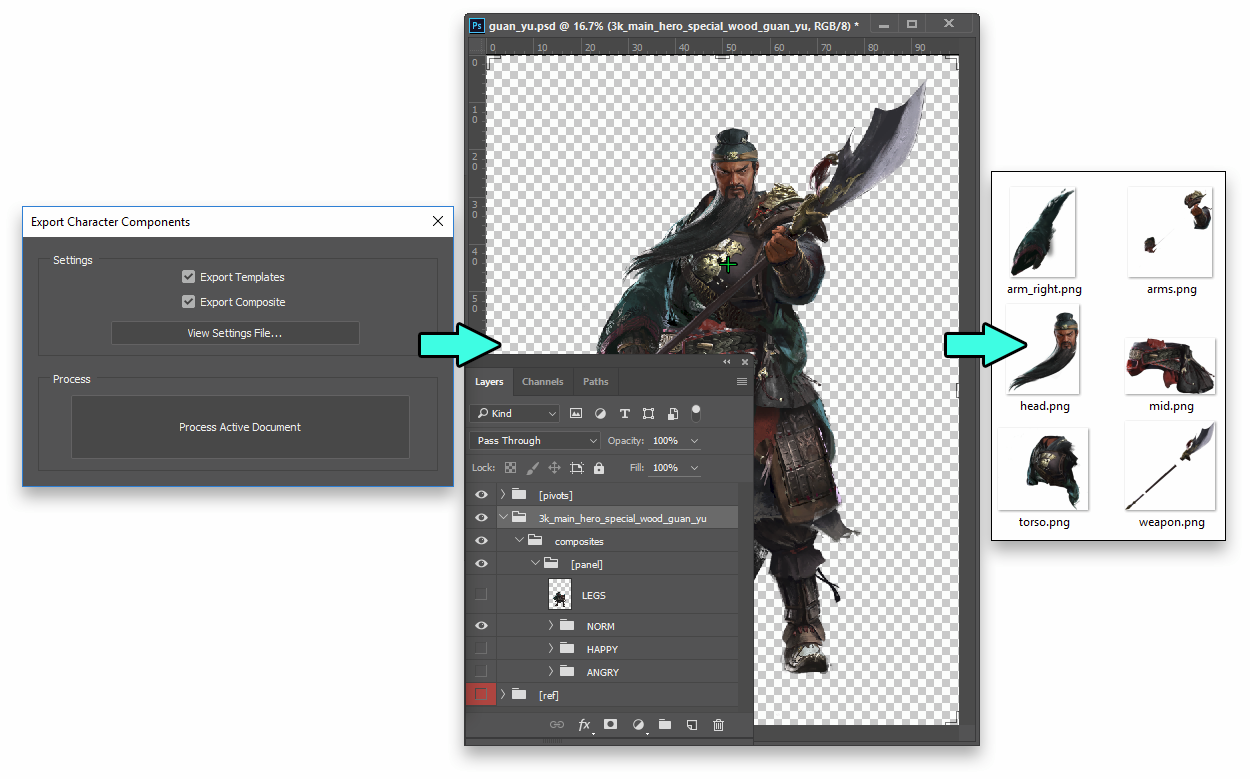
**3K Character UI Exporter – Photoshop Pipeline**



**Glossary**

* ***Character composite*** – A collective term for all the ***components*** making up a character.
* ***Character component*** – An individual piece of a character composite e.g. a torso.
* ***Character Composite PSD*** – A PSD file constructed to work within the rules of the exporter. The PSD file will contain pivot and character component layers.
* ***Template PSD*** – A PSD file containing a linked reference layer to one or more composite PSD files.
* ***[panel] layer group*** – A layer found within a character composite PSD. On export a ***large\_panel*** and ***small\_panel*** folder is created on-disk. Any layer groups under here are then mirrored as on-disk folders within both the small and large panel folder.
* ***[ref] layer group*** – All layers, under a layer group named ***[ref],*** are ignored by the export process.
* ***PNG metadata*** – Metadata is baked into each character component PNG file on export. This data consists of a position, pivot, z-order value & id name.
* ***[pivot] layer group*** – Located within a character composite PSD, the ***[pivot]*** layer group contains layers which are used to bake pivot positions into the exported composite component PNG file (see ***PNG metadata*** section for more information).

