

# TexTools 3.0 Handbook

TexTools has undergone major renovations and overhauls in time for Dawntrail. This document covers the majority of the changes. First, though:

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*TexTools 3.0 is designed first and foremost as a **Mod Creation and Authoring Tool**.*

While it *can* function as a Mod Loader, if you are an end user looking to just *install existing mods*, you will most likely find [Penumbra](#) more helpful.

*(Assuming it is working/available at the time and you are comfortable running the XIV Quick Launcher)*

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The following is a list of major features added in the current CursedTools (TexTools 3.0 Beta). These features apply to **both** the Endwalker and Dawntrail versions unless otherwise specified.

[Power User Feature]

The above “Power User Feature” text will be used in parts of this document to indicate when a feature is complex or requires greater understanding of how FFXIV’s engine works.

## Base UI Overhaul

The baseline UI in TexTools has been upgraded with many new features:

- **Speed.** Everything should be *dramatically* faster.
- **Robustness.** The application should never surprise crash on you or hit you with 200 error popups in a row.

- **Consistency.** All of the application UI should now consistently follow the same conventions and patterns.
- **Proper Item-Tree structure.** Models now always show their used materials, even if they're from a different race, etc.
- **Multi-Window support.** Files and Items can now be popped out into their own editor windows, and changes to files will be automatically reflected in all open windows.
- **Editor-Style Workflow.** All imported files will first be imported into the visual editor you're looking at, and must be Saved with the **[Save to FFXIV]** button to finalize their import into the game (or transaction).
- **Unsaved-Changes Tracking/Prompts.** Files that have been altered, but not saved, will prompt you if you try to change items/files in a way that would lose your changes.
- **Improved Handling for Files-in-Use.** Instead of failing, the UI will now prompt to ask if you want to wait or cancel if you attempt to import files into FFXIV while the game files are in use.
- **Tooltips.** Most new buttons or features include on-hover tooltips explaining what they do in further detail.
- **Save Raw/Save As Modpack** - All file types can now be one-click saved as their raw, uncompressed FFXIV filetype, fully compatible with Penumbra, or as a quick TTMP2 (optionally including their child files), directly from the normal [Save As] button. (In addition to their existing external file types such as DDS, PNG, FBX, etc.)
- **Load Raw** - All file types can now be one-click loaded as their raw, uncompressed FFXIV filetype, fully compatible with Penumbra. (In addition to their existing external file types such as DDS, PNG, FBX, etc.)
- **Penumbra Modpack Import/Export** - You can now import .PMP files/Penumbra Modpacks, just like you would import any other modpack file. You can also directly import a Penumbra mod folder by selecting any of the .json files in the Mod's base Penumbra folder. .PMP Export Coming Soon.
- **Direct Folder Import** - You can now import FFXIV folder trees via the [Import Folder Tree] button in the mods menu.
- **Faster (Re-)Loads** - Returning to an item you've already opened will now be faster, with more of the underlying data pre-cached.
- **Error-Rollbacks** - Errors during file imports or other actions will automatically roll back the affected files to the state they were pre-import, rather than leaving potentially broken files around.

## Hotkeys

The following hotkeys have been added:

```
Ctrl-S : Save
Ctrl-A : Save As
Ctrl-O (Or Ctrl-E) : Load
Ctrl-D : Enable/Disable
Ctrl-R : Reload/Refresh File
```

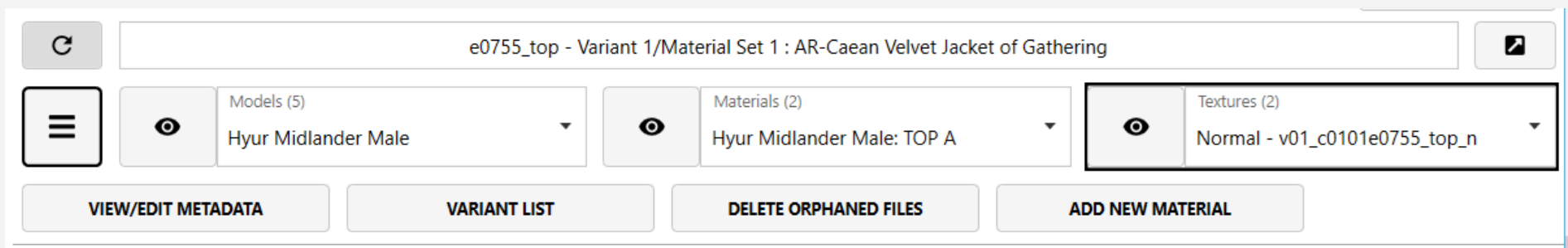
Ctrl-Q : Open file in new window  
Ctrl-C : Copy File  
Ctrl-V : Paste File  
Ctrl-1 : Colorset Editor - Next Row Up  
Ctrl-2 : Colorset Editor - Next Row Down

## Modpacks

TexTools has seen a number of updates to the handling of modpacks:

- TexTools can now create, edit, and import .PMP files, and these are typically the default in most of the major modpack creation menus, as PMPs support a wider variety of features.
- The separation between “Basic” and “Advanced” modpacks no longer exists. Instead, the only thing that some menus may care about is ***whether a Mod has exactly 1 option, or multiple options***. Some tools may only allow you to import or work with Modpacks which have exactly 1 option.
  - When Importing modpacks, if a Modpack has exactly 1 option, it will be imported via the simple file list importer, allowing the user to manually click files on or off as desired.
  - When Importing modpacks, if a Modpack has multiple options, it will be imported via the Wizard/Advanced importer.

## Item View Overhaul



The item View has been redone to be more performant, consistent, and fewer clicks to find what you want at any time.

