IOER Integration

- IOER has endpoints for integration with various systems:
  - Learning Registry
  - Widgets for embedding on your website
  - SSO with 3rd party ID providers and applications
  - APIs
  - LMS and Courseware
Integration

- IOER Integration with National Learning Registry
  - IOER consumes and publishes metadata and paradata
- IOER Basic Integration
  - Embed IOER Widgets on your website for seamless access
  - Requires basic knowledge of HTML and CSS
- IOER Direct Integration
  - Single sign-on (SSO)
  - Create your own system using APIs
  - Learning Management Systems/Courseware

Learning Registry

The Learning Registry is an open database where content creators and educators can share information about digital educational resources. The Learning Registry is supporting the Learning Resource Metadata Initiative (LRMI) which provides common language for tagging resources according to quality, keyword, and alignment to curricular standards. The Learning Registry supports educator voices to help define which resources are most relevant or useful.

http://tech.ed.gov/learning-registry/
http://learningregistry.org/
The SIU CWD team designed and developed the related technologies and code base for consuming from and publishing to the Learning Registry.

The IOER metadata is based on LRMI version 1.1 adopted by Schema.org and more recently transferred to Dubin Core Metadata Initiative (DCMI).

Vocabulary used by IOER mirrors that of the Common Education Data Standards (CEDS).

http://ioer.ilsharedlearning.org/developers/learningregistry

IOER Widgets

Widgets offer a basic level of interactive integration with any website. Embed IOER seamlessly by copying/pasting a short code snippet into any site’s source code:

- Standards Browser for searching resources by standards
- Basic Search – a text box and search button
- Full Search – search using all available filters
- Learning List Explorer Widget
- Library/Collections Widget

http://ioer.ilsharedlearning.org/widgets/
Widgets - Standards Browser

Widgets - Basic and Full Search

Basic Search

Full Search
IOER Single Sign-On (SSO)

- IOER supports SSO
  - SAML 2.0 for ISLE School Districts
  - OAuth 2 for Google
- Other Identity providers (IdP) will be supported soon.
- Microsoft’s ASP.NET and MVC Frameworks support SSO using OAuth 2, among other SSO technologies.
- SSO with Google involves setting up a project in the Google Developers console, enabling the Google+ API, providing a couple URLs, and getting an AppId and App Secret from Google. Facebook uses a similar process.

http://ioer.ilsharedlearning.org/developers/rolemanagement
IOER SSO with Other ISLE Apps

NCSA at University of Illinois Champaign has implemented a SAML 2.0 Identity Provider (IdP) for use by ISLE K-12 School Districts to sign on to their apps via the ISLE App Launcher.

- IOER and the ISLE K-12 Dashboard both use a Shibboleth 2 Service Provider (SP) as the other half of the SSO process.

SSO with ISLE K-12 Dashboard

These are some widgets directly accessed/integrated via the ISLE dashboards developed by Northern Illinois University My IIRC with SSO.
IOER APIs

APIs are available to transfer data between IOER and other sites. Examples include:

- Learning Maps
- Gooru

APIs – Learning Maps

Add resources to and remove from a Learning Map:

- Learning Maps are a progression of standards that move students toward a goal.
- IOER allows users to search for resources by standard and add them to a learning map.
- This example shows a shopping cart style interface to send the resources to the learning map provider.
APIs – Gooru

• Search goorulearning.com for resources and add them to IOER and your library.
• This example shows a search of Gooru for resources about the Pythagorean Theorem.

LMS/Courseware

Learning Lists can be anything from an entire curriculum down to a unit or lesson plan. It is these that are most likely to be used in your LMS.

• SCORM (Shareable Content Object Reference Model)
  • Developed by Advanced Distributed Learning (ADL)
• Common Cartridge (CC)
  • Developed by the Common Cartridge Alliance (IMS Global is a member)

Both are open standards. Moodle (an open-source LMS) can import and export CC v1.1 and SCORM v1.2.
IOER Technical Information

IOER follows modern practices for standardizing data models and schemas supporting interoperability and machine readability. All of the sources, models, and schemas listed below are available through open use licenses.

<table>
<thead>
<tr>
<th>Type</th>
<th>Sources/Specifications</th>
<th>IOER Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata</td>
<td>Dublin Core Metadata Initiative (DCMI), DCMI Learning Resource Metadata Initiative (LRMI), Schema.org (W3C Working Groups)</td>
<td>Foundational to consuming, publishing, sharing, searching, and integrating to all aspects of IOER.</td>
</tr>
<tr>
<td>Metadata and Paradata Storage and Services</td>
<td>Learning Registry (LR) (Formats such as XML, JSON, and JSON-LD)</td>
<td>Services and infrastructure for sharing data.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Common Education Data Standards (CEDS), RttT Common Content Tagging Initiative, and DCMI/LRMI</td>
<td>Consistent tagging, filtering, and searching.</td>
</tr>
<tr>
<td>Paradata</td>
<td>LR Paradata</td>
<td>Publish assertions about people and resources in the system to establish, trust, similarity, and resource updates.</td>
</tr>
<tr>
<td>Learning Object Frameworks</td>
<td>Achievement Standards Network open frameworks (including CEDS and LRMI)</td>
<td>Learning Standards and Rubrics include Achieve’s OER and EQuIP rubrics.</td>
</tr>
<tr>
<td>Creative Works Attribution</td>
<td>Creative Commons</td>
<td>Grants copyright permissions to creative works.</td>
</tr>
<tr>
<td>Federated Identity Management</td>
<td>Shibboleth (OpenSAML)</td>
<td>Single sign-on via app launcher and NIU dashboard.</td>
</tr>
<tr>
<td>Web Services/API</td>
<td>JSON</td>
<td>IOER provides access so other web apps can use resource data.</td>
</tr>
<tr>
<td>Code Base</td>
<td>GitHub (Open Source Software Licenses)</td>
<td>IOER provides code for others to use.</td>
</tr>
</tbody>
</table>

Contact the IOER Team:

IOER Developer Documentation: http://ioer.ilsharedlearning.org/developers/
Online contact form: http://www2.illinoisworknet.com/Pages/Contact-Us.aspx
Email: info@siuccwd.com