

3 Integration [patched] Moodle 4.0 with SLS

Current Situation

Moodle 4.0 supports LTI 1.3 and LTI Advantage

Moodle 4.0 patched to allow integration with SLS

SLS partially supports LTI 1.3 and does not support LTI Advantage. Refer to this [official listing of products that have passed 1EdTech interoperability certification](#).

https://site.imsglobal.org/certifications?refinementList%5Bstandards_lv%5D%5B0%5D=Learning%20Tools%20Interoperability%20AE%20%28LTI%29 Note that SLS is NOT certified LTI 1.3.

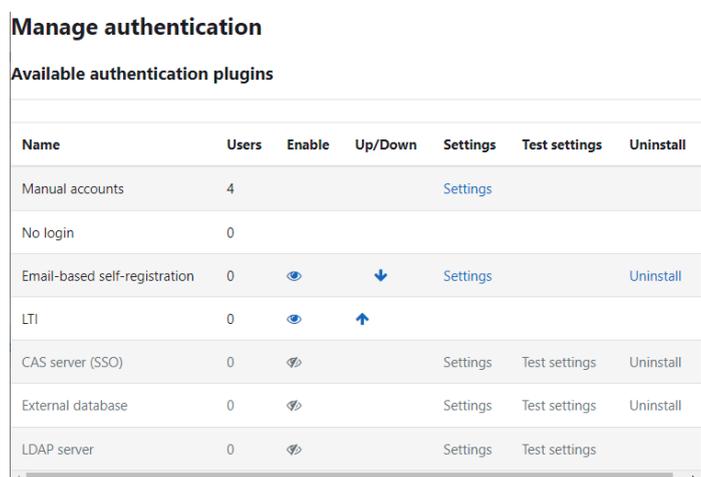
References:

- Publish as LTI tool in Moodle, available at https://docs.moodle.org/400/en/Publish_as_LTI_tool#Custom_launch_parameters
- List of LTI Advantage certified products, available at <https://www.imsglobal.org/ltiadvantage>
- Integration with SLS, available at <https://docs.learning.moe.edu.sg/sls/partners/integration/integrationsls.html>

Step 1. Enabling the 'Publish as LTI tool' feature in Moodle

As an admin user, enable the 'Publish as LTI tool' for use across the site:

- Go to Site administration > Plugins > Authentication > [Manage authentication](#), and [enable LTI](#)



Name	Users	Enable	Up/Down	Settings	Test settings	Uninstall
Manual accounts	4			Settings		
No login	0					
Email-based self-registration	0		↓	Settings		Uninstall
LTI	0		↑			
CAS server (SSO)	0			Settings	Test settings	Uninstall
External database	0			Settings	Test settings	Uninstall
LDAP server	0			Settings	Test settings	

- Go to Site administration > Plugins > Enrolments > [Manage enrol plugins](#), and enable '[Publish as LTI tool](#)'

Manage enrol plugins

Available course enrolment plugins

Name	Instances / enrolments	Version	Enable	Up/Down	Settings	Test settings	Uninstall
Manual enrolments	1 / 2	2022041900		↓	Settings		
Guest access	1 / 0	2022041900		↑ ↓	Settings		Uninstall
Self enrolment	1 / 0	2022041900		↑ ↓	Settings		Uninstall
Cohort sync	0 / 0	2022041900		↑ ↓	Settings		Uninstall
Publish as LTI tool	2 / 2	2022041900		↑	Settings		Uninstall
Category enrolments	0 / 0	2022041900			Settings		Uninstall
External database	0 / 0	2022041900			Settings	Test settings	Uninstall

- Optionally, go to Settings of '[Publish as LTI tool](#)' and fill the properties

User default values

The 'Publish as LTI tool' plugin, together with the LTI authentication plugin, allows remote users to access selected courses and activities. In other words, Moodle functions as an LTI tool provider.

User default values

Email display enrol_lti | emaildisplay
Default: Allow only other course participants to see my email address

Privileged users (such as teachers and managers) will always be able to see your email address.

City/town enrol_lti | city Default: Empty

Select a country enrol_lti | country Default: Select a country...

Timezone enrol_lti | timezone Default: Server timezone (America/New_York)

Preferred language enrol_lti | lang Default: English (en)

Institution enrol_lti | institution Default: Empty

It is recommended that the site administration setting 'Allow frame embedding' is enabled (in "Site Administration > Security > [HTTP security](#)") so that tools can be displayed within a frame rather than in a new window, if desired.

