Impacting Teaching and Learning Through Standards

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Basic LTI: Executive Summary

• Allows an LMS to launch an External Tool and securely provide user identity, course information, and role information to the external tool

• Uses a HTTP POST through the browser - secured by the OAuth security (www.oauth.net)
User Experience

Welcome
Local Resource
Lame iFrame
LTI Tool
Movie

LMS (LTI Consumer)

Tool (LTI Provider)
User Experience

LMS (LTI Consumer)

Tool (LTI Provider)

Hello: test@example.com (Instructor)
Please enter a valid, numeric guess
Enter Guess: 
Enter Name (opt): 

Guess  Reset Game Data
LMS (LTI Consumer)
LMS Looks up User and Course Information.
Information is signed using secret and OAuth
Form data sent to Browser

Tool (LTI Provider)

Again in slow motion...

Welcome
Local Resource
Lame iFrame
LTI Tool
Movie
Form is immediately auto-submitted using JavaScript.

```html
<form action="tool">
<input name="user_id" value="2348d8dd" />
<input name="oauth_token" value="abc.edu" />
</form>
```

LMS (LTI Consumer)

Tool (LTI Provider)

Tool looks up secret and validates signature.

Tool provisions user, course, and session.

Tool sends redirect
Browser follows redirect...

LMS (LTI Consumer)

Tool (LTI Provider)

Tool produces first page.

<head>
<meta redirect page="main.php">
</head>
Hello: test@example.com (Instructor)
Please enter a valid, numeric guess
Enter Guess: 
Enter Name (opt): 

Guess  Reset Game Data
Basic LTI Sample Launch Data

lti_version=LTI-1p0
lti_message_type=basic-lti-launch-request
resource_link_id=120988f929-274612
user_id=292832126
roles=Instructor
lis_person_name_full=Charles R. Severance
lis_person_contact_email_primary = csev@umich.edu
context_id=456434513
context_title=SI301 - PHP
tool_consumer_instance_guid=ctools.umich.edu
tool_consumer_instance_instance_description=University of Michigan
An open protocol to allow secure API authorization in a simple and standard method from desktop and web applications.

For Consumer developers...

If you're building...

- desktop applications
- dashboard widgets or gadgets
- Javascript or browser-based apps
- webpage widgets

OAuth is a simple way to publish and interact with protected data. It's also a safer and more secure way for people to give you access. We've kept it simple to save you time.

For Service Provider developers...

If you're supporting...

- web applications
- server-side APIs
- mashups

If you're storing protected data on your users' behalf, they shouldn't be spreading their passwords around the web to get access to it. Use OAuth to give your users access to their data while protecting their account credentials.
Basic LTI and IMS Common Cartridge

- Common Cartridge 1.1 will include the ability to define a Basic LTI resource and include that resource in course organizational structures
Learning Tools Interoperability

The TP calls LIS services, if available.

- BasicLTILaunch with LIS pointers
Pushing Basic LTI Adoption

• Sample Java + PHP Basic LTI implementations at
  • http://code.google.com/p/ims-dev/

• Use/include sample code from oauth.net

• Both structured to provide reusable code
  • org.imsglobal.org.basiclti.BasicLTIUtil.java
  • blti_util.php

• Copyright IMS, Apache 2 - Usable anywhere
Desire2Learn

- Implemented IMS Basic LTI in 8.4.2
Icodeon - Content Player

- The Icodeon content player supports IMS Common Cartridge 1.1 which includes live links to premium content using Basic LTI
4 CHAPTER 1 | Introduction and Review

FIGURE 1.2
Graph and diagram of the 1s atomic orbital. The electron density is highest at the nucleus and drops off exponentially with increasing distance from the nucleus in any direction.

called a node. Because most of the 2s electron density is farther from the nucleus than that of the 1s, the 2s orbital is higher in energy. Figure 1-3 shows a graph of the 2s orbital.

In addition to the 2s orbital, the second shell also contains three 2p atomic orbitals, one oriented in each of the three spatial directions. These orbitals are called the 2px, the 2py, and the 2pz orbitals, according to their direction along the x, y, or z axis. The 2p orbitals are slightly higher in energy than the 2s, because the average location of the electron in a 2p orbital is farther from the nucleus. Each aorbital consist of two lobe.
Basic LTI Building Block / PowerLink

- Stephen Vickers - U. Edinburgh
  - Blackboard Building Block and PowerLink
    - http://www.spvsoftwareproducts.com/bb/basiclti/demo.swf
    - http://projects.oscelot.org/gf/project/wct-basiclti/
  - Uses the IMS-Provided utility code
  - Excellent example of the "Virtual Tool" pattern
Welcome to the Sakai Wiki Tool Running in BlackBoard

What is a wiki?

A wiki is a tool which allows people to create web pages individually or as a group, without needing any web skills. Using the wiki tool, you can create and edit web pages within your worksite. If you wish, you can make all or some pages publicly viewable.

Using wikis for teaching

There are a wide number of ways to use wikis for teaching - a web search will find any number of suggestions and case studies. For example, students can develop a collection of resources about the topic they are studying, and make them available to the outside world. Other lecturers like to produce a wiki page as a way of publishing lecture notes and course guidance for students to read but not edit.

Using wikis for research groups

A wiki allows people to work on producing a document together, such as to draft research proposals as a team, or to keep an up to date list of project contacts.
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BasicLTI - Sakai

• Sakai BasicLTI Consumer Portlet available
  (Expected in 2.7)
  • https://source.sakaiproject.org/contrib//csev/trunk/basiclti/
  • Example of using the IMS Utility code

• Support for Basic LTI in Sakai/Melete 2.7

• Sakai BasicLTI Tool Provider in Sakai 2.7
Welcome!

Welcome to this iMathAS / WAMAP demo course. If you are seeing this, then you've probably done an LTI course placement.

Let's make sure all the features work:

An equation: \[
\frac{-b\pm\sqrt{b^2-4ac}}{2a}
\]

A few graphs:
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• IMS Basic LTI and IMS Common Cartridge are on the roadmap for Moodle and development work has started
  • It should appear in Moodle 2.0 out of the box
  • Basic LTI should be back ported to 1.9, 1.8 for a dot release
Basic LTI Coverage (approximate)

- Desire2Learn
- Sakai 2.7
- Moodle 2.0, 1.9, 1.8

These are just what I *hope* will be available within 3-6 months.

- Blackboard 8
- Blackboard 9
- WebCT Vista
- ANGEL Learning
- Liferay
- uPortal
Where Do Tools Come From?

- Tool Vendors - Write once run anywhere
  - As LMS's ship with Basic LTI out of the box, this becomes the low-effort solution for the Wimba's of the world

- Faculty / Students / Tech Support
  - PHP Tool Kit
  - Python / Google App Engine Tool Kit
You are now successfully logged in using Google - this system has the following tools:

- **Administration Tool** (fragment-only)
  This application allows you to administer this system.

- **Sample Tool** (fragment-only)
  This tool shows how to build a simple Learning Portlet which supports AJAX.

- **Wisdom of Crowds** (fragment-only)
  This application allows you to play games where you are trying to determine something as a group by averaging many independent guesses. It is based on the book by James Surowiecki called "The Wisdom of Crowds".

- **The ReadList Tool** (ReadList v. 1) (fragment-only)
  This application allows you to build a communal reading list of links with your classmates as you surf the web. No AJAX, that's in version 2, below.
Up Next...

- IMS Basic LTI and IMS CC puts unprecedented ability to teach and innovate in new ways in the *hands of students and teachers*
- This is moving quickly into the marketplace
- Questions...
  - cseverance@imsglobal.org