- **Updated Item Name Display** - The item name, shown at the top of the view, now includes more information, such as the base Item Root name, and the Variant and Material Set Ids.
- **Simplified Tabs** - Selecting an item from a dropdown will now automatically navigate to it, or you can click the [Eye] icon to switch to a view at any time.
- **Left to Right** - Everything follows the FFXIV Hierarchy for models now. Select the model you want, then the material from the ones it uses, then a texture from those the material uses, etc.
- **Hamburger Menu** - Extra buttons not directly related to the typical model structure are normally hidden. Click the hamburger menu button to pop down the extra row to display them if you need them.
- **Sticky Selections/Views** - If you're looking at a Midlander F model and change items, it'll automatically put you on the Midlander F model for the new item, too. Likewise, your visible tab will not be forced back to the model tab on item changes.
- **Refresh Button** - Don't like the changes you made, or something seems wrong? Click the Refresh button in the top left to discard your current unsaved changes and reload the item from the game/transaction state.
- **Pop-Out Button** - Want to work on something else, but still keep this item in mind? Or just like dual-wielding editors? Click the Pop-Out button in the top right to get an extra editor window with this item loaded up.
- **Delete Orphaned Files** - Sick of keeping track of which textures you ended up actually using? This button will remove all of the modded files in the item tree that you're not actually using (after prompting you with the list of files to confirm).

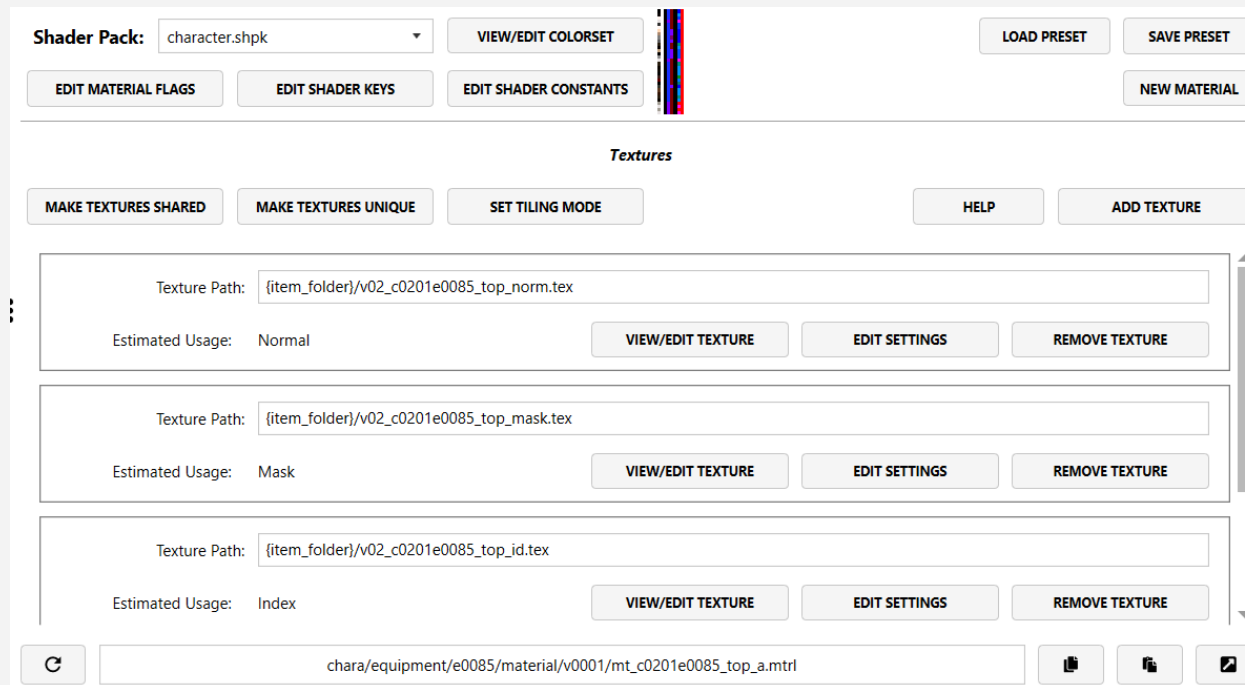
## New & Re-Sorted Items

A number of new Item types have been added to the item list, and other broken ones have been fixed.

- **Fish** - Aquarium Fish have been added to the Item List. Unfortunately we do not have a way to match up their model IDs with their actual fishy names at this time, so they're just listed by Fish Size.
- **Corrected Paintings** - The Paintings list now properly lists the actual paintings that show up when used with the picture frame furnishings. Unfortunately, like with the Fish, we do not at this time have a way to match their ID up to their human-readable name, so they are just listed by ID #. The old UI-Icons for the paintings are now listed properly under UI.

- **Missing UI Icons** - The UI Icons list has been sorted properly into categories and now correctly features many missing icons.
- **Character Category Sub-Division** - The Character category has been further subdivided to keep item loading times from getting extreme, and allow the individual items to be found via the normal search bar. Ex. You can now search for *Hair 115* to find all the ponytails easily.

## Material Editor Overhaul



The Material Editor has been significantly updated to expose *all* available data for editing:

### Material Flags

Baseline binary (On/Off) settings in the Material File. This includes settings such as backface culling and Transparency which were already in the old editor, along with a lot of new (and unknown) options. For the most part this is very simple and easy to use data.

## Shader Keys [Power User Feature]

Shader keys control *how* the game makes use of the available textures of each type, in particular, how the individual color channels will be used. Not all combinations of all shader keys are valid, but typically if a material is doing something ‘interesting’ or unusual, the Keys are controlling the functionality. Keys only have a few hard-coded values. Some values we have decoded names for, some we don’t.

Using invalid Shader Key combinations will typically crash FFXIV when it tries to load the material.

A number of Presets will come pre-loaded on TexTools 3.0 release for common Shader Key setups.

## Shader Constants [Power User Feature] *Also known as “Shader Parameters” in Penumbra.*

Shader constants control individual small shader settings, such as the Fresnel Exponent, Occlusion settings, (and many of the normal ‘Colorset’ values for Materials without Colorsets). All Shader Constants are available with their default (most commonly used) values available to be added, however, we do not have names for many of them.