Allow frame embedding allowframeembedding Default: No

If enabled, this site may be embedded in a frame in a remote system, as recommended when using the 'Publish as LTI tool' enrolment plugin. Otherwise, it is recommended to leave frame embedding disabled for security reasons. Please note that for the mobile app this setting is ignored and frame embedding is always allowed.

Step 2. Initial manual registration in Moodle

As an admin user, create a new platform registration for SLS:

- Go to "Site administration > Plugins > Enrolments > Publish as LTI tool > [Tool registration](#)"
- Click the "[Register a platform](#)" button to create a new platform registration
- Enter the name of the platform and click "Continue"

You'll see a "Tool details" tab with the LTI endpoints.

Edit registration

Back

Tool details | Platform details | Deployments

Dynamic registration

If the platform supports dynamic registration, use the registration URL below. For further information on dynamic registration, see the documentation [Publish as LTI tool](#).

Registration URL:

Manual registration

The tool endpoints below are for manual LTI 1.3 setup only. For earlier versions (1.1/2.0), details for consumers can be found on the 'Published as LTI tools' page, accessible via course navigation.

Name	URL
Tool URL	<input type="text" value="https://iwant2study.org/moodle402/enrol/lti/launch.php"/>
Initiate login URL	<input type="text" value="https://iwant2study.org/moodle402/enrol/lti/login.php?id=33-"/>
JWKS URL	<input type="text" value="https://iwant2study.org/moodle402/enrol/lti/jwks.php"/>
Deep linking URL	<input type="text" value="https://iwant2study.org/moodle402/enrol/lti/launch_deepink."/>

Step 3. Manual registration in SLS

As an App Admin user, add an LTI App using the Moodle information:

- Go to "Administration > App Admin > Manage Apps"
- Click the "Add New App" button to create a new App
- Enter the name, description, division, branch and icon, and optionally the rest of parameters
- Change the tab "App Configuration" and enter the type LTI
- The App configuration depends on the Moodle configuration and your preferences. An example is the following one:
 - o Public Key: "ignored" or updated 20230904
 "MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAK0vdTbC0eTjLZpucQ0rzIjbZNbOn9wfkLT7BycOOLrzdsg15dKwILWRnNmMYHhlsM6vwtdofERLhVlpzVwnA0p2v+p3mVEioR+wnKe4OuMwq0JOtw716xigpuqF4U7FpMOHXPNSiK0tdz2Y/kmy4+n1wjxreFotaFhxhCuGqLRLkyUW4H1qNeoyrqg6qUXCmscVxFckze4XmyOy+0c3JAB53Y1na3DtrJlfaesxq9oeHf6iAmghq6Sd9uCCDy3BSTleGjipfplc1JPWHwZLxfbV3pmtvxBKMsyQllwAwIradBAIPEDuUuo0dNGez4PouC8XyK58EAiO1iEkvPOtvaQIDAQAB"
 - o OIDC Login URL: <https://iwant2study.org/moodle402/enrol/lti/login.php>
 - o Searchable in App Library: <https://iwant2study.org/moodle402/enrol/lti/launch.php>
 - o Installable to Class / Group: <https://iwant2study.org/moodle402/enrol/lti/launch.php>
 - o Embeddable to Lesson: <https://iwant2study.org/moodle402/enrol/lti/launch.php>
 - o Whitelisted Domains (Maximum 10 Domains): vle.dev.sls.ufinity.com, dev.sls.ufinity.com, vle.learning.moe.edu.sg, iwant2study.org
- Click "Save" and then click the button "Edit App Availability" in order to make available the App.

Moodle App EDIT APP AVAILABILITY

Detail **App Configuration**

Type
LTI

App Client Id
76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9

Public Key
MIIBJANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAKvdTbC0eTJLZpucQ0rzJjBzNbOn9wfxLT7BycO0LrzdSg15dKwLWRnNmMYHhM6vwtDofERLHV LpzVwnA0p2y+p3mVEioR+wnKe4OulMwqJ0tw716xlgpuqF4U7FpMOHXPNsIK0tdz2Y/kmy4+n1wjxreFotaFnxhCuGqRLkyUW4H1qNeoyrgg6qUXCmScvXF Ckze4XmyOy+0c3jAB53Y1na3DtrjIfaesxq9oeHf6IAmghq6Sd9uCuQDy3BSTeGjipfplc1JPWHwZLxfV3pmtvx8KMsyQilWawIradBAIPEDuUuo0dNGez4PouC8 XyK58EAI01IEkvPOtvaQIDAQAB

OIDC Login URL
https://iwant2study.org/moodle402/enrol/lti/login.php

App Installation and URL
App Settings will be visible in the App Library.

