Desire2Learn Integrations and Customizations
ABOUT THIS DOCUMENT

This document has been designed for prospective Desire2Learn clients whose organization is interested in understanding the various integrations that our system can accomplish. This document is meant for representatives from the organization’s IT staff and system administrators. The following pages will provide an overview of the four key methods used to integrate with Desire2Learn Learning Suite, and examples of each method. As there may be fees associated with any of the options described in this document, we recommend a technical discussion so that we better understand your integration requirements.
INTRODUCTION

Overview

Having conducted hundreds of client implementations, Desire2Learn has developed a thorough understanding of how every individual institution requires a unique solution that matches their needs and business goals. In fact, Desire2Learn integrates with a wider array of partners, and features a larger and more functionally complete open API than most of our close competitors. The extensibility of the Desire2Learn Learning Platform empowers our clients to take unique approaches to eLearning. With a comprehensive range of customization options, Desire2Learn clients have the freedom to develop out their system beyond the provided core platform.

There are numerous ways for extending the Desire2Learn Platform, and our four major integration approaches are:

- **STANDARDS BASED** | By adhering to industry standards (e.g., IMS Enterprise specification)
- **GENERIC INTERFACES** | By creating generic interfaces for programmatic access to the Desire2Learn system (e.g., Desire2Learn Valence)
- **TARGETED INTERFACES** | By creating target interfaces for seamless and common interfacing for third party applications
- **DIRECT** | By investing in direct integrations which involve Desire2Learn’s Implementation and Customization Services to build the integration into the product’s framework

The following pages will briefly outline our approach to these extensibility options while highlighting some of our key solutions in each category.
STANDARDS BASED INTEGRATION

One way we offer extensibility solutions to clients is through our adherence to industry standards. Desire2Learn maintains common industry standards to ensure we have the ability to integrate with other tools and systems, and to store our clients’ content in a format that is portable and readable by other technologies and systems.

Desire2Learn adheres to the following standards:

- SCORM: 1.2 RTE 3, 2004 Certification with logos
- IMS: IMS-CP, IMS-Enterprise IMS-RDCEO, IMS-QTI, IMS-CC, IMS LTI v1.0 standard and others
- IEEE: IEEE-LOM, Learning Object Standards for Metadata Profiles
- Metadata: Dublin Core, CanCore, GEM (metadata)
- OAI-PMH - Open Access Initiative protocol for metadata harvesting
- Web: HTML, XML, SOAP, REST

Examples of Desire2Learn’s standards based extensibility
IMS LTI v1.0 Standard

One of our most common standards-based integrations is through the IMS LTI v1 standard (formerly IMS Basic LTI). By following this standard, Desire2Learn can easily integrate Desire2Learn solutions with other third party vendors who also support the IMS LTI standard.

LTI is a standard developed by IMS Global Learning Consortium to allow one system, such as Desire2Learn Learning Environment, to easily link to and pass user, organization or course information to another system (e.g. other online applications for eLearning such as wikis, simulations, protected content, and assessment tools) to provide a standardized, Single Sign-On integration experience.

Desire2Learn Learning Suite supports IMS LTI v1.0 as a Tool Consumer. This support entails:

- Management interfaces to define integrations to external learning tools (Tool Providers) and to create links
- New QuickLink type to allow links to Tool Providers to be easily incorporated throughout Desire2Learn Learning Suite courses
- Links to external learning tools that can send user, organization, and course context information for a personalized experience in the tool; Single Sign-On to learning tools is supported through an OAuth framework using a key/secret shared between the external learning tool and the configured link in Learning Suite
- Management tools to configure mapping from Desire2Learn roles to IMS roles, and from Desire2Learn org unit types to IMS context types

![IMS LTI v1.0 standard workflow](image-url)
Generic interfaces have been created by the Desire2Learn team to allow third parties to access functions and data in our system through API calls. This allows for more adaptable solutions. These integrations tend to require some customized programming work, but do not involve a deep integration. In addition, some of these interfaces give your organization the opportunity to take customization into your own hands. For example, our Desire2Learn Learning Framework APIs would allow developers at your organization to create custom projects without the help of Desire2Learn Professional Services staff.