The pivot is linked to the individual component layers using a name-match approach.

* ***reference master component*** – A component layer living directly under a character component PSD’s ***[panel]*** layer will export with multiple metadata entries. Each entry points to a same-name component layer within the same character component PSD file. This is done to reduce the memory cost of exporting multiple layers that look the same.

**Overview**

***Export Character Components*** is a scripted tool designed to automate the task of exporting the many individual layers within the character composite and template PSD files.

In-game, the exported layers of a character composite PSD are then reconstructed. Each component’s behaviour is driven by both the UI character shader (applied to the component) and metadata (baked in to the PNG file during the export process).

**Getting Started**

Ensure you have the following files & folders synced in Perforce;

*t:/common/artist\_resources/photoshop/3K\_export\_char\_components.jsx*

*t:/common/artist\_resources/photoshop/presets/character\_ui\_metadata.json*

*t:/common/ImageMetadataAdd/ImageMetadataAdd/bin/Release/*

Sync and run this batch file *//shared\_tools/art\_tools/ta\_tools\_setup.bat*

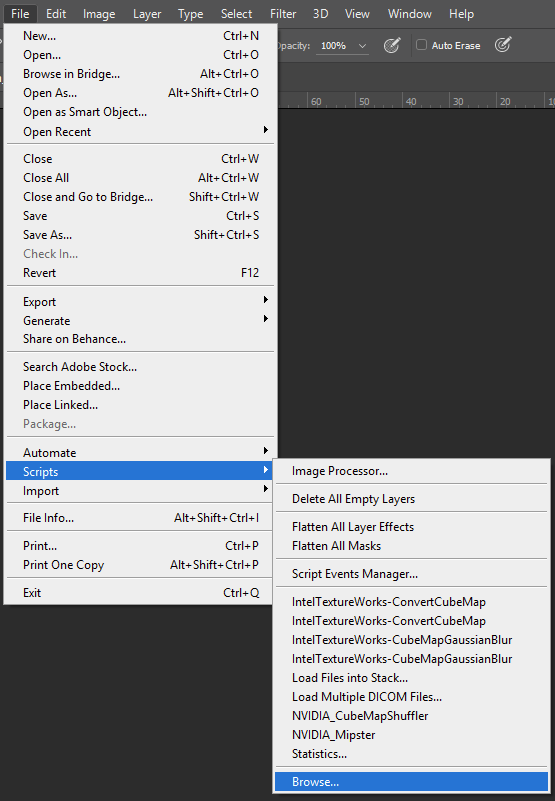
***Note:*** Always open Photoshop using this batch file *t:\common\artist\_resources\photoshop\run\_photoshop.bat*

**Launching the Script**

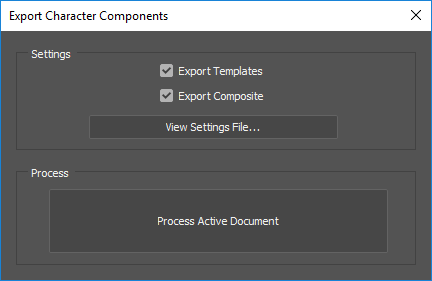
Open the character composite PSD you wish to process (more information on this under the ***Character Composite PSD*** section).

To run the tool, select ***Browse…***from the Photoshop ***File/Scripts*** menu option (see below image). Within the file browser select and load ***t:/common/artist\_resources/photoshop/3K\_export\_char\_components.jsx***

Alternatively, open the CW actions (***t:\common\artist\_resources\photoshop\CW.atn***) and hit ***shift+F9***.



**UI Overview**



When you launch the script, you’ll be presented with a modal dialog, as shown above.

