## Technical in-depth information

The following sections briefly explain how FeedbackFruits (FbF) plugins can be configured and added to the Blackboard environment. Additionally, information is shared regarding how the plugins work and communicate with FbF servers, how data is exchanged and how it is protected. Our data privacy policy follows industry standards and complies with the European Union's new general data privacy regulations (GDPR). All our servers are hosted in EU member states. For FeedbackFruits it is common practice to sign processor agreements, to make sure that we legally comply with IE business school (data) privacy policy.

## Registration

To use FeedbackFruits Plugins, your university has to be registered with FbF in advance. This can be done by accessing https://beta.feedbackfruits.com/lti/consumers/new, filling the trial form, and requesting a new LTI key/secret pair. Keep this secret private, as it provides access to your university's data. The setup on Blackboard can only be done by a platform admin. Placing a plugin on a course can also be done by an instructor.

## LTI

The FeedbackFruits plugins are based on a LTI integration (v1.x) for authentication. Within the LTI integration, users can have different roles (student, teacher and admin). Within the Peer Feedback and Group Member Evaluation plugin it is possible to send grades back to Grade Center. Here, an average of given ratings is calculated, the ratio is send back to Blackboard and the teacher can give a wage to the ratio to determine the grade. Per student one grade can be assigned per assignment. Within the grade center of Blackboard a grade column is automatically added when adding Peer Feedback or Group Member Evaluation as an assignment. Blackboard supports LTI connections based on LTI v1.0. The FeedbackFruits plugin is also based on the same LTI version. It is expected to work with all the minor updates on LTI v1.0.

## API

For deeper integrations (e.g. importing the groups from your course into a Peer Review assignment), FbF can also use the SOAP and API endpoints. FbF can import Blackboard Groups, as an extension of the LTI integration. The course group's structure and enrollments are synchronized during every LTI request, in this way teachers can manage students into groups on Blackboard, and the structure will be represented on FbF features. In order for this to happen, both a SOAP API and REST API integration are required, since the REST API integration does not include all the required data to synchronize the groups. FbF supports Blackboard environment 9.1 Q4 2016 and later, please contact us if you have an earlier version.

Integrating the SOAP API is done in several stages:

- > The Blackboard admin enables the requires web services
- > The Blackboard admin submits the Web Services Internal Secret to the developer
- > The developer registers his tool
- > The Blackboard admin enables the tool

By default any of the following roles should have the required privileges:

- Learning environment administrator
- Course administrator
- System support