Searchable in App Library

Independent URL
https://iwant2study.org/moodle402/enrol/lti/launch.php

Installable to Class / Group

Launch URL
https://iwant2study.org/moodle402/enrol/lti/launch.php

Embeddable to Lesson

Deepinking URL
https://iwant2study.org/moodle402/enrol/lti/launch.php

Not Framable

Whitelisted Domains (Maximum 10 Domains)
vle.dev.sls.ufinity.com, dev.sls.ufinity.com, vle.learning.moe.edu.sg, iwant2study.org

Step 4. Final manual registration in Moodle

As the admin user, complete the registration for SLS:

- Go to "Site administration > Plugins > Enrolments > Publish as LTI tool > [Tool registration](#)". If you have the registration open still, simply click the "Platform details" tab. If not, from the registration table, click the "View platform details" action. You'll see a table listing the various platform endpoints and identifiers.
- Click "[Edit platform details](#)"
- **Copy the following values from actual SLS:**
 - o Platform ID (issuer): <https://vle.learning.moe.edu.sg>
 - o Client ID: **1ecc01ea-c4ad-4221-b1a6-7237c8fb5a14**
 - o Authentication request URL: or OIDC:
<https://vle.learning.moe.edu.sg/lti/authorize/1ecc01ea-c4ad-4221-b1a6-7237c8fb5a14>
 - o Public keyset URL or JWKS:
<https://vle.learning.moe.edu.sg/lti/key-set/1ecc01ea-c4ad-4221-b1a6-7237c8fb5a14>
 - o Access token URL:
<https://vle.learning.moe.edu.sg/lti/authorize/1ecc01ea-c4ad-4221-b1a6-7237c8fb5a14>
- Older copy: Copy the following values from SLS for example in development server:
 - o Platform ID (issuer): <https://vle.dev.sls.ufinity.com>
 - o Client ID: 76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9
 - o Authentication request URL:
<https://vle.dev.sls.ufinity.com/lti/authorize/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9>

- o Public keyset URL: <https://vle.dev.sls.ufinity.com/lti/key-set/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9>
- o Access token URL: <https://vle.dev.sls.ufinity.com/lti/authorize/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9>

Edit registration

Back

Tool details Platform details Deployments

Once the tool has been set up in the platform, details from the platform must be recorded here to complete the registration.

- For dynamic registrations, this information will have been set automatically and no further changes are required.
- For manual registrations, this information must be manually copied from the platform.

Platform name	SLS MoE
Platform ID (issuer)	https://vle.dev.sls.ufinity.com
Client ID	76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9
Authentication request URL	https://vle.dev.sls.ufinity.com/lti/authorize/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9
Public keyset URL	https://vle.dev.sls.ufinity.com/lti/key-set/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9
Access token URL	https://vle.dev.sls.ufinity.com/lti/authorize/76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9

Edit platform details

- Save and, next, select the "Deployments" tab
- Click "[Add a deployment](#)", enter a deployment name, copy the value *Deployment ID* provided by the SLS vendor and save.

Edit registration

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Tool details Platform details Deployments

A deployment ID is generated by the platform when the tool is made available in a context. This may occur at the time of registration, or later, when the tool is made available to a specific course or category. The deployment ID must be entered here before launches from the tool deployment are permitted.

Name	Deployment ID	Actions
sls dev	9ebbd42f-0f45-41f8-b25b-8cf5aef68d02	

Add a deployment

Note that Platform ID and Client ID are obtained from the SLS registration. However, the Deployment ID is not visible at the SLS platform. You must request the Deployment ID to the SLS vendor seet.shaoyuen@ufinity.com and moe.sls@support.ufinity.com.

Update 20230904: Client ID : 1ecc01ea-c4ad-4221-b1a6-7237c8fb5a14

Update 20230904: Deployment ID : 1823fd1e-b1b4-4f3d-82df-4ddc3cda50b7

The registration process is now complete. Click the "Back" button or navigate to "Site administration > Plugins > Enrolments > Publish as LTI tool > Tool registration", where you will now see the registration listed as "Active".

