zEBD: NPC Appearance Customizer

Overview

This is a zEdit patcher for customizing NPC appearance. You can use this patcher to customize the meshes and textures of NPCs, as well as their height. You can also integrate it with RaceMenu's BodyGen to get varied and logically consistent diversity in NPC appearance. The patcher is heavily inspired by MongoMonk's Everybody's Different Redone (LE/SE) Skyproc patcher. Differences will be covered below; the overarching purpose of building this patcher was to enable 1) easy randomization of texture packs for end users and 2) fine-grained customization of NPC appearance.

Acknowledgements

This mod is inspired by, and in fact relies upon, MongoMonk's EBD Redone mod. The keywords, spell, and magic effect written by the zEdit patcher are his. zEdit is created by mator, to whom I'm thankful for a ton of tech support and patience in guiding me through making my first patcher (and in fact my first Javascript project). Also thanks to VictorF on the zEdit Discord channel for answering a huge amount of my questions as well as to Qudix and Shybert for additional troubleshooting help.

Permissions

So, how is this different from Everybody's Different Redone?

There are six main differences between zEBD and Everybody's Different Redone. For clarity, in the explanation below, "assets" refer to meshes (.nif) and textures (.dds).

1) zEBD is a zEdit patcher rather than a SkyProc patcher (duh). While SkyProc is perfectly usable, zEdit is the currently thriving ecosystem to which most patchers are migrating, and thus serves as a useful hub for several great patchers.

2) zEBD promotes facile configuration sharing. In EBD, asset packs are configured by dragging and dropping the .nif and/or .dds files into the folders where the patcher expects them to reside. Learning how to do this isn't hard, but it is a bit daunting at first glance and can be tedious, especially if you mess up. Also, once you finally do the hard work, you can't redistribute the folders to other users unless you get permission from the asset authors. In zEBD, the asset locations are defined in **config (settings) files** that are freely sharable. To install an asset pack, follow a simple set of instructions to unzip the assets into a specific folder, drop the associated AssetPackSettings.json file into "zEBD\zEBD assets\Asset Pack Settings", and you're good to go.

3) zEBD enables fine-grained customization. You can let an NPC be as specific or as random as you like. You can specify some parts while leaving others random, or specify all parts. If you don't specify anything, the NPC will be modified completely at random (subject to the rules in the settings file assigned to it). These rules can be as simple as matching Nord assets to Nords and Elven assets to Elves, or as detailed as checking the NPC's stats/combat style/etc.

4) zEBD supports BodyGen integration. After making or downloading a library of BodyGen presets, you can customize how they're assigned, making sure it's logically consistent (i.e. defined muscle textures should not go with "curvier" body morphs).

5) The "parts" that zEBD can recognize are extensible using distributed config files. This means it can be extended to support new parts (such as feet, for example). Parts are configurable within the json files included in the "zEBD assets\RecordTemplates" folder.

6) zEBD lacks two features from the original EBD mod: changing animations to reflect the NPC's gender, and randomizing NPC headparts. I intend to implement these eventually. However, if you want these currently, a stopgap solution is to run EBD (disabling the option to change NPC meshes and textures), and then run zEBD on top of that.

Using zEBD: For End Users

Installing zEBD

1) Download and install zEdit
2) Download zEBD and extract it to zEdit\modules
3) Download and install Everybody's Different Redone (LE/SE) but do not run the patcher (zEBD requires EBD's scripts to function).
4) If you want to use the BodyGen integration feature, make sure to also download RaceMenu (LE/SE).

Navigating zEBD

When you first launch zEdit, right click in the plugin list, click "Manage Patchers", and switch to "zEBD NPC Customizer" in the left-side panel, you will see the following menu:

Main Menu: has settings that control functionality for all three of the main patcher features.

Texture & Mesh Settings: contains the customization controls for your installed asset packs (e.g. texture packs). *Also exposes some settings to match BodyGen morphs with specific textures*.

Height Randomization Settings: for assignment of base racial heights, and to randomize NPC heights.

BodyGen Integration Settings: for assigning RaceMenu BodyGen morphs

Specific NPC Assignments: Allows you to select assets (e.g. textures), height, and BodyGen morphs for specific NPCs.

Block List: for blocking specific NPCs, or entire plugins, from being patched.