Typically, adding invalid Shader Constants will not crash the game or cause adverse effects, they will simply be ignored.

A number of Presets will come pre-loaded on TexTools 3.0 release for common Shader Constant setups.

## Texture Settings [Power User Feature]

The new Texture Settings menu exposes a much more in-depth version of the old texture selections, including the full suite of Sampler options, including UV tiling modes, etc.

Like in previous versions of TexTools, you can also use explicit texture paths, or simplified Tokenized texture paths, as an easier way to manage having multiple textures across item Variants/Material Sets.

A number of Presets will come pre-loaded on TexTools 3.0 release for common Texture setups.

## View/Edit Colorset

Access to the Colorset data (which is part of the Material File) is now routed through the Material screen. Clicking on the Colorset itself or the [View/Edit Colorset] button will open the Colorset editor in a new window. You may also now load DDS files directly into the Material Editor if you wish, or raw MTRL files into the Colorset editor (to import just their colorset data).

# Presets

TexTools now features Material presets, grouped by ShaderPack. TexTools 3.0 will come pre-loaded with a number of material presets, but you can also save your own Presets at any time by using the [Save Preset] button. Presets can also be loaded in parts, such as loading only the Colorset or only the Texture Paths.

\* Presets are currently stored in your TexTools install folder, though this may change on release.

## Model Editor Updates



A number of QoL and systems updates have been made to the model editor. Compared to the Material Editor these updates should feel much simpler.

- **Speed & Stepped-Loading** - Models should overall load *MUCH* faster now, and also initially will load with placeholder textures until their texture processing is done.
- **Live Updates** - Upon saving any of the materials/textured used in the model, the model will be visually reloaded to reflect the changes.

- **Any-Time Editor** - The [Model Editor] screen can now be accessed at any time via clicking [Edit Model] on the left side of the screen. The Model Editor has also gained a few extra features. (See “Model Import Updates” below).
- **Viewer Options** - The various options such as visible Mesh Group selection, Deformation Shapes, and Colorset Highlighting have been moved under the [Viewer Options] panel for consistency, and no longer require opening a separate popup window.
- **View/Edit Material Button** - Available when viewing a single Mesh Group, or when viewing a model that only uses one (non-skin) texture, this button will pop out the material in question in a new editor window.
- **Visible Missing Materials** - Materials that don’t exist or couldn’t be loaded for any reason will now be rendered instead with a placeholder material, instead of becoming invisible.
- **Merge Models** - Select another FFXIV Model, or import another FBX file, and merge the associated model in, in whole or part. Also allows copying the Materials from the other model over when merging other FFXIV models.
- **Copy Model & Materials To...** - Copies the current model to another FFXIV internal path. Copies the materials and rationally scales the model if needed to fit the target.