Examples of Desire2Learn’s generic interface integrations

Desire2Learn® Valence

Included with Desire2Learn Learning Suite, extensibility provided by our Desire2Learn Valence project gives developers access to the web service APIs and tools necessary to create custom integrations between the Desire2Learn Learning Suite and other applications used by your organization. Through Desire2Learn Valence, your organization will have access to our:

- Desire2Learn Valence Software Development Kit (SDK) providing access to Desire2Learn Learning Framework APIs, client libraries and samples
- Desire2Learn Mobile Developer Program providing access to the Desire2Learn Mobile App extensions, client libraries and samples
- Desire2Learn Valence community support resources (including reference documentation, walkthroughs, Q&A assistance, and a developer blog)

To learn more, please visit http://www.desire2learn.com/t/valencehome.
EXAMPLE USES FOR DESIRE2LEARN VALENCE

Developers can use the Desire2Learn Valence resources to significantly expand the abilities of your Desire2Learn solution. For example, Desire2Learn Valence allows our clients to seamlessly integrate with many systems, including:

- Desire2Learn Campus Life
- Student Information Systems (SIS)
- Portal Systems
- Authentication systems, such as LDAP, Active Directory and Novell Directory Server
- Library systems
- IT administration and Human Resource Management Systems (HRMS)
- eCommerce systems
- Email and calendar systems
- Third party tools

Single Sign-On

The Desire2Learn solution supports Single Sign-On (SSO) for user authentication to promote a secure and convenient eLearning experience for the client’s end users.

SSO is a widely used solution that provides a mechanism for authenticating with Desire2Learn Learning Environment without requiring the end user to enter a username and password if they are coming from a system for which they are already authenticated.

SSO requires your organization to have an existing authentication system in place, referred to as a trusted source system. Using that trusted source system, a user that has been previously authenticated can be logged into the Desire2Learn system without inputting any credentials. The user will then be transferred to any organization unit within Desire2Learn Learning Environment, including (but not limited to):

- Organization homepage
- Course homepage
- Course content

SSO can also be used to access external systems, in which case the Desire2Learn system would be used as the trusted source system, generating the SSO request to the external system.

LDAP

Desire2Learn Learning Suite has variable management of LDAP settings built within the platform. This allows for authentication into Desire2Learn through an LDAP directory service. The LDAP integration requires that administrators only need to enter the basic LDAP server information such as server name, organizational unit, ID, password, attributes, etc.

The Desire2Learn system can be integrated with any of the following Directory Services to perform user authentication:

- LDAP (v2 and v3)
- Microsoft® Active Directory
- **Novell Directory Server**

The system can authenticate against an external LDAP server or connect using the Kerberos protocols. Administrators can set up fail-through authentication against a secondary source (e.g. the system's own database) in the event that the primary source (e.g. LDAP server) fails.

Additionally, each organizational unit in Desire2Learn Learning Environment can authenticate against its own, separate (when necessary) authentication server.
Targeted integrations commonly use add-ons that are installed outside of the typical deployment (such as integration packs) to expand the functionality of the platform. These interfaces are usually purchasable components that are not part of the core learning platform, however these integrations have been targeted to have a more seamless presence in Desire2Learn Learning Environment.

Integration Pack for Synchronous Communication Tools

Desire2Learn has developed an Integration Pack for Synchronous Communication Tools (IPSCT) which provides distance learning and collaboration with third party offerings like Adobe® Connect™ and Blackboard® Collaborate. These tools help bolster the synchronous communication of Desire2Learn by supporting virtual classrooms with two-way VoIP, multipoint video, interactive whiteboard, application sharing, file transfer, breakout rooms and more.
Mobile Solutions

Our mobile application solution, Desire2Learn Campus Life, includes a full development Desire2Learn Mobile Developer Program that enables clients, partners and other developers to build their own mobile modules, or to repurpose their existing mobile applications to work within Desire2Learn Campus Life. The features of Desire2Learn Campus Life allow for institutions to create applications that can import XML, RSS, and data sources to pull self-updating feeds from your institution’s various interfaces.

Digital Media Services (DMS)

Desire2Learn Digital Media Services (DMS) is an enterprise rich-media platform that enables organizations to quickly and easily add video and other rich-media capabilities to enrich the user experience. DMS provides a robust suite of rich-media tools for use across an organization. DMS is complemented with the ability to easily reference media within all Desire2Learn products and access secure media through a Single Sign-On framework.