Here is an overview of the UI items;

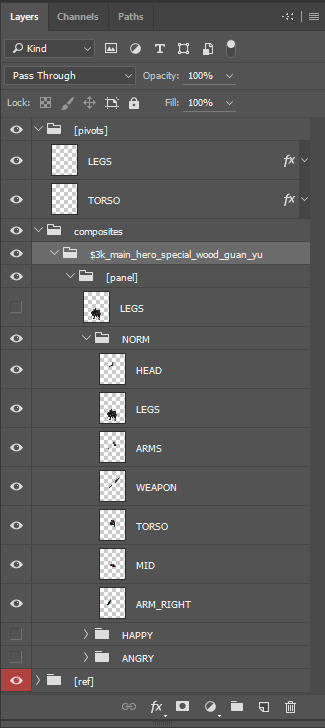
* **Settings**
  + ***View Settings File*** - Many of the options are stored within the settings file which can be opened by clicking thisbutton (more on this under the ***Settings File Structure*** section).
  + ***Export Template*** – Choose whether to process the template PSD files listed within the settings file.
  + ***Export Composites*** – Choose to process and export the various composite component layers within the current active composite PSD document.
* **Process**
  + ***Process Active Document*** – Start processing and exporting the currently opened character composite PSD and/or various template PSD files.

**Character Composite PSD**

For the exporter to work correctly we use composite PSD files that carry a strict layer and layer-group naming and hierarchy convention.

The composite PSDs for 3k currently reside under ***t:\three\_kingdoms\resource\UI\\_TEMPLATES\characters\***

The below image shows an example of the layer layout found within a typical character template PSD file.



The layer arrangement can be broken down as follows;

* ***[pivots]*** – When a layer is exported metadata is imbedded into each PNG file (see ***PNG metadata*** section). One piece of data included in this metadata is a pivot position relative to the centre of the target component layer’s bounds.

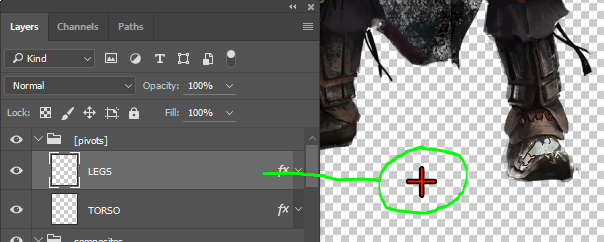
The name of each pivot layer, under the ***[pivots]*** layer group, is checked alongside the target component layer’s name. If a match is found, then the central position of the pivot layer’s pixel bounds is used to calculate the pivot position.

As shown in the image below, the user can create any visual representation for a pivot as the code simply uses the centre position of the pivot layer’s pixel bounds.

As well as just layer name matching, component layers under layer groups can also be targeted. If, say, a component layer is named ***LEGS*** and lives directly under a layer group named ***ANGRY*** then the pivot layer would be named ***ANGRY/LEGS*** to target this specific layer.

Pivot positions are finally used by the shader to determine a central position in which to scale and move each individual character sprite component.

If no pivot layer is found to match the target component layer then the pivot, by default, is centred on the component layer.



* ***Composites*** – *Only* layers and layer-groups are considered for export if they exist under this layer-group.
* ***composites/$<composite name>/*** - The name of this layer-group is the identity of the character composite.

A composite layer name is defined using a dollar sign prefix. It is used as a name-match when processing templates (see ***templates*** section), as part of the final export folder location and added to the composite’s unique Perforce changelist description.

* ***composites/<composite name>/[panel]/*** - Any layers under the ***[panel]*** layer group will be exported as two sizes.

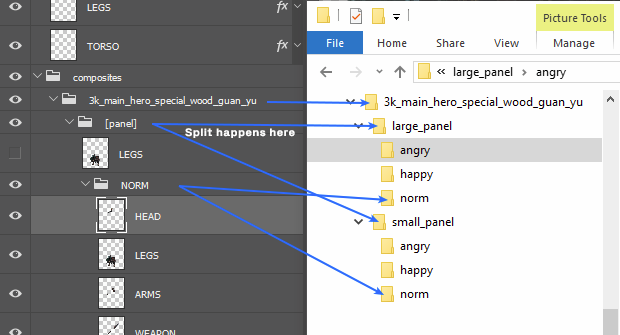
These sizes are dictated by the ***small\_panel\_scale*** and ***large\_panel\_scale*** factors found in the settings file.

The on-disk folder structure mirrors the layer group hierarchy under the ***composites*** layer group. At the point of creating a ***[panel]*** folder the exporter instead creates both a ***large\_panel*** and ***small\_panel*** folder.

From this point on a folder structure is created under ***large\_panel*** and ***small\_panel*** that mirrors the subsequent [panel] sub-layer groups.