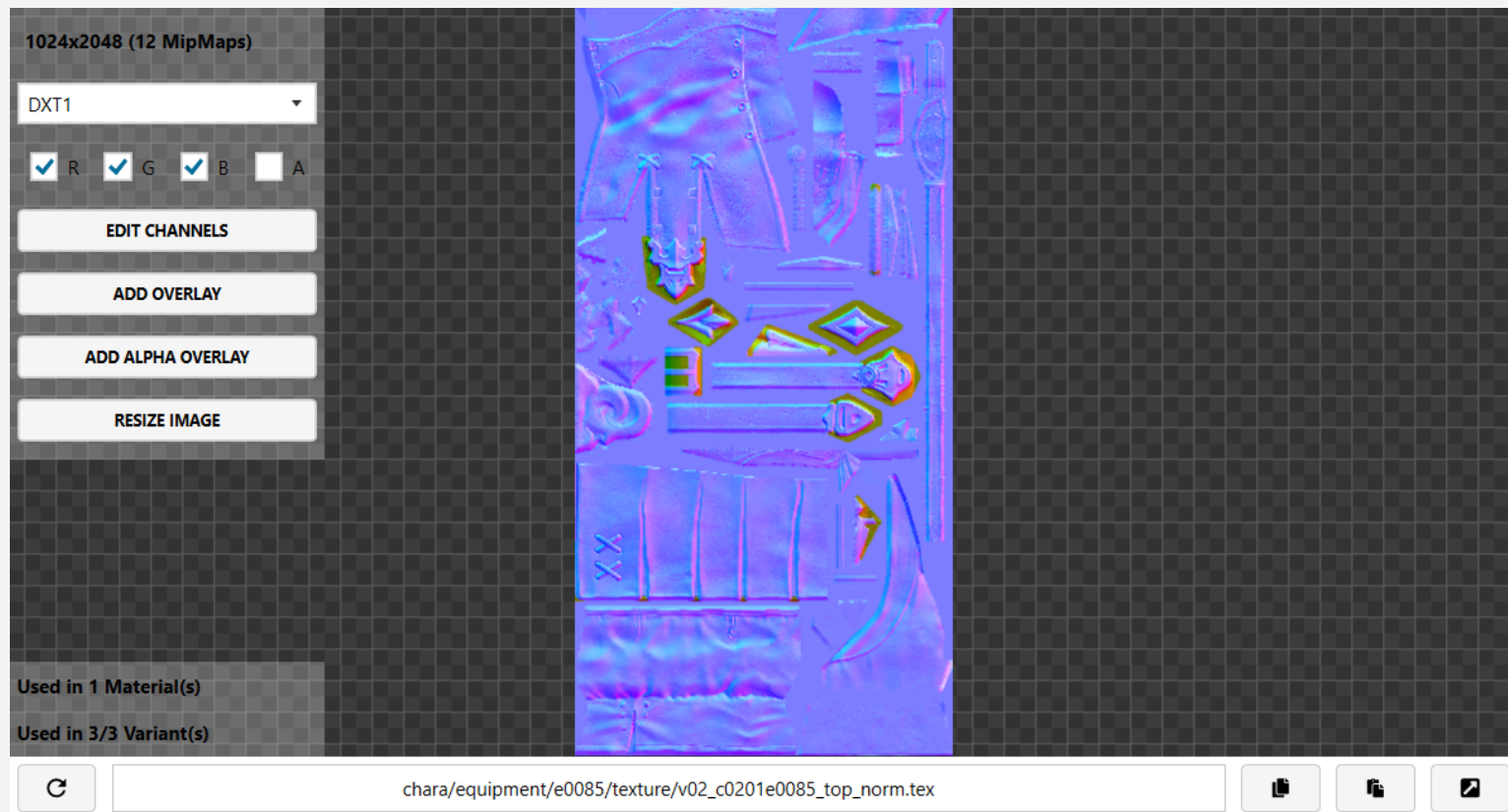
## Model Import Updates

A number of additional features/updates have been made to the model import pipeline.

- **Shift Model UVs** - This replaced the old Force UV 1/-1 checkbox. Instead this simply shifts the model down 1 UV-V Square/Quadrant. *If you are importing an old TexTools 2.0 model this should be turned off.*
- **Furniture** - Furniture models can now be properly imported and exported.
- **Mesh Type** - [**Power User Feature**] You may now select the Mesh Type for each mesh group. Under most circumstances this should be left on “Standard”, however, furniture commonly uses other types such as Water or Glass. The unknown types and TerrainShadowMesh are untested and will likely cause your game to crash.
- **Delete Mesh Group/Delete Part** - Individual Mesh Groups and Parts may be deleted at will in the model editor. The Model must retain a minimum of one Mesh Group/Part.
- **[DAWNTRAIL ONLY] MDL Version** - Dawntrail introduces an updated MDL file format/version, known as Version 6. This version adds support for up to 10 Materials per Model, up to 8 Bone Influences per Vertex(from 4), and a second Vertex Color channel.
  - On that note, please ensure that your **External Model Viewer Type** is set correctly in the TexTools Customize/Settings menu. In specific, 3DS Max needs special handling for the 2nd Vertex Color Channel.



# Texture Editor Updates



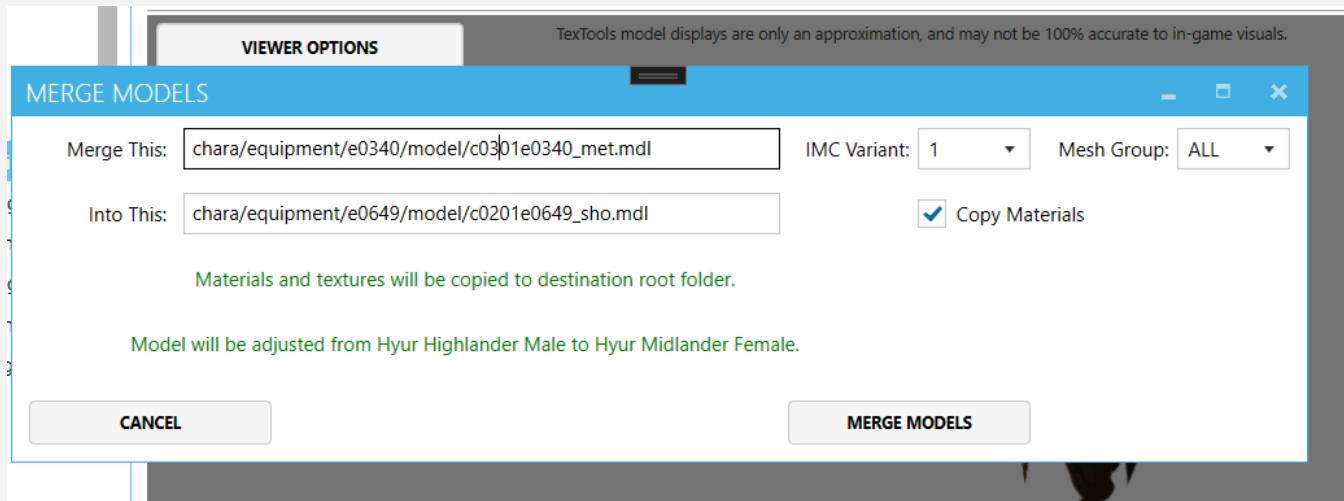
Like with the Model Updates, these should feel familiar, and mostly focus on QoL/Consistency and adding additional ways to interact with already loaded files.

- **To The Left** - All of the display information has now been condensed onto the same side.
- **Edit Channels Button** - Opens a new [Edit Channels] window which includes a number of simple ways to alter the individual color channels of the image, such as Inverting it or filling it with a single solid color.
- **Add Overlay Button** - Takes a given PNG/DDS/TGA file and applies it as an overlay to the current texture. Automatically resizes the given image to match the size of the current texture.
- **Add Alpha Overlay Button** - Takes a given Grayscale file and adds it as an overlay onto the Alpha channel of the image.

- **Resize Image** - Does what it says on the tin. Allows you to resize the image, using Bicubic or Nearest Neighbor resizing methods.