Running the Patcher

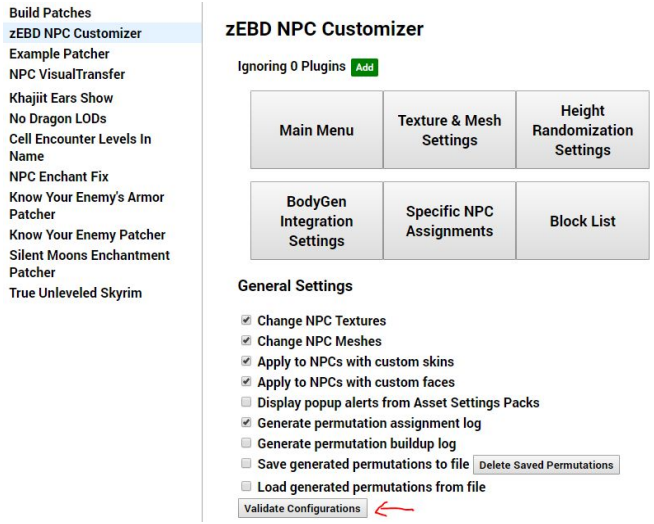
Running the patcher is easy. Don't be put off by all the options.

First, install any asset packs (e.g. texture packs) by downloading their Config files from the zEBD (or other) Nexus page. Follow the simple instructions to install them. The general outline of the steps is as follows:

1. Pick one or more *.json files from the Config file archive and move them into zEBD\zEBD Assets\Asset Pack Settings
2. Move the folder from the Config file archive into Mod Organizer 2\mods (or the Vortex equivalent). You should now have the folder structure:
   Mod Organizer 2\mods\YOURMOD1\textures\YOURMOD2
3. Download the texture pack (e.g. Bijin Skins) from the main Nexus page and extract it to the YOURMOD2 folder

That's it! Now just launch zEdit, right click in the plugin list, and click "Manage Patchers".

If you have asset packs installed, it might be a good idea to validate them. To do that, click on "zEBD NPC Customizer" in the Manage Patchers left-hand menu, navigate to "Texture and Mesh Settings", and click the Validate Configurations button:

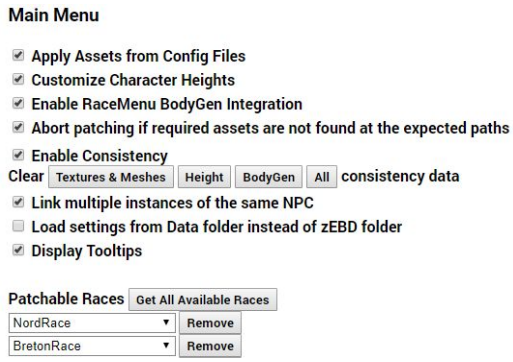


If no issues are reported, run the patcher from the "Build Patches" menu:

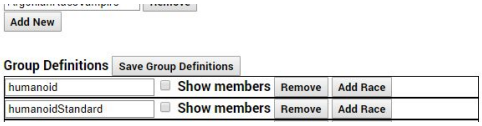
Then just sit back and wait. If you like, click "Show Log" to watch for any messages that might indicate problems. Close zEdit when you're done and save zEBD.esp.

Main Menu

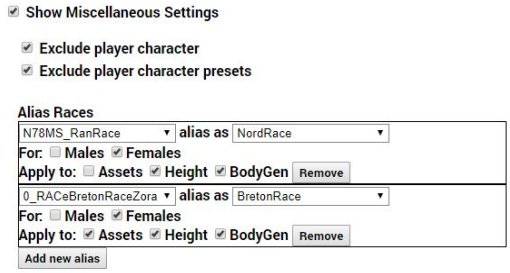
The main menu appears as follows:



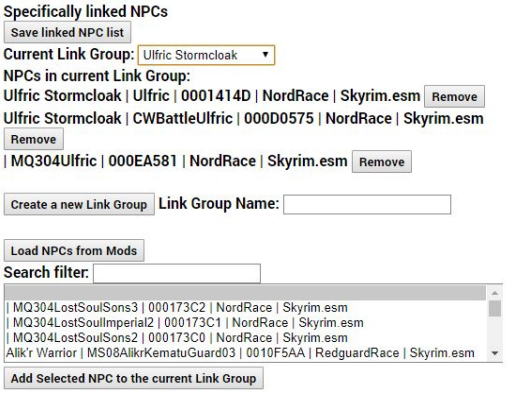
...



...



...



The meanings of the options are listed below:

Apply Assets from Config Files: Check this box to assign textures (and/or) meshes from your installed asset packs to your NPCs.

Customize Character Heights: Check this box if you want zEBD to assign base racial heights and/or randomize NPC heights.

Enable RaceMenu BodyGen Integration: Check this box if you want zEBD to use the supplied BodyGen integration configuration to create the necessary input files for RaceMenu's BodyGen.

Abort patching if required assets are not found at the expected paths: This is a safety check - it makes sure that the mods expected by the config files are actually activated in your mod manager. If you uncheck this, you run the risk of turning your NPCs blue if the expected assets textures are not found.

