**VSim Version 2 … details regarding functions specifically dealing with importing, exporting, packaging, locking files, and restrictions**

Last updated July 16, 2018 (based on the document developed for the prototype, and dated November 20, 2012)

The point of this part of the code is to give content creators the ability to export locked files with restrictions as a way for them to protect their intellectual property and feel comfortable sharing their content for educational purposes. VSim touches on three types of intellectual property: the 3D model itself, a personal or academic narrative, and embedded resources that include academic content in the form of annotation or linked files.

VSim includes three opportunities for controlling intellectual property:

1. the ability to save a single .vsim file which is a packaged version of the raw 3D files that can’t easily be reverse engineered to create usable modeling files (consider this a READ ONLY model file; Version 2 .vsim files are saved in HEX code)
2. the ability of the content creator to impose restrictions on use of the .vsim file that limit the interactions of subsequent users; and
3. the ability to lock exports of individual narratives, embedded resources, and resource categories so that those can be shared by either the original content creator or scholars creating content for a pre-existing model (consider these READ ONLY files, also saved in HEX. This discussion presumes that there are different relational databases for the resources and their categories. If that’s not the case, proceed accordingly.)

Users working with the early versions of the prototype were confused by the difference between saving copies of their work (i.e., unlocked) versus packaging their work for distribution to other users while protecting their intellectual property rights (i.e., locked). To help clarify this distinction, we want VSim to give them a choice between SAVING a file and EXPORTING a file. The export option implies a specific intent for distribution, and carries with it the options of locking and/or imposing restrictions on the file so that it can be shared without concern. There is purposefully no ‘Save’ feature that combines models and narratives/resources. The logic is pretty simple – content creators and users may be working with large model files, and we do not want them saving and storing multiple copies of these large files. The software, therefore should steer them towards saving and exporting narratives and ERs as individual files that can be shared with others, and only possibly exported with the models when they are ready for distribution.

David, in the prototype, locked narratives were obviously marked as LOCKED … same with ERs. Please suggest some way to visually communicate an element’s locked state in the new version.

**Review of FILE menu items pertaining to opening, importing, and exporting:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Proposed Shift** | **Current V2** | **Action** | **Comments** |
|  | New … |  | Take off the menu; all actions will start with ‘Open’ |
| Open … | Open … | Opens a 3D model file; replaces current scene with new file. (It's the same as doing a ‘New’ then and ‘Import’) | In place |
| Import Model … | Import Model … | Adds a 3D model file to the current scene | In place |
| Import Narrative(s) … | Import Narratives … | Adds a narrative file to the current scene | In place |
| Import Resources … | Import Resources … | Adds an embedded resources file to the current scene | In place |
| ----------- |  |  |  |
| Save Narrative(s) … |  | Saves the narrative and all imagery on the nodes | In place |
| Save Resources … |  | Saves the embedded resources | In place |
| ----------- |  |  |  |
| Export VSim File … | In the current version as both Save and Save As … | Formerly ‘Save’ and ‘Save As …’ Saves the current scene as .vsim file; includes all narratives (and the imagery on the nodes) and the embedded resources. ***Should have restrictions menu box prior to save. Enable password if possible.*** | In place; needs restrictions |
| Export Narrative(s) … | Export Narratives … | Exports the narrative(s) currently selected; requires file name; packages all imagery into the narrative file. ***Should have restrictions menu box prior to save. Enable password if possible.*** | Copy of ‘Save’ with restrictions added |
| Export Resources … | Export Resources … | Exports the current embedded resources (do they need to be selected, or is it everything?); requires file name. ***Should have restrictions menu box prior to save. Enable password if possible.*** | Copy of ‘Save’ with restrictions added |
| ----------- |  |  |  |
| Quit | Quit | Quits |  |

**Export VSim File Options …**

**Text for restrictions box prior to save:**

The export of the .vsim file packages all loaded narratives and embedded resources with the model into one file. Depending on the choices below, settings are locked, narratives and ERs are locked, and subsequent users are limited in their interactions with the model. On export, the user should be presented with the following:

**Export VSim File …**

 **Lock model information and content creator settings***locks model info and content creator settings; saves model setting over defaults*

 **Lock all narratives and embedded resources***locks all currently unlocked narratives and resources; if any are already locked, those will remain locked with their current password*

 **Restrict user interaction to current narratives and embedded resources** *disables all navigation modes (WASD, flight simulation, and object navigation)*

 **Set an expiration date***sets expiration date for the model*

Buttons at the bottom for CANCEL and CONTINUE.