## Model Merging

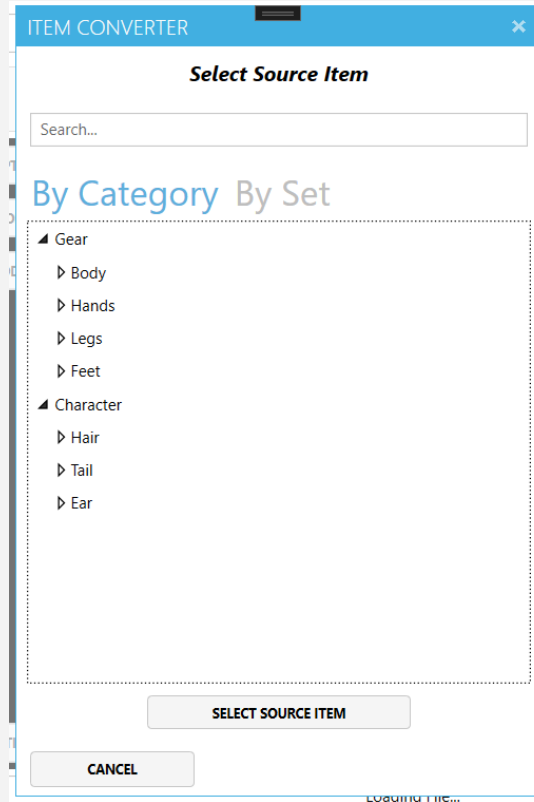
TexTools can now dynamically merge models together! The feature is available under the **[Tools]** menu.



Model merging will automatically copy over materials if desired, or create blank stub materials at the destination. You can copy over individual mesh groups, or the entire model, as desired. Models will automatically be racially scaled to match their destination.

In the future, an even easier to use version will be added directly to the Model Editor window, and allow importing individual meshes from FBX files.

# Item Converter Updates



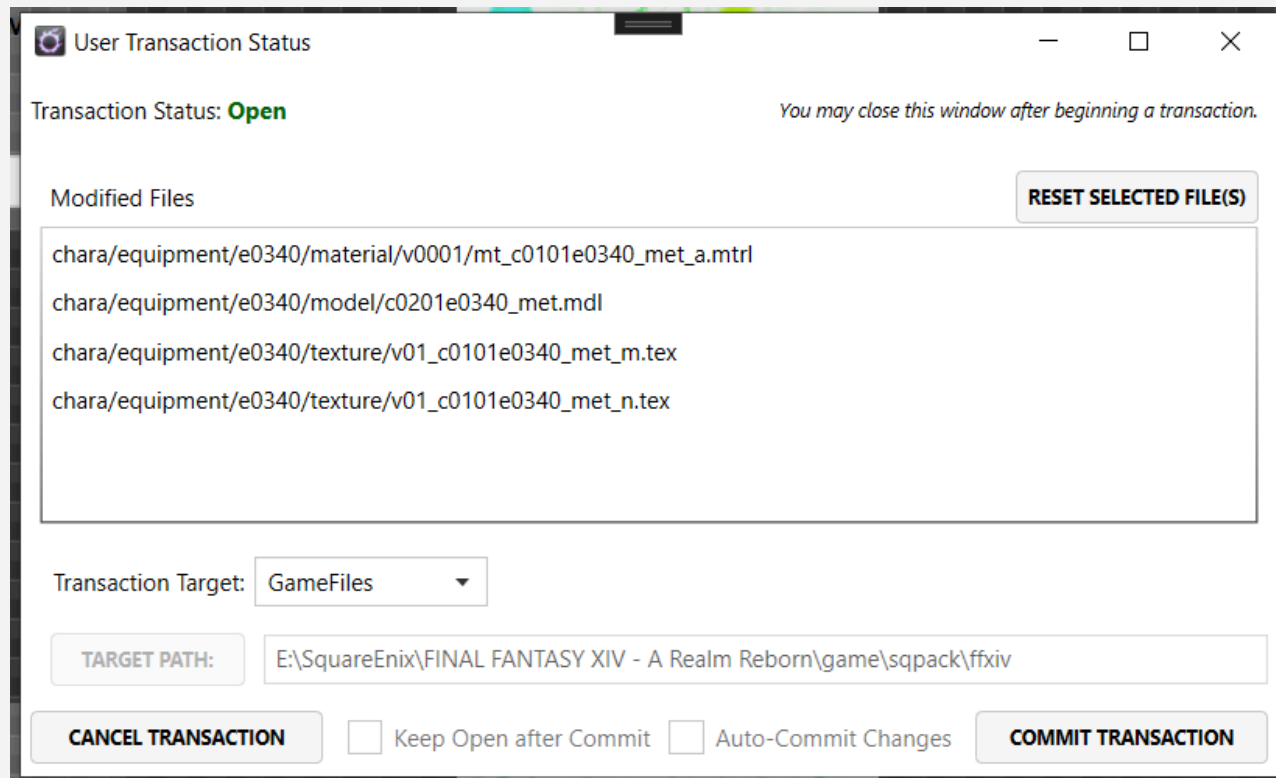
The item converter has received a few updates, including both QoL and new functionality.

- **You can now convert other equipment pieces into Accessories, regardless of their original slot.**
  - Their skin meshes will be automatically removed in the process.
  - You can also use this to swap which slot individual accessories are associated with.
- **You can now convert Hair, Tails, and Ears between Races/Genders/Etc.**
- **You can now convert Faces (Including across Races/Genders/Etc.)**
  - Depending on exactly what races/genders you're swapping between you may end up with a gap at the neck, or other issues in more extreme swaps.
  - Some Race-specific behaviors such as Limbal Ring Color may behave in unexpected ways when race-swapped. (Ex. Be colored by Ear Clasp color instead, or be stuck always on)

- The item converter now properly trims the item list when selecting a destination item, to only list *valid* destination items. If you can see it, you can convert to it

## Transactions [ BETA ]

[ Power User Feature ]



TexTools 3.0 introduces a new method to manage mod creation, in the form of *Transactions*. A *Transaction* will compile *ALL* of the changes you make, *without writing them to the FFXIV game files*. This means you can...

- Use a Transaction while FFXIV is open.
- Cancel or Roll back a transaction if you decide you don't like the results.
- Import or Create a TTMP or PMP while the Transaction is open.
- Etc.

To begin, Click the [**Transaction Status**] button in the top right of the TexTools UI, then click [**Begin Transaction**]. You may then close the Transaction window while you work, if desired.

# Transaction Targets & Options

When working with Transactions, you have a few available Targets to save the final transaction to, and behavioral options.