The layers, scaled by the ***small\_panel\_scale*** factor will go to the relevant folder found under ***small\_panel*** and the same layer, scaled by the ***large\_panel\_scale*** factor, will go to the relevant folder under ***large\_panel*** sub-folder.

The below image shows the layer groups and how they’re translated to folders on-disk;



Layers that are directly under the ***[panel]*** layer group are treated as ***reference master component layers*** (as an example from the image above, ***LEGS*** is a ***reference master component*** layer).

Any layer, under ***[panel]*** matching the same name as a reference layer isn’t exported as a PNG file. Instead the metadata, that was to be baked into the PNG file, is appended to the master layer’s PNG file. This reduces the need and cost of exporting multiple layers essentially containing the same graphics.

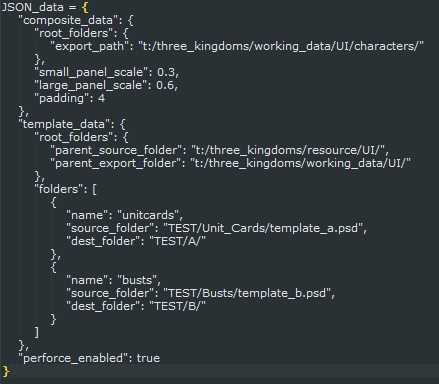
* ***composites/<composite name>/[panel]/NORM/*** - Layers and layer groups, of any name and hierarchy structure under ***[panel]*** will be exported. However, the ***NORM*** layer group must exist for the template export process to be successful.

One stage of this export process is to hide all layers except for layers under the ***/[panel]/NORM/*** layer group. This sets up the composite PSD, so it appears correctly via the linked layer within each of the template PSD files.

Currently all layers under ***NORM*** are made visible except layers named ***WEAPON***, ***MOUTH***, ***EYES*** & ***EXTRA***.

* ***composites/<composite name>/[panel]/\*/ -*** All layer group layers, under [panel], will be exported to the relevant on-disk folder as PNG file containing baked-in metadata.
* **[ref]/ -** Any layers or layers under a layer group named ***[ref]*** aren’t processed or exported.

**Settings File Structure**



Most of the exporters settings live within the settings file (accessed via the scripts UI).

They exist here as this data should be primarily viewed as a global group of settings that the artists collectively use.

The settings are broken down as follows;

* ***composite\_data*** – All information regarding the composite export process lives within here.
  + ***root\_folders*** – Any root folders live in here (presently just one).
    - ***export\_path*** – This is the root path for all exported composite PNG files.
  + ***Small\_panel\_scale* –** This is the small scale-factor applied to each exported composite component before export.
  + ***large\_panel\_scale* –** This is the large scale-factor applied to each exported composite component before export.
  + ***Padding:*** Extra pixel border added around each composite component before export.
* ***template\_data –*** All information regarding templates resides under here.
  + ***root\_folders –*** Any template root folder goes- under here (currently two).
    - ***Parent\_source\_folder –*** The root folder where the template PSDs reside.
    - ***Parent\_export\_folder –*** The root folder where the template PNGs are exported to.
  + ***Folders –*** A list for each template goes under here.
    - ***Name –*** A unique name id for the template item.
    - ***Source\_folder –*** file path + filename to template PSD. This is joined to the ***parent\_source\_folder*** to make the full filepath + filename.
    - ***dest\_folder –*** parent\_export\_folder + dest\_folder = root location for exported template layer PNG files. Folders matching the layers layer groups are appended to this path.
* ***Perforce\_enabled –*** Sets whether the resulting exported files + original source files are added to Perforce under a changelist unique to the PSD. Changelist descriptions follow the format;

**Photoshop > Character Exporter > *<composite layer name>***

**PNG Metadata**

Each layer exported as a PNG file, within the composite PSD, has additional metadata information baked into.

A layer that lives directly under the [panel] layer group is classed as a reference layer and can hold metadata for each layer it is a reference for. The data remains the same, there is just multiple copies of it stringed together.

The current data that is baked in the PNG file is;

* type – This is the name of the folder group the layer resides in e.g. norm
* x, y – The x and y position, in pixels, relative to the center of the composite PSD.
* pivot\_x, pivot\_y – pivot position relative to the center of the pixel bounds of a matching [pivot] layer (default is 0.5, 0.5)