* CANCEL aborts the export operation and returns to normal state
* CONTINUE saves the .vsim file with appropriate flag settings and returns to normal state upon completion of that task

If any of the above are checked, at CONTINUE, ask for password and confirmation password before the file save. The password should save for the .vsim file itself, and, if the ‘lock all narratives and embedded resources’ is Y, any narratives or embedded resources unlocked at the point of the export.

During subsequent interaction, request the password if:

1. Model exceeds expiration date (if password is supplied, the file can be opened)
2. ‘Edit’ is invoked when working with the narratives, resources, or resource categories (if the user can supply the password, those things can be edited)

If a .vsim file, a narrative, resources, or resource categories are locked and subsequently re-saved or re-exported, their lock setting and passwords should carry forward into the new files.

**The impact of these questions …**

The discussion below considers these export questions, their defaults, actions that change them, and their impact on existing functions. Any place where ‘disabling’ something is suggested, if it’s easier to just not display that option, fine.

My limited understanding of how VSim functions behind the scenes is informing my comments about how and when these flags/settings get saved/checked and how they might impact other functions. It seems to me that separating the settings into sections (Model, Content Creator, and Display) would make it easier to disable or enable editing. I could be totally wrong and look to you for better, more elegant solutions for this piece of the code.

***Discussion of Locking Model Information and Content Creator Settings***

The point of this is to allow the content creator to freeze critical system settings to give them control over the look and behavior of their model within VSim so that they will feel comfortable sharing their work with others. Default for this question in the export menu is NO, settings are not locked. (NOTE: Whether YES or NO, all current model, content creator, and display settings should save into the .vsim file and those settings should be used when the file loads; the lock just controls whether they can be edited; display settings are never locked.)

T­he LockCreatorSettings flag needs to be checked during both the Open and Import Model commands from the File menu, and when the various settings menus are opened. The most important settings controlled by this lock are model information, the content creator settings, collision detect, and branding. For example, a content creator may choose to force Collision=ON to keep a user within a transparent bounding box, and they may choose to force Branding=ON to permanently display their project team information on the simulation window. See the table on the following page for details on behavior if these settings are locked.

***Discussion of Lock all Narratives and Embedded Resources***

The point of this is to provide the content creator the option to add locks to narratives and embedded resources that are unlocked at the point of export. (If one of these elements is already locked at the point of export, the lock flag and password should carry forward into subsequent saves/exports. Default for the export window is NO, these elements will not be locked. If these elements are to be locked, a flag within the narrative, each individual embedded resource, and the resource categories should be set that disables editing, and a password saved that can unlock the item. See the table below for more discussion related to the behavior associated with locking narratives and embedded resources.

***Discussion of Restrict to Current Narratives and ERs***

The point of this is to restrict model use to playback of and interaction with content-creator-approved narratives and embedded resources for use, for example, when the model is released as a publication or in a museum kiosk. Default for the export window is NO, the user will not be restricted to current narratives and embedded resources. If YES, a flag needs to set that will disable the three navigation modes. See the table below for more discussion related to the behavior associated with restricting interaction to current narratives and embedded resources.

**Discussion of Setting an Expiration Date**

The point of this is to give the content creator control over the amount of time a model file might be operational once released into the world. One might choose to provide an expiration date for models currently under construction, for models being distributed as test files, or similar. This setting saves in the .vsim file as EXP\_DATE= *ddmmyyy* or similar. Default for this setting is NUL (or some date in the very distant future). See the table below for more discussion related to the behavior associated with adding an expiration date to a .vsim file.