## Targets:

- **Game Files** - This will commit the Transaction to your real, live FFXIV game files. If you have TexTools in Safe mode this will prompt you with a warning before allowing you to commit the transaction.
- **Folder Tree** - This will write all the files into the Transaction to a Lumina/Penumbra style folder tree, identical to the FFXIV internal file tree. This may be useful if you are working with other modding tools, such as manually composing Penumbra options, or generally wish to keep the transaction files available outside of a single packed file.
- **TTMP** - This will save the final transaction results to a TexTools Modpack (\*.TTMP2) at a location of your choice.
- **PMP** - This will save the final transaction results to a Penumbra Modpack (\*.PMP) at a location of your choice.

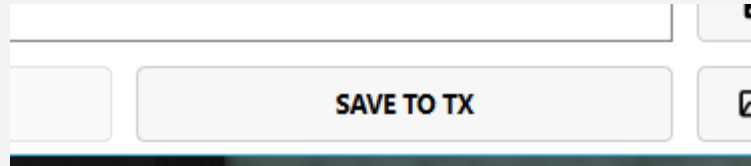
## Options:

- **Keep Open After Commit** - When turned on, the Transaction will be retained after being committed, allowing you to use the Commit button essentially as a 'save progress' button. Not available when targeting the default Game Files. (Just open a new transaction)
- **Auto-Commit Changes** - When turned on, the Transaction will automatically be saved/committed any time you save files in TexTools. *[Keep Open After Commit]* Must be turned on for this to be enabled.

When you are done making changes, open the Transaction Status window up again and then choose either:

- **[Commit Transaction]** - This will save all of your changes to the selected Transaction Target
- **[Cancel Transaction]** - Discard your changes, returning to the current live state of your FFXIV game files, without making any changes. (Any TTMPs or PMPs created or files exported in other ways will remain.) This is the same effect as closing TexTools.

You may also notice that the usual **[Save to FFXIV]** button is replaced with **[Save to TX]** throughout the application when a Transaction is open, to indicate that you are working within a Transaction, and not with the live game files.



## Attach to Penumbra / Live Penumbra Editing

Transactions introduce a new workflow for live game alterations - attaching to a live Penumbra Mod. This allows you to:

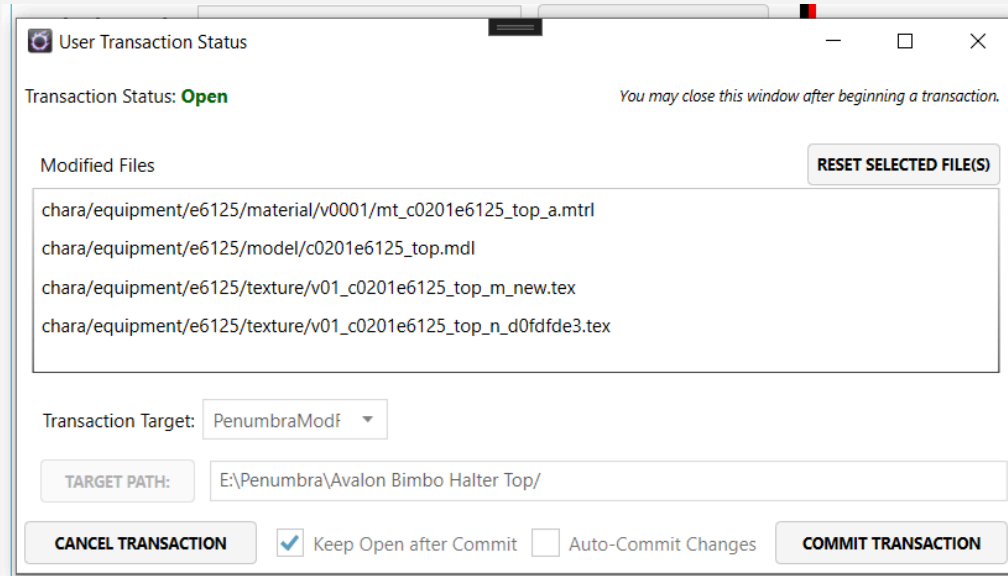
1. **See the live state of a Penumbra Mod in TexTools.**
2. **Alter the files in TexTools and have Penumbra automatically updated, and your in-game characters refreshed.**
3. **Alter the files in Penumbra, and have TexTools automatically updated with the new files.**

This also then means you can use TexTools-specific features with real-time in-game feedback, such as FBX import, etc., all while the game is open, and without ever altering your base FFXIV files.

In order to be eligible for Live Editing, *the penumbra mod must have only a single Option available*. Beyond that, anything goes. You may work with a mod which already has files in it, or create a blank mod in Penumbra and attach to that.

To begin:

1. Create or Select a mod you want to Edit in Penumbra.
2. Click the **[Open Mod Directory]** button in Penumbra, under the **[Edit Mod]** tab.
3. In TexTools, open the Transaction Manager and select **[Attach To Penumbra]**
4. Navigate to or paste in the directory that Penumbra opened for you and press OK.
5. TexTools will automatically create a transaction and load the mod for you. You should see the list of mod files in the transaction window like this:



Your Penumbra and TexTools are now synced for this mod, until you Close TexTools or select **[Cancel Transaction]**. You may close the Transaction Manager window while you work, or leave it open, as you prefer.

You may edit the files as you desire in TexTools or Penumbra (or any other tools that attach to a Penumbra Mod folder). Keep in mind that while you're attached to this mod in Penumbra ***Any Files you add or change, including Modpack Imports, will be added to the Penumbra Mod.*** If you wish to remove files you accidentally added, you may do so via the **[Reset Selected Files]** button in the Transaction manager, which will remove them from the mod and transaction (or you can remove them via Penumbra directly). ***[Automatic backups and more features coming soon]***

## Transaction Preparation State

[Power User Feature]

When starting a Transaction, you may opt instead to set it first in a **Preparing** state. During this time, you may load or alter any files you wish, such that they will be added to the TexTools internal state, but **will not be written to the final Transaction product**. This is useful in cases where you are working on a mod that has prerequisites that you want to load, but don't want to be involved in the resulting TTMP/PMP/Penumbra folder.

