Dragoon model storage use cases 13 08 12

There are two major types of usage: managed access and open access. The high school students will use managed access mode. The Sustainability students will initially use managed access mode in order to learn how to construct models, and they will then use open access mode for the rest of the semester. The sentences in italics represent features that I believe are absent in the current version of Dragoon.

# Open access mode

Open access means that users can do anything with the files that represent models. Here are some illustrative cases:

* When one student authors a model and the other student uses it in student mode (this is critical use case for the LAITS grant), then they must share models.
* When students create parts of a large model, then they need to share models in order to create a merged model.
* If students work on the first few problems together, then when they split up, every student may need a copy of the models they built together.
* When a teacher wants one student to critique another students’ model, or when a student working in a group wants to create a variant of the model made by the group to explore whether it is correct as well, then the student needs to copy and edit a model.

For open access, we should just use files stored on the local disk, dropbox, or any other file storage resource that is mounted on the user’s machine and accessible from the operating system’s normal file menu. Users can take care of sharing files. When Dragoon is in open access mode, then the file menu commands (open, new, save, save-as, close, exit) all work just as they would in any other editor.

In order to put Dragoon in open access mode, the user clicks on the “Author” sections of dragoon.asu.edu, which still needs their name so it can store the log data under it. File name is optional. This opens a version of Dragoon with the file menu enabled. It saves log data to the server whenever it can and caches the log data on disk otherwise.

*If the user’s machine becomes disconnected from the internet, then there needs to be a way to continue to use Dragoon, including starting Dragoon without using dragoon.asu.edu.* Perhaps a possible way to do this is to register “laits” file extensions to the executable that is stored by downloading from the “Author” section of the web site. Thus, users can open Dragoon by clicking on an existing Dragoon file regardless of whether the user’s machine is connected to the internet or not.

For open access mode, we are currently assuming that Author mode is the only editing mode allowed. For the Sustainability class*, all editing modes should be feasible in open access mode. We will also want Author mode users to choose whether to edit the correct model (against which Student mode work will be compared) or a given model (which Student mode users will start from).*

# Managed access mode

On the other hand, managed access means:

* Every problem must be started from scratch without referring to past models.
* Only certain problems can be accessed.
* The instructor can see the student’s history of work, including restarting (see below).
* Student authentication is required.

For managed access, Dragoon stores files only on the server. Using the existing menu-based UI, student can identify themselves. Which models are visible in the menus is determined by the userID; different users see different models. When the select a problem, Dragoon starts with that problem open. As they work on the problem, their history is saved on the server (and perhaps periodic snapshots of the model are saved as well). *When a model has been opened from the server, then the file menu commands are disabled so that the users cannot save copies of their work for illegal sharing with other users*. When they exit Dragoon using the close button (red X in Windows) in the title bar, the model is saved to the server under their name. If they later reopen it, then they normally see their own solution. However, because Dragoon is not yet bug free, students need a way to start over on a problem if Dragoon crashes. *Thus, for now, when Dragoon is opening a model for which there is a user solution on the server, it asks, “It appears that you have worked on this problem before. Do you want to [ ] start over, [ ] continue from where you left off, or [ ] cancel?”*

As in the existing system, Student mode and Coached mode are the only two editing modes available when Dragoon is in managed access mode. The student choose which mode from the menus on dragoon.asu.edu.