SLS MoE Platform ID (issuer): <https://vle.dev.sls.ufinity.com> 1 Active

Client ID: 76b5f118-d6b0-4a6b-9cfa-00fa3387e3d9

Step 5. Sharing access to an EjsS Simulation from Moodle

As a course admin user, share access to your EjsS Simulations:

- From the course navigation, select "Published as LTI tools"

Testing EjsS Simulations

Course Settings Participants Grades Reports More ▾

- > General
- > EjsS Topic

- Question bank
- Content bank
- Course completion
- Badges
- Competencies
- Filters
- Unenrol me from testing
- Published as LTI tools**
- Accessibility toolkit
- Recycle bin
- Course reuse

- Under the "LTI Advantage" tab (this is selected by default) click the "Add" button
 - o In "[Tool to be published](#)" select the EjsS Simulation to be shared
 - o In "Teacher first launch provisioning modes" and "Student first launch provisioning mode" select "New accounts only (automatic)".
 - o Disable grade and user sync for the resource
- Click the "Add method" button

Publish as LTI tool

▼ Publish as LTI tool

LTI version	<input type="text" value="LTI Advantage"/>
Custom instance name	<input type="text" value="EjsS Simulation"/>
Tool to be published	<input type="text" value="EjsS Simulation Sample"/>
Enrolment duration	<input type="text" value="0"/> <input type="text" value="days"/> <input type="checkbox"/> Enable
Start date	<input type="text" value="17"/> <input type="text" value="August"/> <input type="text" value="2022"/> <input type="text" value="14"/> <input type="text" value="41"/> <input type="checkbox"/> Enable
End date	<input type="text" value="17"/> <input type="text" value="August"/> <input type="text" value="2022"/> <input type="text" value="14"/> <input type="text" value="41"/> <input type="checkbox"/> Enable
Maximum enrolled users	<input type="text" value="0"/>
Role for teacher	<input type="text" value="Teacher"/>
Role for student	<input type="text" value="Student"/>
Teacher first launch provisioning mode	<input type="text" value="New accounts only (automatic)"/>
Student first launch provisioning mode	<input type="text" value="New accounts only (automatic)"/>

▼ Remote system

Grade synchronisation	<input type="text" value="No"/>
Require course or activity completion prior to grade synchronisation	<input type="text" value="No"/>
User synchronisation	<input type="text" value="No"/>
User synchronisation mode	<input type="text" value="Enrol new and unenrol missing users"/>

▼ User default values

Email display	<input type="text" value="Allow only other course participants to see my email address"/>
City/town	<input type="text" value="Singapore"/>

[Show more...](#)

The published activity or course is now ready for use in SLS. Note that Moodle provides an identifier that must be used in the next step.

Published content

A published resource or activity can be used in registered platforms via the content selection (deep linking) flow. Additionally, a resource link can be created manually in the platform by using the launch URL and the custom properties provided.

[More help](#)

LTI Advantage Legacy LTI (1.1/2.0)

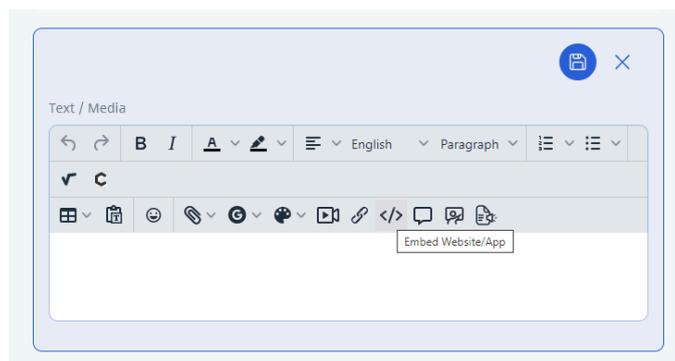
Name	Launch details	Edit
testing	Launch URL <input type="text" value="https://iwant2study.org/moodle402/enrol/lti/launch.php"/> Custom properties <input type="text" value="id=68b09cbe-85fc-4777-be2d-d6d8c219f775"/>	
EjsS Simulation	Launch URL <input type="text" value="https://iwant2study.org/moodle402/enrol/lti/launch.php"/> Custom properties <input type="text" value="id=c57f3601-5d95-4fa0-8c75-6d09d59e057c"/>	

[Add](#)

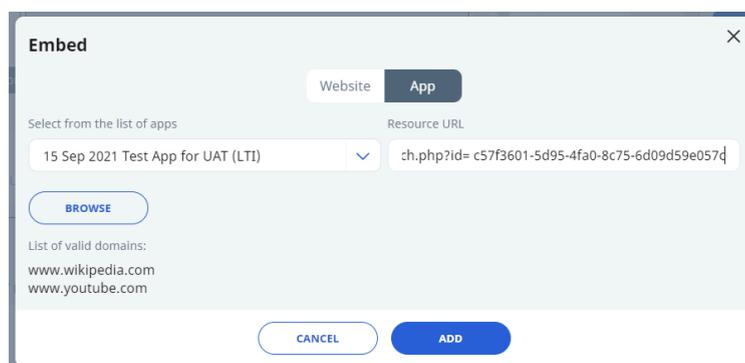
Step 6. Sharing access to an EjsS Simulation from Moodle