Some examples for when you may wish to use this features are as follows:

- When working on an Upscale mod, where the final product will only include Model files and not the textures/materials.
  - In this case, you would first set the transaction to **Preparing**, and load the original base mod. Then you can choose **[Begin]** or **[Attach to Penumbra]** as usual, and load your custom upscale Models after that. This would allow you to have the correct Material/Texture previews in the TexTools viewer, without worrying about cluttering up your final modpack.
- When working on a Gen3 or Bibo+ Mod where you require custom base skin materials.
  - In this case you would set the transaction to **Preparing**, and load the Gen3/Bibo base body mod, then choose **[Begin]** or **[Attach to Penumbra]** as desired, and begin loading in your custom mod files as usual. This would allow you to have the correct skins/textures visible in the TexTools editor without needing to worry about them cluttering up your final product, or having to install them into the base game files.

It is also worth noting, this feature is a ***purely optional*** convenience feature. You can get the same effect by manually hand-packing your modpacks, as per usual.

## Dawntrail Auto-Update

Dawntrail has updated the format of MTRL files, and updated the structure of hair, faces, and bodies. As such, TexTools 3.0 introduces some automatic updating of Pre-Dawntrail Files. You do not need to do anything to enable this, everything is handled automatically. (This is mostly documentation for the curious)

- **Gear/Colorset-Having Materials** - Anything with a Colorset has to have its colorset expanded to 32 rows, and a new *Index* texture created for it. This new Texture replaces the old Normal-Map-Alpha-Channel that was used to map the Colorset to the model. Gear Materials also have their ShaderPack moved to *characterlegacy.shpk*, which is effectively the Existing Endwalker shader.
- **Hair** - Hair has had a few channels shuffled around, and some new ones introduced. TexTools updates old hair to use this new format, based upon how SE updated their own existing hairstyles.
- **Faces** - Faces unfortunately have been completely redone, both in terms of materials and model layout. As such, face models/materials/textures are non-recoverable/there is no auto-update function for them. Note: *Face Paint* is fine, and unchanged.

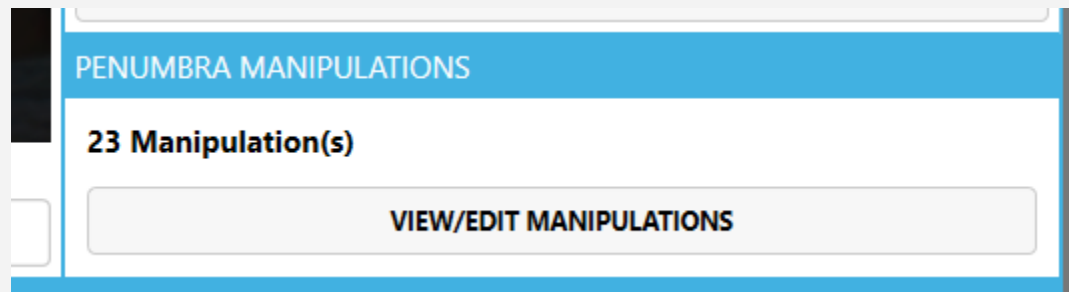


- **Body** - The body models have not changed in a meaningful way. Materials will either be pointed to the Legacy shader or tweaked to have dummy values for SSS on the new shader (tbd).

## Advanced Modpack Importer/Creator

The advanced modpack creator has seen multiple notable updates both for QoL and to support PMP import/export.

- **You can now Load and Create Penumbra Modpack (.PMP) files via the Advanced Modpack Creator.** This generally works the same as when working with TTMPs, though there are some caveats that are mentioned at the end of this segment.
- Multiple files may now be removed at once from an individual option (just select multiple then press Remove Files)
- Basic modpacks can now be loaded into the Advanced Modpack Creator as well.
- You can now move Groups up and down.
- You can now add an Image to the main mod header page.
- You may now set a Priority on groups. Groups of lower priority will be installed first during install time.
  - Final install order is [Priority] => [Order of groups as Tiebreaker]
- [In progress] Penumbra-style IMC Mask groups have been added.
- Metadata files are now stored as a collection of **Manipulations** when added. You can also add/remove/edit individual manipulations directly via the new Manipulations menu in the edit-group window.



## Caveats

[Power User Feature]

*Within the confines of the Advanced Modpack Creator* you can create chains of individual manipulations, such that they will be combined down to a final single Metadata file at the end of install. You can also retain Penumbra-specific manipulations which TexTools does not know how to or cannot install.

*However*, when exporting to TTMP, or directly installing the modpack into the TexTools/FFXIV file system, item manipulations will again be condensed into a single .metadata file, and non-TexTools-capable manipulations will be lost/discarded.

In order to preserve these manipulations, .PMP is now the default export from the Advanced Modpack Creator, and it is not recommended to export complex chains of Metadata information via TTMP.

