LTI Launcher
Tooling to implement LTI for HE

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SURF is the cooperative organisation for ICT in Dutch education and research.

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Content

- Learning Tools Interoperability
- Why an LTI Launcher
- How does it work
- How does it fit in the ecosystem
- Demo
Learning Tools Interoperability

Launch an external learning tool and run it as if it is an integrated part of the learning system. [1]

Learning Tools Interoperability

[Image of a web page showing a user interface for managing student checkpoints and pulse data.]
Learning Tools Interoperability

WHO
Alice wants to...

WHAT
...open FeedPulse...

CONTEXT
...from within the course ‘Programming with Ruby’ as a student
Why an LTI Launcher?
Why an LTI Launcher?

Launch without LMS

- **Decouple** LTI tools from the LMS.
- Enable more **entry points** for a tool.
- Provide extra focus on a tool.

Add context manually

- Context is not always required or can be fixed.
- Pass additional context to the launcher (using JWT).
Why an LTI Launcher?

Version agnostic

- Platforms don’t care about used LTI version.
- New versions of LTI standard can be fixed in a single location.

Easy testing

- Test LTI capabilities of a tool without using a full LMS.
How does it work?
How does work

Manage tools
The launcher offers an administrative interface to set-up tools including security credentials.

Get the WHO
The Launcher is directly linked to a Single Sign On (SSO) service.

Only supports OpenID Connect for now.
How does it work

Get the WHAT
A user ‘selects’ the tool by going to a specific URL (or click a link):

https://lti-launcher.com/launch/<tool_id>

Get the CONTEXT
The generator of the link can add context by adding a JWT to the URL:

context=xxx.xxx.xxx

"https://purl.imsglobal.org/spec/lti/claim/context": {
  "id": "42",
  "label": "Deep Thought",
  "title": "Finding the Answer",
  "type": ["Course"]
}
Perform the LTI 1.3 launch

Launching “dance”

2. Launcher redirects user to SSO service to get user information
3. User logs in if needed and gets redirected to the launcher
4. Launcher starts Open ID Connect flow with LTI 1.3 tool
5. User gets redirected back to the launcher
6. Launcher performs the final launch
How does it fit in the ecosystem
Student opens portal site and logs in
Generate the tile for the portal

JWT Service:

Search OOAPI
  Person (find out current role)
  Courses of student (which courses is student currently active in)
  LTI resources of sed courses

Generate context for each resource
Search metadata for LTI resources in LTI launcher
Create package for portal:
  Combine context and launcher URL
  Image of tool
  Name of tool
  Description of tool

LTI Handling

{  
  "Image": "http://statitiekplaatje.jpg",
  "URL": "https://ltilauncer../context...
  "Name": "Statistiek Mediaan"
  "Description": "You’ll learn what a mean is and how you can apply it"
}
Portal is generated based on the LTI tools with context that are available to the student

- Portal generates tile based on information provided by JWT service
Student launches LTI tool

- Portal redirects student to new page that opens LTI launcher URL.
- This is a URL get: “https://launcher/launch/<tool>?context=abc....”
The LTI launcher handles the launch call

**LTI launcher**

Receive initial call:
- Check / validate context and key @ JWT service
- Check OIDC
- Forward call to LTI component associated with tool number in URL, initiating “LTI dance”
- From here on LTI tool URL is used in stead of launcher

**LTI Handling**

- Validate key URL and context
- Actual launch “https://launcher/launch/<tool>?context=abc ....”
## “LTI DANCE”

<table>
<thead>
<tr>
<th>LTI-launcher</th>
<th>LTI-tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call URL of Tool to launch with context</td>
<td>Receive call (through user browser)</td>
</tr>
</tbody>
</table>
| Authentication request received:  
  - Verify tool (based on public key)  
  - Handle authentication through OIDC  
  - Redirect auth response to tool | Send for authentication request @ launcher |
| Validate auth response  
Display tool in new window of user | |

**Diagram:**
- LTI-launcher
- LTI-tool
- To new window
The whole LTI journey for a student
Demo
If time left
Possible extensions

- Fetch context instead of passing it
  - Fetch information from OOAPI / EDU-API

- Manage Tool capabilities
  - What can the tool do
  - What are the placements

- LTI Services
  - Add “Names and roles” and “Assignment and grades” serviced through OOAPI / EDU-API

- Additional SSO Systems
  - Add SAML / LDAP
Resources

- https://www.surf.nl/regie-op-de-digitale-leeromgeving/techniek (Dutch)
- https://drieam.github.io/LtiLauncher/
- https://site.imsglobal.org/certifications/drieam/Lti-launcher
Driving innovation together

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Enabling the ultimate learning experience