As a teacher user, add an EjsS Simulation using the LTI App:

- Add a component as usual into your lesson and add Embed App

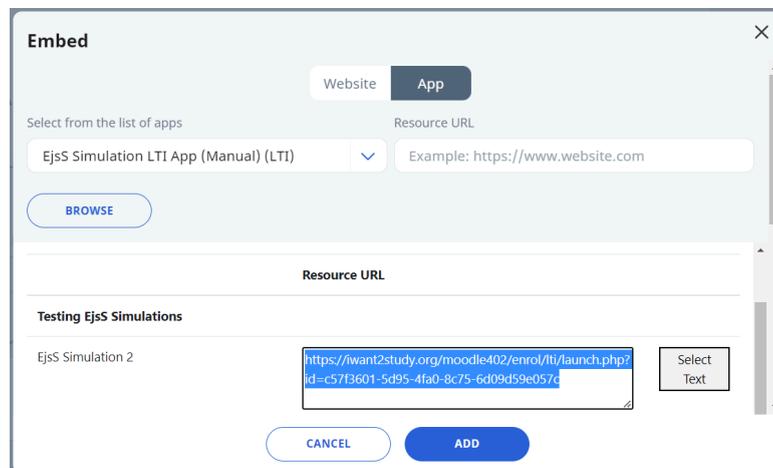


- On the tab "App", select the App created in Step 2 by its name. Now, there are two options to input the Resource URL.
 - o Option 1. Manually enter the Resource URL. The Resource URL is the target link uri. Based on the result of the previous step, enter:
 "https://iwant2study.org/moodle402/enrol/lti/launch.php?id=c57f3601-5d95-4fa0-8c75-6d09d59e057c"



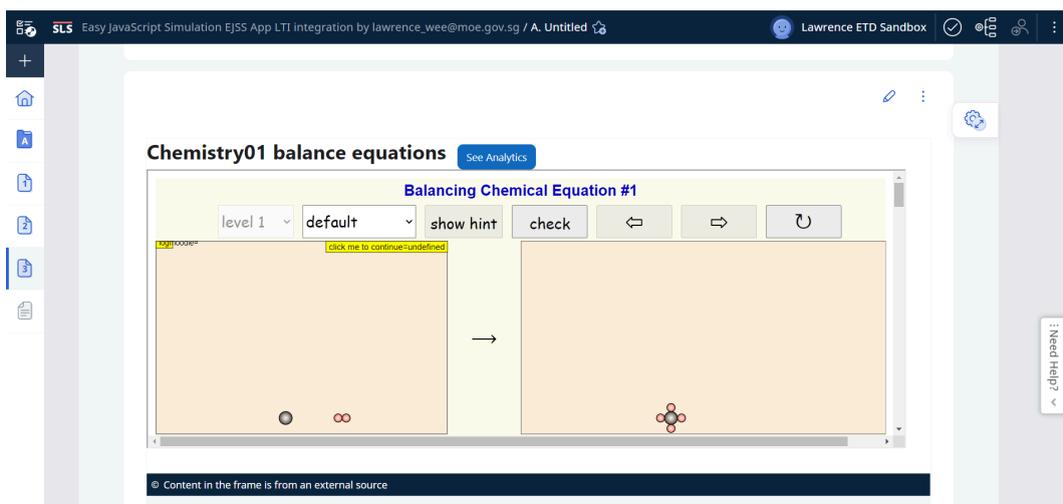
Note that the target link uri has the form "Launch URL" + "Custom properties"

- o Option 2. Click the "Browse" button. A list of simulations and their Resource URLs are shown. Copy the Resource URL and paste into the corresponding input.



- Click "Add" and save

Finally, the EjsS Simulation will be visible.



References:

- Publish as LTI tool in Moodle, available at [https://docs.moodle.org/400/en/Publish as LTI tool#Custom launch parameters](https://docs.moodle.org/400/en/Publish_as_LTI_tool#Custom_launch_parameters)
- Integration Guide with SLS, available at <https://docs.learning.moe.edu.sg/sls/partners/integration/adpspecifications.pdf>