



# Shadow Health<sup>®</sup> as an LTI Provider

## Table of Contents

1. [Getting Started](#)
2. [Getting Integrated](#)
3. [Need Help?](#)
  - [Troubleshooting Guide](#) (includes potential error messages)
  - [Tutorial: Blackboard Learn](#)
    - [Registering a Provider Domain](#)
  - [Tutorial: Moodle](#)
    - [Adding a New External Tool Configuration](#)
    - [Adding an External Tool to a Course](#)
  - [Tutorial: Canvas LMS](#)
    - [Adding a New App](#)
    - [Adding an External Tool to a Course Module](#)

## 1. Getting Started

First, read the “Getting Integrated” section for information on what credentials you will need to configure your LTI Tool Provider for Shadow Health.

To help with setting up your LTI Tool Provider, we’ve included in this documentation a tutorial for three of the most commonly used LMS’s: Blackboard, Moodle, and Canvas.

If you use a different LMS, that’s okay, most systems follow the same model for managing LTI Tool Providers and the information in the ‘Getting Integrated’ section below should have all of the information you’ll need to get set up.

[back to top](#)

## 2. Getting Integrated

To configure your LTI tool provider, you will need to include the following credentials:

1. Host URL
2. Consumer key
3. Consumer secret
4. Context
5. Any optional parameters

### What you'll receive from Shadow Health:

You will receive the following credentials on the date you are scheduled to integrate with Shadow Health, at which time you can use these credentials to configure your LTI Tool Provider.

Below are examples of what these values could look like, along with their required format.

1. Host URL, e.g. '<https://yourschool.shadowhealth.com/>'
  - a. **⚠ Note:** This url should always use the secure protocol, https, and include a trailing slash.
2. Consumer key, a secure random universally unique ID
3. Consumer secret, a secure hexadecimal-encoded hash value

### What you'll provide to Shadow Health:

You will provide these custom parameters to Shadow Health when you fill out the LTI Interest Survey.

**⚠ Important:** These parameters assist in automatic course creation. One of these parameters is required, the rest are optional.

### Required:

1. context: course number
  - a. e.g. *context=NUR101*

- i. NOTE: This parameter can contain underscores, but it cannot contain hyphens.

Ultimately, this parameter value can be anything you'd like, as long as Shadow Health knows what this value is going to be.

### Optional:

The optional parameters enable you to customize certain attributes of your course. All parameters must each be on their own line and be entered in "name=value" format. Parameter names and values must be lowercase. Shadow Health can help you determine what these values should be.

1. name: custom course name
  - a. e.g. *name=Health Assessment*
  - b. If this is not set, the course name will inherit from the name on the template we've created for your course.
2. start\_date: date the course should start, in the format yyyy-mm-dd
  - a. e.g. *start\_date=2016-01-01*
  - b. If this is not set, the default value is the date the course is created.
3. end\_date: date the course should end, in the format yyyy-mm-dd
  - a. e.g. *end\_date=2016-05-31*
  - b. If this is not set, the default value is one year from the date the course is created.
4. assignment\_open\_date: date the assignments in the course should open to students, in the format yyyy-mm-dd
  - a. e.g. *assignment\_open\_date=2016-02-01*
  - b. If this is not set, the default value is the start date for the course.
  - c. **⚠ Note:** Students will not be able to start assignments until this date.
5. assignment\_due\_date: date the assignments in the course should be due for students, in the format yyyy-mm-dd
  - a. e.g. *assignment\_due\_date=2016-05-01*
  - b. If this is not set, the default value is the end date for the course.
6. section: custom course number
  - a. e.g. *section=16D01*

- b. This is used to create the course number for the course that is being automatically created, so that the course is labeled in a way that visually distinguishes it from other courses of its kind. If this is not set, the course number will inherit from the custom context parameter that you specify.

Once you have made LTI placements in the course, you will test the integration with the Shadow Health team on the Shadow Health staging environment. Then, Shadow Health will move the integration to their production server and ask that you do the same on your production server before testing once more.

When your LTI Tool Provider is configured and tested, you'll be able to add links to Shadow Health in your courses. We recommend placing the link(s) to Shadow Health on the course/section level. We also recommend to provide clear instructions for students on how to access the Shadow Health link. Other institutions that have used LTI have included screenshots and/or placed the Shadow Health link within the relevant course assignments.