KALTURA

A good example of a DMS integration is our Single Sign-On with Kaltura Management Console (KMC). KMC provides a video service that allows for the upload, management, and brandable organization of video content in a format similar to YouTube. However, unlike YouTube this solution is not accessible to users outside of the institution.

Respondus® Studymate™ and Respondus® 4.0

Using the Integration Pack for Respondus® (IPR), Desire2Learn Learning Environment can be integrated with Respondus® Studymate™ and Respondus® 4.0. These tools allow for the seamless publishing of exams, quizzes, and activities to courses within Desire2Learn Learning Environment.
DIRECT INTEGRATION

For some solutions, Desire2Learn has built out custom and direct integrations with specific third party software, or the third party has built a direct integration with Desire2Learn. These integrations go beyond the standards, generic, and targeted based integrations discussed earlier to offer a deep assimilation of the application. These integrations usually arise from industry-wide trends and need, however if your organization requires a custom and direct integration, we are always willing to hold conversations to identify plans for its development.

Examples of Desire2Learn's direct integrations

**Turnitin®**

Desire2Learn Learning Environment features a fully integrated academic integrity system called Plagiarism Detection, which can be used to monitor your Dropbox folders, as well as identify potential cases of plagiarism by automatically comparing submissions to an online database of original content. Plagiarism Detection is enabled through the integration of Turnitin®, but the system is configured and managed from within Desire2Learn Learning Environment.

**Respondus® LockDown Browser**

Desire2Learn also integrates directly with Respondus® LockDown Browser. The Respondus® LockDown Browser is a third-party customized browser that prohibits students from accessing materials outside of
the approved areas. Through this integration, we can prevent students from accessing materials outside of the test window during the examination.

**Google Apps – Integration Pack for Collaboration Tools**

Desire2Learn features an easy-to-use integration with Google Apps for Education/Business, designed to closely match user expectations. For example, once a student submits an assignment from Google Docs to an assignment dropbox in Desire2Learn Learning Environment, a snapshot of the document is taken so that the instructor is grading a stable version and students are not able to edit the document beyond the assignment due date without the instructor’s knowledge.

Desire2Learn provides the ability for a customer to view Google services within Desire2Learn Learning Environment via the Desire2Learn Integration Pack for Collaboration Tools (IPCT). With this integration, users are able to see a list of their unread emails, upcoming events, and documents from their Google Apps account within Desire2Learn Learning Environment.

**Future Direct Integrations**

Desire2Learn is working actively with partners to build out our direct integration framework with more third party tools. This initiative is one of our key differentiators as it will give our platform the opportunity to leverage the great education tools developed by partnered software companies. For more information on the partnerships that we are currently engaged with, please visit the following site: http://www.desire2learn.com/partners/directory/
FREQUENTLY ASKED QUESTIONS

- Can you integrate with my SIS? (Banner, PeopleSoft, Genius, Homegrown?)
  - What about Luminis Portal?

  **DESIRE2LEARN RESPONSE**

  Yes, Desire2Learn can integrate with student information systems through various methods. For SunGard Banner®, we offer a solution using our Banner Adapter solution, while PeopleSoft and other SISs can be integrated using our Desire2Learn Holding Tank. Additional solutions can also use our Desire2Learn Valence Learning Framework APIs.

  Web portals like Luminis can be integrated using Single Sign-On and our Desire2Learn Valence API.

- Can you integrate with Blackboard Collaborate™, Lync, WebEx™, Connect?

  **DESIRE2LEARN RESPONSE**

  Yes, our Integration Pack for Synchronous Communication Tools (IPSCT) allows for integrations with third party offerings such as Adobe® Connect™, WebEx™ and Microsoft® Lync™. These tools support virtual classroom with two-way VoIP, multipoint video, interactive whiteboard, application sharing, file transfer, breakout rooms and more. In addition, the Blackboard Collaborate™ Bridge for Desire2Learn allows for Blackboard Collaborate™ to integrate specifically with Desire2Learn Learning Environment.

- We use (SoftChalk®, McGraw Hill, Pearson, Cengage etc) courses, can those work in Desire2Learn?