|  |  |  |  |
| --- | --- | --- | --- |
| **VSim Locking Options** | | | |
| **Action** | **Options** | **What it does** | **Comments** |
| Lock Content Creator settings | Y or N | If Y:  - Disables editing of the Model -> Model Information  - Disables editing of the Model -> Content Creator Settings  - Disables the keyboard shortcut for Collision on/off (because that’s set in the CC settings menu)  - Is related to entire .vsim package |  |
| Lock all narratives and embedded resources | Y or N | If Y:  - locks all currently unlocked narratives, individual resources, and resource categories (i.e., disables editing of those things);  - invokes Password prompt and applies those to those elements when editing is attempted  Whether Y or N:  - if any narratives and resources are already locked, those remain locked  - Is related only to the narrative, ERs, and ER category elements |  |
| Restrict to current | Y or N | - The ‘+’ and ‘-‘ buttons should be disabled on the Narrative Player  - The ‘-‘ ‘+’ and ‘Edit’ buttons should be disabled on the Narrative Editor  - Disable right click on narrative title (all those options should not be accessible)  - The ‘+’ ‘–’ and ‘Edit’ buttons should be disabled on the ER bars  - Disable right click on ERs (all those options should not be accessible)  - the File -> Import Narrative(s) and the File -> Import Resources … options on the file menu should be disabled  - the three navigation modes should be disabled  - Is related to the entire .vsim package |  |
| Set expiration date | *date* | - If the .vsim file’s expiration is less than system date, the load should request a password before continuing the attempted load  - If the password is correct, the file will open  - If the password is incorrect, display an error message, and return to normal state  - Is related to the entire .vsim package | The expiration date should be visible in the Model -> Content Creator Settings |

**Discussion about the settings that content creators should care about (and set) before exporting a .vsim file for distribution.**

**Model Information (please put in this order):**

1. Model Name
2. Release Date (change from ‘Version’; this should be the specific release date of the .vsim file)
3. Release Notes (Add text field; intended for brief discussion of what’s represented in the current release)
4. Authors
5. Contributors
6. Funders (Add text field)
7. Institutional Affiliation (change from ‘Place of Publication’)
8. Research Objective (Add text field)
9. Project Dates (this would be the entire span of the project; this was actually wrong in the prototype)
10. Technology (Add text field)
11. Website

**Display and Content Creator Settings:**

I would argue for separate menus under the Model tab, one for Display Settings and one for Content Creator Settings for convenience during locking. Display settings should be stored with the .vsim file, but are never locked; Content Creator settings can be locked, and isolating them on their own menu will likely make them easier to make non-editable (rather than having to lock them individually).

|  |  |  |
| --- | --- | --- |
| **Display Settings (some are fantasy)** | **Data** | **Default** |
| Menu still under construction: |  |  |
| Field of View (FOV) | Num | 55 |
| Eye Height | Num | 1.5 |
| Near Clip | Num | 1 |
| Far Clip | Num | 10000 |
| Level of Detail | Num | ? |
| Aerial fog (near?) | Num | ? |
| Aerial fog (far?) | Num | ? |
| Ambient Lighting | Flag | ? |
| Ambient Lighting Color | Num? | ? |
| Sun Position | ? | ? |
| Ground color | r,g,b | ? |
| Sky color | r,g,b | ? |

|  |  |  |
| --- | --- | --- |
| **Content Creator Settings** | **Data** | **Default** |
| Menu still under construction: |  |  |
| Loop Narratives | Flag | ? |
| Collision | Flag | On |
| Show Narrative Bar at Start | Flag | On |
| Show ER Bar at Start | Flag | On |
| Start position | x,y,z | Blank; |
| Start view | h,p,r | Blank |
| Start Time on Time Slider | Num | Takes Setting From Current at Export |
| Start Binary Switch | ? | Takes Setting From Current at Export |
| Branding | Flag | On if there is content in the branding element |

These were planned settings for the prototype. Do we need them? I’m thinking not, but we should discuss.

|  |  |  |  |
| --- | --- | --- | --- |
| **Setting** | **Data** | **Default** | **Where it’s set** |
| Flight Accel. Factor | Num | 6 | ? |
| Flight Settle Factor | Num | ? | ? |
| WASD Panning Factor | Num | ? | ? |
| WASD Speed | Num | ? | ? |
|  |  |  |  |
|  |  |  |  |

**Export Narrative(s):**

This item exists on the current File menu; actions to be incorporated into the .nar file and the .nar portion of the .vsim file. The point of this is to give narrative creators control over reuse of their intellectual property. This is a setting in the .nar file structure, whether it is in a stand-alone narrative file, multiple narratives exported at once, or contained within any narratives saved in a .vsim file. This is set by the user through the Export Narrative(s) command from the File menu. On export, the user is given the opportunity to decide whether or not the narrative(s) is/are to be locked. The locked file can be considered READ ONLY. Default for the export window is NO, the narrative(s) will not be locked.