Enable Consistency: If enabled, the patcher will assign the same values to the same NPCs over multiple rounds of patching (unless your settings have changed to no longer permit those values).

Clear Consistency Data: deletes the consistency data (but keeps a backup) corresponding to the option selected (selecting "all" also deletes the consistency file itself). Used to make the patcher re-randomize all NPCs.

Link multiple instances of the same NPC: Some NPCs appear as multiple records in the game (e.g. Cicero, Ulfric, Tullius, Rikke, and some others). If checked, the same assets, height, and/or BodyGen (depending on which functionalities are enabled) will be applied to all instances of that NPC. Only applies to NPCs with "Unique" flag set. NPCs are determined to be the same if they have both the same NAME and RACE records. Note that a few "same" NPCs don't have the same NAME. These (as of version 1.6) are linked together via a separate manually-configured list available in the "Specifically Linked NPCs" section of Miscellaneous Settings.

Load Settings from Data folder instead of zEBD folder: If checked, zEBD will load several files from Data\zEBD instead of zEdit\modules\zEBD. This includes the entire "zEBD Assets\Asset Pack Settings" folder as well as the Block List, BodyGen Config, Specific NPC Assignments, Height Configuration, Consistency, and (if you choose the "save permutations" option in the Asset Pack Assignments menu) the four .json files created when saving permutations. This is useful for having MO2 profile-specific zEBD settings. Ignore the MO2 warning about having no esp/esm/esl and no asset - what does it know anyway. Here's an example of what it should look like in MO2:

Display Tooltips: If checked, you will see bubble notifications informing you of what each setting does.

Patchable Races: List of all races that zEBD can patch. If you want to add a race, click the “Get All Available Races” button, then click “Add New”, and select your race from the dropdown menu.

Group Definitions: These are “shortcut” groups that contain patchable races. These can be used instead of the races themselves to configure asset pack and BodyGen distribution rules.

Miscellaneous Settings:

Exclude player character: Excludes the player character from patching. Recommended.

Exclude player character presets: Excludes the RaceMenu presets from patching. Recommended.

Alias Races: Forces the patcher to interpret the race in the left-side box as the race in the right-side box. Useful if you have a mod that introduces custom race NPCs that you want to diversify without having to edit all of your config files to support them. You can modularly select if you want the race alias to apply to NPCs of a specific gender or both, and/or if you want it to apply to one or more of asset pack, height, or BodyGen assignments.

Path Trimming: Matched file extension and folder pairs. The folder will be removed from the beginning of the file path for the given file extension. For example, if a texture config file provides a path “textures\A\B\myTexture.dds”, the patcher will assign it as “A\B\myTexture.dds”. This is because the game records expect textures to already be in the Data\Textures folder.

Exclusions to NPC Linkage: List of NPC names that should not be linked even if they have the same name and race. Some NPCs have the “Unique” flag set even when they should not be linked (for example there are two NPCs named Karita). This list contains the names of such NPCs. Names are not case-sensitive.

Specifically Linked NPCs: NPCs in each linked group will receive the same assets, height, and/or BodyGen (depending on which functionalities are enabled). This is to catch NPCs with different names in different instances, such as “MQ304Ulfric” who doesn’t have a “NAME” value.

Installing an Asset Pack

Installing asset packs and running the patcher is simple. I will use the popular Tempered Skins for Males mod as an illustrative example.

1) Download “Tempered Skins for Males - Dressed Version” from the link above but **do not** install it using your mod manager.

2) Download the “Config - Tempered Skins for Males - Dressed Version” from this mod’s Nexus page.
   Config files for other asset packs can be found on this mod page, or hosted as separate mods on the Nexus and other sites.

3) **MO2**: Copy the “zEBD - Tempered Skins for Males - Dressed” folder (provided along with the config file) into “Mod Organizer 2\mods\ and activate it in MO2.
   Vortex: Someone please tell me how to do this in Vortex :)

4) Extract the downloaded Tempered Skins for Males (the actual meshes and textures downloaded from the Nexus) into zEBD - Tempered Skins for Males - Dressed\textures\TSM

5) (optional but highly recommended to save disk space): in textures\TSM, using the search bar in the top right corner of the explorer window, search for “nif”. Wait for it to finish, hit ctrl+a to select all, and delete.

6) Tempered Skins is a special case where you do actually need to install the mod through your mod manager to get it to work right. This is because it provides malebody_0 and malefeet_0 meshes which the patcher cannot apply because they’re not assignable to specific NPCs. After installing the mod, you can save disk space by deleting everything in its textures\actors folder BESIDES textures\actors\character\male\maleunderwear.dds and maleunderwear_n.dds (unless you want your own character to use Tempered Skins, in which case don’t delete anything). For most texture packs this step is not necessary.