[back to top](#)

## 3. Need Help?

### Troubleshooting Guide

After you've completed setup, you will move on to the testing phase of the integration. As you test, you may run into errors which should be relatively easy to resolve. Below is a list of common errors:

Error Categories:

- [Bad LTI Request](#)
  - [Error Message: N/A](#)
- [User could not be authenticated](#)
  - [“user email parameter is empty or missing”](#)
  - [“user parameters are invalid”](#)
  - [“invalid request”](#)
- [There was a problem provisioning your course](#)
  - [“a required parameter is missing”](#)
  - [“course\(s\) not found for context”](#)
  - [“template course not found for context”](#)
- [LtiConsumer could not be found](#)
  - [Error Message: N/A](#)

#### 1) **Error Category:** Bad LTI Request

**Error message:** N/A

**Solution:** This more than likely means that the `oauth_consumer_key` was missing from the request. Contact a Shadow Health representative to resolve this error.

#### 2) **Error Category:** User could not be authenticated

**Error message:** *“user email parameter is empty or missing”*

**Solution:** If you see this error it means that the user's email was not sent over with the LTI request to our server. Without the email, we have no way of identifying the user within our LMS. You might want to check the privacy settings on your external tool provider. Depending on the LMS you are using, you might want to set this to “public.” This usually allows more than just the email to be sent with the request; it might also include the user's first and last name.

**Error message:** *“user parameters are invalid”*

**Solution:** If you see this error it usually means that the user's first name, last name and/or email address are not being sent over with the request to our server. Without the first name, last name and/or email address parameters, we cannot create a user in our database. You might want to check the privacy settings on your external tool provider. Depending on the LMS you are using, you might want to set this to "public." This usually allows more than just the first and last name to be sent with the request; it might also include the user's email.

Our system looks at a few parameters to determine what the user's email, first name and last name are going to be:

lis\_person\_name\_given: first name

lis\_person\_name\_family: last name

lis\_person\_contact\_email\_primary: email

Some LMS's send empty strings or nil values in these parameters, so be sure this isn't the case.

**Error message:** *"invalid request"*

**Solution:** This error more than likely means that the parameters sent over in the request are different than the parameters received by our servers, causing a bad `oauth_signature`. This can be due to null values being sent over in the request.

If you see this error, first check if there are any null values on your external tool config. If not, this can also be an issue when the page with the LTI link is bookmarked.

A possible problem scenario would be that initially the Shadow Health content was accessed by LTI, but then for some reason eventually was accessed by PIN and then eventually back to LTI. This could be resolved by clearing your browser's cache and also making sure the page with the LTI link is being accessed by typing in the url, not through a bookmark. If that doesn't resolve the issue, it might be browser related and you might want to try the LTI link in several different browsers.

If you're a Blackboard user, it's possible this error is being caused by HTML being sent in a parameter of the LTI request. When creating a link from the LMS to Shadow Health, the description text for the link is sent as a parameter in the 'handshake' between the two systems. If the description contains HTML tags, due to formatted text, the 'handshake' will fail. The text editor in the LMS adds HTML tags automatically when multiple lines of text are typed, so the description must be a single line of non-formatted text.

If none of these steps resolve the error, please contact Shadow Health.

3) **Error Category:** There was a problem provisioning your course

**Error message:** *“a required parameter is missing”*

**Solution:** If you see this message you either failed to provide a required custom parameter, or misspelled the custom parameter name. Depending on your school’s mapper type, the required parameters are different.

external\_lms mapper type: custom\_term, custom\_year and custom\_context are all required.

resource\_link\_id mapper type: custom\_context and resource\_link\_id are required

context\_id mapper type: custom\_context and context\_id are required

Please consult with your Shadow Health representative to make sure you are sending the required custom parameter.

**Error message:** *“course(s) not found for context”*

**Solution:** If you see this message, it is probably because the system tried to look up a course in the database with a very specific context value, and it failed to find it.

This could be because the wrong mapper type is being used on the school’s LtiConsumer object. Your LTI representative should make the necessary change and then try the request again.

**Error message:** *“template course not found for context”*

**Solution:** This message means that the database query to find the template course from which to create your course returned nil. This could be for a number of reasons, so it’s best to contact your Shadow Health representative to diagnose and resolve this issue.

4) **Error Category:** LtiConsumer could not be found

**Error message:** N/A

**Solution:** This error means that the system failed to find the object in our database that contains attributes that are specific to your institution. This could be because you have the wrong oauth\_consumer\_key. After having double checked the key you find they are the same, you should reach out to your Shadow Health representative to diagnose and resolve the issue. They should have more information on why you received this error.