On export, the following should be shown to the user.

**LOCK FILE?**

**Export Narrative(s) …**

 **Lock File**Exported files are intended for distribution. Locking the file prevents others from altering your intellectual property.

Include buttons at the bottom for CANCEL and CONTINUE.

* CANCEL aborts the export operation and returns to normal state
* CONTINUE saves the .nar file with appropriate saved settings and returns to normal state upon completion of that task

If YES, ask for password and confirmation password before the file save. The password saves within the narrative file itself or in the narrative portion of the .vsim file. During subsequent interaction, request the password if the narrative is selected in the Narrative Player and ‘Edit’ is invoked (either from the bar, or through the right click list), or if ‘Edit’ is invoked from the Narrative Editor.

**Other actions associated with Export Narrative …**

* Successful file save includes the LockNarrative flag (or similar) with the appropriate setting and the password
* If the selected narrative is already flagged as locked, the export copy should also be flagged as locked (with no option for the user to unlock it).

This flag needs to be checked in at least three places. First, when a Narrative is selected by the user on the Narrative Player. If LockNarrative=Y, the Narrative Player should not allow editing, and the Narrative Editor should not allow editing of the individual nodes. It should also be checked on the Export VSim file, and Save/Export Narrative commands because if LockNarrative=Y, the narrative should be locked in all subsequent exports.

**Export ERs (and ER Categories)**

This item exists on the current File menu; actions to be incorporated into the .ere file and the .ere portion of the .vsim file. The point of this is to give the creators of embedded resource files control over reuse of their intellectual property. This is set by the user through the Export Embedded Resource command from the File menu. On export, the user is given the opportunity to decide whether or not the ERs are to be locked. The locked file can be considered READ ONLY. Default for the export window is NO, the ERs will not be locked.

On export, the following should be shown to the user.

**LOCK FILE?**

**Export Resources …**

 **Lock File**Exported files are intended for distribution. Locking the file prevents others from altering your intellectual property.

Include buttons at the bottom for CANCEL and CONTINUE.

* CANCEL aborts the export operation and returns to normal state
* CONTINUE saves the .ere file with appropriate saved settings and returns to normal state upon completion of that task

If YES, ask for password and confirmation password before the file save. The password saves within the ER file itself or within the ER portion of the .vsim file. During subsequent interaction, request the password if the user attempts to edit either an individual resource or edit the resource categories locked at the point of export (either from the bar, or through the right click list.) (In other words, a user can add new resources and new categories to an .ere or .vsim file, but not edit any that were locked when the file was exported, unless they have the password.)

This flag needs to be checked in at least four places. When the user attempts to edit ERs from the ER bar (or through the right click options), when they are adding new ERs and possibly attempting to edit the resource categories. It should also be checked on the Export VSim file, and on Save/Export Resources (so that any locked ERs remain locked on subsequent saving and exporting).

**Questions For Discussion:**

If there’s an expiration date, how easy would it be to give users an expiration date reminder, so that they know they have to get a new model file?

Is it desirable/easy to set a SuperUser password, so that we can rescue users that have forgotten their passwords or otherwise make a mistake related to locking? (When we post on Git, can we hide this so it truly is a secret?)

If a start position is set, can we make that the coordinate that is used when one hits ‘h’ on the keyboard? (Francesca and I call that the reset function.)

How difficult would it be to add bookmarks (i.e., coordinates and views) to a model? Any thoughts on this? Could this be part of the users’ settings you’re working on?

Can one import multiple models into the scene at once? (If so, the menu option should be ‘Import Model(s) …’