses: updating existing user accounts and courses using normalized data from Michigan State
- Existing database tables expanded to gather metadata necessary for research purposes (semester, course ID, user ID, etc)

This work must be accompanied by updates to the Institutional Subscription model within Eli Review, though that process isn't directly related to LTI integration - the scope of that work is meant to ease the organization and management of courses within Eli but doesn't impact the normalization requirements.

Development Requirements

- LTI variables must be mapped onto existing Eli Review database tables

- Existing database tables must be expanded to support additional data
- New workflows and UI must be created to support signup and course creation with Desire2Learn
- Separate keys and secrets must be created for the two different MSU implementations of D2L (“Production” and “Sandbox”)
- Course creation process must tie into the existing “access code” model for institutional purchase management
 - when a course is created via D2L it should follow a similar alignment process as courses that use an institution-provided code to gain access to its seats
 - new codes must be hard-wired into the institution code database table that are differentiated from other codes and cannot be edited by humans
 - there must be one hard-wired institution access code per key and secret so that courses can be sorted based on their implementation (“Production” v. “Sandbox”)
- the requirements limiting the “Settings” option in a course to only the primary instructor must be eliminated so that co-instructors can utilize the settings too

Note: The new model of course creation via an LMS like D2L does not supplant any existing models for creating and managing courses. These workflows should exist in parallel to the existing methods.

POST Variables from LTI referral

These are the variables that MSU’s implementation of D2L will pass via LTI whenever a user makes a request from inside D2L. The information below documents which variables are required by Eli Review, what parsing needs to be done, and what changes need to be made to the existing database tables. An example of the complete POST array is included.

LTI Variables Required for Eli Use

- context_id: ID of the course in D2L’s database
- contextLabel: ID of the course in MSU’s database (also contains semester info)
- context_title: human-friendly title of the course
- ext_d2l_orgdefinedid: unique MSU ID for people - identifier for single signon
- ext_d2l_username: MSU NetID value
- lis_person_name_given
- lis_person_name_family
- lis_person_contact_email_primary

LTI Data and Courses

| Course Data | Eli "module" table | D2L LTI variables |
|-------------|--------------------|-------------------|
| Eli ID | id | ---- |

| | | |
|---------------------|---------------------|---------------------------------|
| D2L Course ID | ---- | context_id |
| MSU Course ID | ---- | contextLabel |
| Title | title | context_title |
| Section | number | <i>parsed from contextLabel</i> |
| Semester | ---- | <i>parsed from contextLabel</i> |
| Start Date | start_date | <i>parsed from contextLabel</i> |
| End Date | end_date | <i>parsed from contextLabel</i> |
| Institution ID | institution_id | |
| Department ID | department_id | |
| Institutional Group | institutional_group | ---- |

New course data for LTI / MSU needs (fields currently not in Eli database tables)

- D2L Course ID - the ID of the course as tracked in D2L
- MSU Course ID - the ID of the course as defined by the institution
- “Semester” - must track to help MSU find courses belonging to a specific time
- Department ID - how to reconcile with existing department info?
- multiple values to be parsed out of *contextLabel*
- not all courses will fit contextLabel semester pattern:
 - workshops
 - continuing education courses
 - *when no pattern match*, provide the user with a choice

contextLabel Example: SS15-KIN-330-001-97D7CE-EL-14-394

- Semester: SS15
- Section: KIN-330-001
- Department: KIN

Rules for start_date and end_date based on “Semester” pattern:

- SS - Spring Semester - January 1 to May 15
- US - Summer Semester - May 15 to August 1
- FS - Fall Semester - August 1 to December 31

LTI Data and People

| User Data | Eli "user" table | D2L referring URL variable |
|-----------|------------------|----------------------------|
| Eli ID | id | ---- |

The following LTI roles map onto Eli Review roles in these ways:

- **Eli Role:** LTI roles
- **Instructor:** Faculty, Instructor
- **Student:** Learner, Student

The following rules apply to roles:

- Users can have multiple roles in D2L - instructor or student. If a user has both roles in the same course, the following rules must apply:
 - If a course is being created, both workflows must execute
 - Instructor workflow executed first - course must be created
 - Once course created, execute student workflow (enrolling in the course) but do so in the background.
 - On subsequent sign-ins, only follow the instructor workflow.
- Custom workflows and landing pages will need to be generated for users who do not fall into either an Eli “instructor” or student role:
 - Admin or Staff: display an administrator page advising on system status and linking to manager (if they have permission) - admins will have the ability to impersonate other users, no way to know if a user is themselves or an admin
 - Member, Guest, or “unknown”: display a generic ending page

“Demo” Student

Every instructor in a D2L course (in every instance of D2L, not just at Michigan State) has the ability to view the course as a “demo” student. This allows them to look at every feature and every interaction from the perspective of a student, including the ability to launch integrated applications in that role (like Eli Review).

Every institution has different rules for their demo students; at MSU, those rules are that the word “Demo” is in the student name and in the role. When the word “demo” is detected in either the role or any of the name fields, display a customized warning that Eli Review does not support demo users and do not allow the user to take further action.

Complete Variable Set

```
launch_presentation_locale:EN-US__
tool_consumer_instance_guid:811482
tool_consumer_instance_name:Course Media Gallery
tool_consumer_instance_description:Course Media Gallery
tool_consumer_instance_contact_email:
tool_consumer_info_version:10.3.0 SP14
tool_consumer_info_product_family_code:desire2learn
context_id:121630
context_title:D2L Advanced Features Course
context_label:SS15-KIN-330-001-97D7CE-EL-14-394
```

context_type:CourseOffering
user_id:MichiganState_178
roles:Faculty,Instructor
lis_person_name_given:Michael
lis_person_name_family:Ezzo
lis_person_name_full:Michael Ezzo
lis_person_contact_email_primary:ezzomich@msu.edu
ext_d2l_username:ezzomich
ext_d2l_orgdefinedid:1326d9d5-9c6d-102a-aa45-59a83c375d2f
ext_d2l_role:Staff
ext_tc_profile_url:https://d2l.msu.edu/d2l/api/ext/1.0/lti/tcservices
ext_d2l_token_id:13787992
ext_d2l_link_id:40
ext_d2l_token_digest:V4k/wj5fZygY1Xlvy0aeW9bnCS0=
resource_link_id:131369634
resource_link_title:My Media on MediaSpace
resource_link_description:Your Media on MediaSpace.
lis_result_sourcedid:f4dfe6f4-92e9-439b-8cb6-25281a813062
lis_outcome_service_url:https://d2l.msu.edu/d2l/le/lti/Outcome
lti_version:LTI-1p0
lti_message_type:basic-lti-launch-request
oauth_version:1.0
oauth_nonce:911967634
oauth_timestamp:1424975767
oauth_signature_method:HMAC-SHA1
oauth_consumer_key:811482
oauth_callback:about:blank
oauth_signature:bRJJCDtx2BS6v77KBbk7XI/BNWk=
ext_basictli_submit:Launch Endpoint with BasicLTI Data

Files outlining D2L integration workflows and UI

The documents included and described below detail the changes required to each of these components and feature sets inside Eli Review.

- *003a_D2L_authentication_workflow.pdf* - this file outlines the workflows required for processing incoming requests from an LMS that will allow users to create their own Eli Review courses from within an LMS.
- *003b_D2L_user_interfaces_v2.pdf* - this file outlines the specific interfaces users will interact with from within an LMS as they are creating courses and signing in to Eli.