[back to top](#)



## Tutorial: Blackboard Learn

Blackboard uses Building Blocks to configure LTI Tool Providers. First you'll need to Register a Provider Domain for Shadow Health and configure it to be set globally for a site-wide configuration. Then, you can add a placement if you'd like or add a web link directly into the course content.

### Registering A Provider Domain

Navigate to Building Blocks > LTI Tool Providers > Register Provider Domain and then fill in the fields as follows:

#### 1. Provider Domain Status

- **Provider Domain:** type the host domain provided to you by Shadow Health, such as 'yourschool.shadowhealth.com'.
- **Provider Domain Status:** select 'Approved'

#### 2. Default Configuration

- **Default Configuration:** select 'Set globally'
- **Tool Provider Key** enter the key provided to you by Shadow Health
- **Tool Provider Secret** enter the secret provided to you by Shadow Health
- **Tool Provider Custom Parameters:** includes the one required parameter outlined in detail above in the 'Getting Integrated' section, as well as any of the supported optional parameters of your choosing. Shadow Health help you in determining the value of the one required parameter, context.

#### 3. Institution Policies

- **Sender User Data** choose send user data only over SSL
- **User fields to Send** check all 3: role in course, name, email address

Register the Provider by clicking **Submit**.

## 1. Provider Domain Status

Set the status of the provider domain. You can also provide a list of additional hostnames to share this configuration if needed.

\* Provider Domain

Provider Domain Status  Approved  
 Excluded

Secondary Hostnames

*Enter one hostname per line.*

## 2. Default Configuration

LTI Tool Providers can request configuration per link, or can provide key and shared secret information for site-wide configuration.

Default Configuration  Set separately for each link  
 Set globally

\* Tool Provider Key

\* Tool Provider Secret

Tool Provider Custom Parameters

*Enter any custom parameters required by the tool provider. Parameters must each be on their own line and be entered in "name=value" format.*

## 3. Institution Policies

Choose whether you want to override the institution policies for this specific tool provider domain.

Send User Data  Never  
 Send user data only over SSL  
 Send user data over any connection

User Fields to Send  Role in Course  
 Name  
 Email Address

Show User Acknowledgment Message  Yes  No

Message Text

**T** *T* T Arial ▼ 3 (12pt) ▼ T ▼ ☰ ▼ ☷ ▼ 🔗 🌐

**Figure 1 and 2.** Screenshots of an example configuration for Registering a Provider Domain.

[back to top](#)

### Creating A Placement (optional)

In the table of LTI Providers, click on 'Placements' for the Shadow Health Provider Domain that you've just created. From here, click on Create Placement, and fill in the fields as follows:

#### 1. Placement Information

- **Label:** should be a name that is easily distinguishable from other placements. For example, 'Shadow Health NUR101'.
- **Handle and Type** can be whatever you'd like.

#### 2. Tool Provider Information

- **Tool Provider URL:** should be set to the url for the host domain you specified when Registering the Tool Provider (this was provided to you by Shadow Health). For example, <https://yourschool.shadowhealth.com/>.
  - i. **⚠ Note:** This url should always include the secure protocol, https, as well as a trailing slash.
- The Key, Secret, and custom parameter that you specified when setting up the Tool Provider should already be populated here.

Click the Submit button to finish, and add other placements as needed.

[back to top](#)

## Tutorial: Moodle

Moodle uses a plugin to manage external tool configurations for LTI Tool Providers. You'll have to first create an external tool configuration for each course you wish to integrate with Shadow Health. Then, you'll add to each course an 'External Tool' activity that points to its corresponding external tool type.

### Adding a New External Tool Configuration

Navigate to Site Administration > Plugins > Activity Modules > LTI > Manage external tool types > Add external tool configuration and then click on 'Add external tool configuration.'

## External tool types ?

Active Pending Rejected

Add external tool configuration

Tool name	Base URL/tool registration name	Created on	Action
Shadow Health	https://example.shadowhealth.com/	29/04/16	⚙️ ✕

**Figure 3.** Adding an external tool type

Fill out the relevant fields as follows:

### Tool Settings

**Tool Name:** this can be whatever you'd like. It is recommended that you include the course number or course name in this title as it will need to be easily distinguishable from other courses' external tool configurations.