  **DESIRE2LEARN RESPONSE**

  Yes, we offer the opportunity to engage in partnerships with Aventa Learning and Pearson, both publishers with in-house Desire2Learn development services to develop courses on our platform. Additionally, we also support common cartridge standards in which any publisher content that adheres to this standard can be used in the Learning Suite. Our other publisher partnerships include: Cengage, CourseSmart, Elsevier, Wiley, McGraw-Hill, and more.

- Do you integrate with any clicker technologies?

  **DESIRE2LEARN RESPONSE**

  Yes, clicker values can be imported as a CSV file and reported on by using the Grades Tool.
Do you integrate with any lecture capture technologies?

**DESIRE2LEARN RESPONSE**

Yes, lecture capture technologies can be integrated using our Integration Pack for Synchronous Communication Tools (IPSCT). In addition, we also offer our own Desire2Learn Capture product that can integrate seamlessly with Desire2Learn Learning Environment.

**DESIRE2LEARN CAPTURE**

Desire2Learn® Capture is our newest offering and is designed to fit a variety of web production scenarios - from personal webcasting to online staff meetings to fully-automated room deployment. Rich media presentations can be captured and the synchronized content shared with viewers as a live and/or on-demand webcast.

We have some custom systems/products we would like to single-sign on into – is that possible?

**DESIRE2LEARN RESPONSE**

Yes, Desire2Learn supports Single Sign-On (SSO). SSO requires your organization to have an existing authentication system in place, referred to as a trusted source system. Using that trusted source system, a user that has been previously authenticated can be logged into the Desire2Learn system without inputting any new credentials.

What authentication options are available?

**DESIRE2LEARN RESPONSE**

In addition to having its own internal authentication module, Desire2Learn has two main methods of integrating the authentication of systems:

1. The Desire2Learn API uses variable management within the product to accommodate external authentication directories such as LDAP, Kerberos, Active Directory, and custom systems.

2. Desire2Learn can also implement Single Sign-On from diverse systems like portals, libraries, and other content systems. Administrators can set up fail-through authentication against a secondary source like the system’s own database in the event that the primary source (for example, the LDAP server) fails.

An unlimited number of authentication sources can be used with one Desire2Learn instance, provided that only one authentication source is associated with a particular user. This capability is unique to Desire2Learn. Separate authentication sources can be used for different organization units as well.
What standards do you subscribe to?

**DESIRE2LEARN RESPONSE**

Desire2Learn adheres to the following standards:
- SCORM: 1.2 RTE 3, 2004 Certification with logos
- IMS: IMS-CP, IMS-Enterprise IMS-RDCEO, IMS-QTI, IMS-CC, IMS LTI v1.0 standard and others¹
- IEEE: IEEE-LOM, Learning Object Standards for Metadata Profiles
- Metadata: Dublin Core, CanCore, GEM (metadata)
- OAI-PMH - Open Access Initiative protocol for metadata harvesting
- Web: HTML, XML, SOAP

If necessary for your review, we invite your organization to verify our conformance to the IMS standard at the IMS website ([http://www.imsglobal.org/cc/statuschart.cfm](http://www.imsglobal.org/cc/statuschart.cfm)). Our registration numbers are listed below:

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<tr>
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What products can you migrate content from?

**DESIRE2LEARN RESPONSE**

Desire2Learn Learning Environment has the following course import compatibility:
- Blackboard Learn™ 5.x, 6.x, 7.x, 8.x, 9.x
- WebCT CMU 1.x, 2.0, CE 4, CE 6.x/8.x Vista 4.x/8.x
- Angel 6.x/7.x
- UCompass Educator Exports
- IMS Common Cartridge 1.0
- SCORM 1.2/2004
- Respondus® 2.0, 3.x, 4.x
- Desire2Learn 8.x, 9.x

¹ Desire2Learn is also directly involved in the leadership of the IMS: Jeremy Auger, Desire2Learn’s Chief Technology Officer & EVP, is an elected member of the IMS GLC’s Board of Directors and serves to represent the membership as a whole and its diverse interests.
CONTACT US

About Us

Desire2Learn includes Desire2Learn Incorporated and its subsidiaries.

Desire2Learn is a global provider of enterprise eLearning solutions enabling leading institutions and organizations to create teaching and Desire2Learn Learning Environments that support them in realizing their vision.

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