Additionally, certain features are strictly not supported in TTMP Format:

- IMC Mask Groups
- Modpack-level Header Images
- Custom Group Priorities

*In short, think of TTMPs as a simple format for storing the individual state of an item or file, and less something for creating your final, end-user facing modpack.*

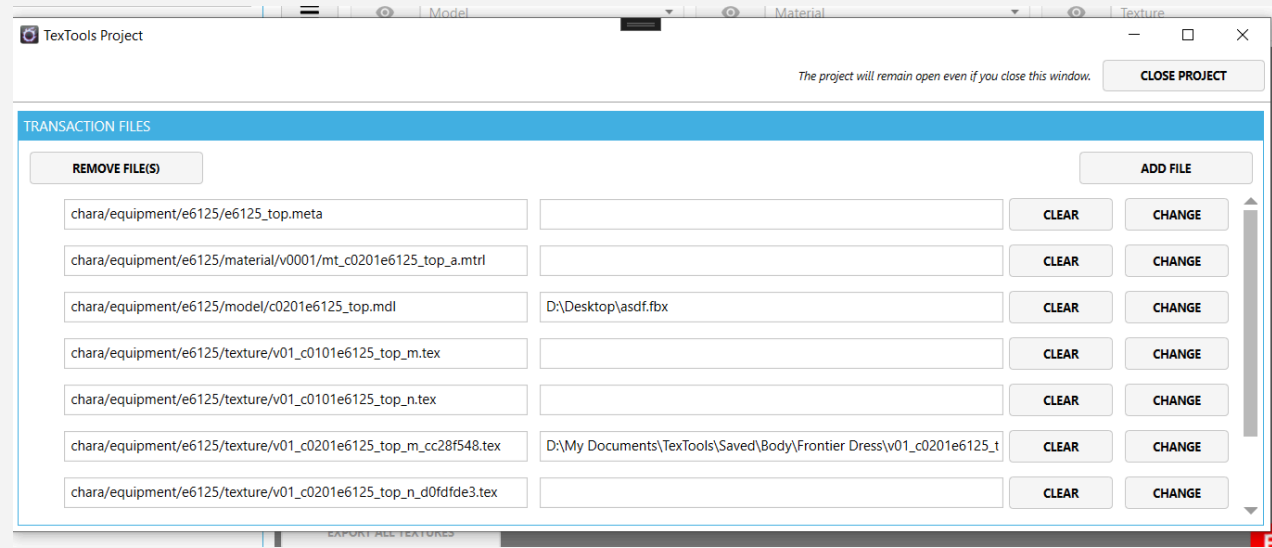
## Project Manager

[Power User Feature]

Textools 3.0 adds another powerful tool for mod authors in the form of **Projects** a Project is a modpack file or Penumbra mod folder coupled with a .ttproject file which helps *automatically import normal human files*. Or in short:

- *Setting up a **Project** will allow TexTools to automatically track and import your files from 3DS Max/Blender/Substance Painter/Photoshop/etc. And import them into Textools and (optionally) Penumbra in real time.*

To start, the Project Manager can be found under the **Mods** dropdown in the top left of the main TexTools UI, and create a new project, or load an existing project.



When creating a new Project, you have a few options:

- **Create Blank Project** - As it says on the tin, create a fresh, blank project. This will ask you to choose an initial location, where it will then create a folder to store the project.
- **Live Penumbra Project** - This will attach to a given Penumbra Mod folder, and use that as the project folder instead, complete with updating Penumbra in real time for any changes. (Though Penumbra does not have to be open while you are working on it.)
- **Convert Modpack to Project** - This will load the given modpack at the start of the project, and create a Project folder in the same location as the modpack file. (Note: The modpack in question will not be changed.)

Once you have created a project, you can then go about your business as usual in TexTools. Files you import in TexTools will *automatically* be tracked, and then re-imported any time the original file (Ex: MyCoolPicture.png) changes. If the project is a Penumbra project, the files will also be applied in Penumbra and your character refreshed in game.

You may also use the project menu to directly add or remove files, or change their tracked external file via the [Clear] and [Change] buttons.

Note: You cannot commit Projects directly to the live FFXIV file system.

## Dawntrail Upgrade Tools

TexTools includes a number of automatic upgrades for Endwalker => Dawntrail content. However, these features are also available in individual piecemeal fashion, under the Tools => Dawntrail Upgrades menu, should you have need of them.

- **Upgrade Modpack** - Applies the entire suite of Dawntrail upgrades to a given modpack. Takes any kind of modpack or raw Penumbra Mod folder. Allows you to save the result as .TTMP2 or .PMP.
- **Index Texture Creator** - Creates an Index texture from an old Endwalker style Normal Map.
- **Hair Texture Converter** - Converts Endwalker hair Normal/Mask textures to Dawntrail Normal/Mask textures.
  - *Note: Both textures are required, as channels must be swapped between the textures.*
- **Eye Diffuse Creator** - Creates a Dawntrail style Eye Diffuse texture from an Endwalker Eye Mask texture.

*Note on MDL Upgrading* - To upgrade a model, just import it and save it as a v6 model, no further steps are necessary.

## PBR Texture Exports

The TexTools Model Renderer has received *massive* updates to its overall performance, accuracy, etc. Thanks to this, along with more data being available in endwalker, it is now possible for TexTools to export accurate PBR (Physically Based Rendering) textures for FFXIV models (Although we don't use them for rendering in TexTools)

You can export a full set of PBR textures for any model via Additional Actions => Export PBR Textures. Please note these are largely only accurate for models using the updated Dawntrail (character.shpk) shaders, which have material information such as Metalness and Roughness represented more accurately.

What you do with these textures is up to you, but they should make for far more impressive and accurate gear renders in tools such as Unreal, Blender, etc. if you take the time to set up Materials for them.

# Notable Bug-Fixes / Other Additions

Too many bugs have been fixed to explicitly bother listing individually, but a few major/notable items that have not otherwise been mentioned:

- TexTools can now read and write to expansion (/ex#/) folder files. This primarily means music and prop assets from said expansion folders.
- TexTools is now *significantly* better at restoring file state if index backups aren't present, and better at validating that the user's backups are from the current game version.
- TexTools now prevents a number of possible user-errors with relation to configuring invalid or dangerous backup locations.
- Missing Viera Faces are now visible in all menus where they weren't before.
- The VFX textures listed under items now correctly lists the complete list of associated VFX textures.
- A bunch of items that were not correctly moddable are now fixed.
- A new Onboarding/First-Time Setup screen has been added.
- Lots of other minor bugfixes, QoL, etc.

*If you made it this far, thanks for reading, and sorry this document is so long/dense!*

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