**Tool base URL:** this must be set to the host url that Shadow Health has provided you. It must include 'https' as the protocol and a trailing slash. For example, 'https://example.shadowhealth.com/' is an acceptable value for this field.

**Consumer key:** a secure random unique id provided to you by Shadow Health

**Shared secret:** a secure encoded value provided to you by Shadow Health

**Custom parameter:** should include the one required parameter outlined in detail above in the 'Getting Integrated' section, as well as any of the supported optional parameters of your choosing. Please consult with Shadow Health to know exactly what the value of the required parameter, context, should be.

▼ Tool settings

Tool name\* ? Shadow Health

Tool base URL\* ? https://example.shadowhealth.com/

Consumer key ? key

Shared secret ? .....  Unmask

Custom parameters ? context=nur101

Show tool type when creating tool instances

Default launch container ? Embed, without blocks

[Show more...](#)

Figure 4.1. Example of Adding an External Tool: Tool Settings.

**Miscellaneous**

**Organization ID:** this can be whatever you'd like. Usually this is set to the name of the university. For example, 'Example University.'

Add the external tool configuration by clicking 'Save changes.'

▼ Miscellaneous

Organization ID ? Example University

Organization URL ?

Figure 4.2. Example of Adding an External Tool: Miscellaneous

[back to top](#)

**Adding an External Tool to a Course (optional)**

Once you've added the external tool configuration, adding the tool to your course is easy. You'll just navigate to the course, go to the section where you'll be adding the Shadow Health

resource, and click 'Add an activity or resource.' The type of activity you want to add in this case is 'External Tool.' Then you just fill in the activity name, activity description, and select the external tool type from the dropdown list of external tool configurations you created earlier in the tutorial, and you're done.

**⚠ Note:** Leaving the activity description blank will result in an error when trying to access Shadow Health content. This field must always be populated.

#### ▼ General

The screenshot shows the 'General' section of the Canvas LMS form for adding an external tool. It includes the following elements:

- Activity name\*:** A text input field containing 'Shadow Health Content'.
- Activity description\*:** A rich text editor with a toolbar containing icons for text formatting (bold, italic, underline, link, unlink, list, indent, outdent), alignment, and media insertion. The description text reads: 'Please follow the link to access Shadow Health content.'
- Display options:** Three checkboxes, each with a help icon (question mark in a circle):
  - Display description on course page
  - Display activity name when launched
  - Display activity description when launched
- External tool type:** A dropdown menu with 'NUR 202' selected, followed by a plus sign, a refresh icon, and a close icon.

**Figure 5.** Form for adding an external tool to a course

[back to top](#)

## Tutorial: Canvas LMS

Canvas LMS uses External Apps (or just apps) as a way to add features, like LTI Tool Providers to courses. You'll have to first add an external app configuration for each course you wish to integrate with Shadow Health. Then, you'll add to a Module in a Course a link to an 'External Tool' that points to its corresponding external tool type.

### Adding a New App

Navigate to Course Settings > Apps and click on "Add App"

### Edit App ✕

---

**Name**

**Consumer key**  **Shared Secret**

**Launch URL**

**Domain**  **Privacy**

**Custom Fields**

One per line. Format: name=value

**Description**

**Figure 6.** Adding an external app

Fill out the relevant fields as follows:

❑ **Add App**

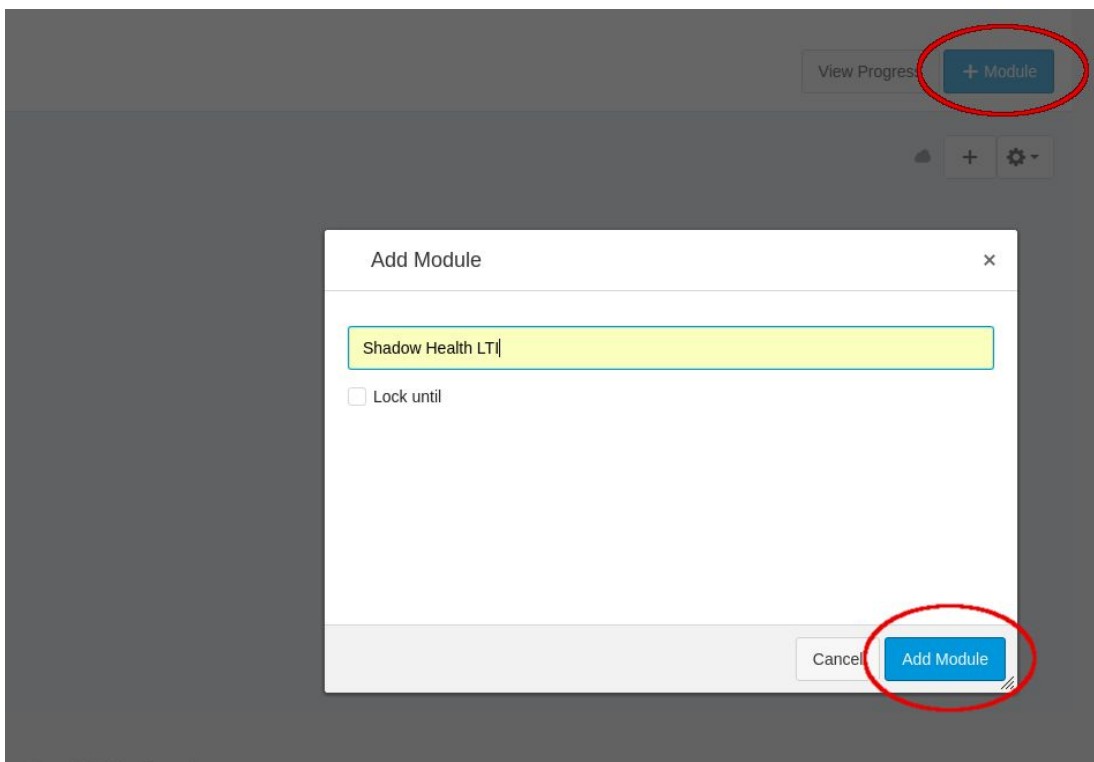
- **Configuration Type:** choose 'Manual Entry'
- **Name:** this can be whatever you'd like. It is recommended that you include the course number or course name in this title as it will need to be easily distinguishable from other courses' external tool configurations.
- **Consumer key:** a secure random unique id provided to you by Shadow Health
- **Shared secret:** a secure encoded value provided to you by Shadow Health

- **Launch URL:** this must be set to the host url that Shadow Health has provided you. It must include 'https' as the protocol and a trailing slash. For example, 'https://example.shadowhealth.com/' is an acceptable value for this field.
- **Domain:** Shadow Health's domain 'shadowhealth.com' (optional)
- **Privacy:** 'Public'
- **Custom parameter:** should include the one required parameter outlined in detail above in the [Getting Integrated](#) section, as well as any of the supported optional parameters of your choosing. Please consult with Shadow Health if you're having troubling knowing exactly what the value of the required parameter, context, should be.

[back to top](#)

### Adding an External Tool to a Course Module

Once you've added the external app to your course, adding the app to a Course Module can be done in 3 easy steps. You will just add a new Module, add an external tool item to the Module, and then publish it:



1.

**Figure 7.1** Adding a module to a Course



Add Item to Shadow Health LTI

Add External Tool to Shadow Health LTI

Select a tool from the list below, or enter a URL for an external tool you already know is configured with Basic LTI to add a link to it to this module.

**Localhost**  
null

**Shadow Health**  
Not null

URL:  to use this tool the domain must match shadowhealth.com

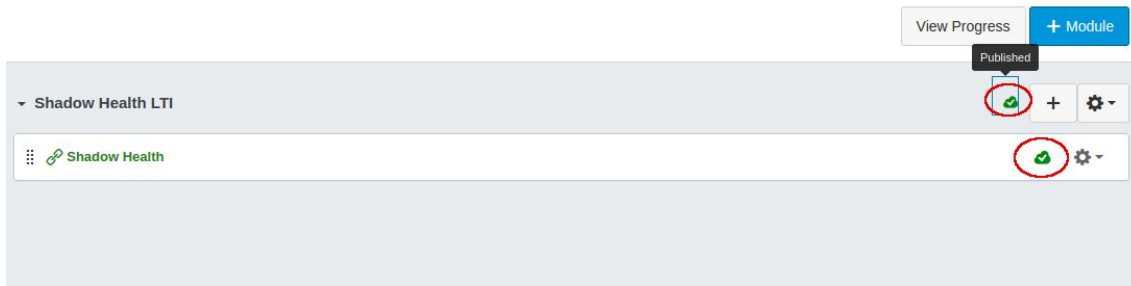
Page Name:

Load in a new tab

Indentation:

2.

**Figure 7.2** Adding an item to the new Module.



3.

**Figure 7.3** Publishing the module and link

[back to top](#)