7) That’s it!

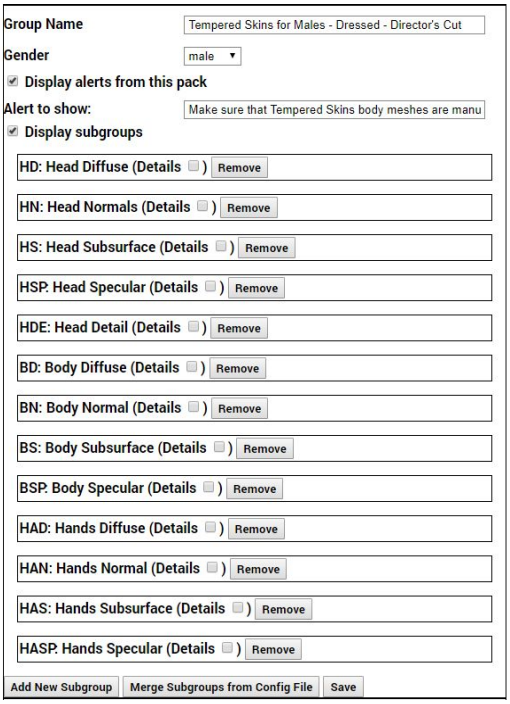
Customizing Asset Pack Options

1) Launch zEdit and switch to the zEBD tab.

2) Click on the Texture & Mesh Settings button and scroll down to the config file that you want to customize.

3) Customize the distribution rules.

    a) For the config file that you want to customize, click “Display subgroups”. You will be presented with a list of top-level subgroups.



    b) Click on the subgroup whose rules you want to customize. To understand what all the customization options mean, see Config File Structure. For the purpose of this tutorial, let’s do the following:

        i) Tempered Skin’s “Young” diffuse skin looks like it belongs to an NPC of age ~20, whereas most Skyrim NPCs sound older. Let’s lock down this texture to just young-sounding NPCs.

            (1) Click “Details” next to “HD: Head Diffuse”

            (2) Within the “HD” options, click “Display subgroups”.

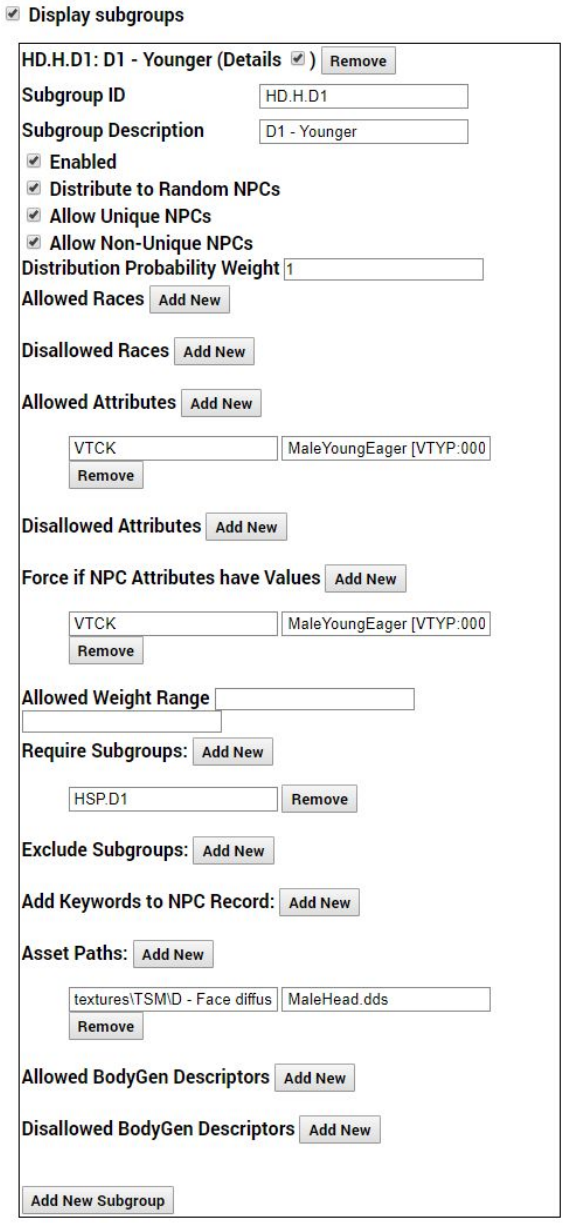
            (3) Repeat for “HD.H: Non-Vampire”, HD.H.D1: D1 - Younger

            (4) Now we’re within the subgroup corresponding to the “young” diffuse texture.

            (5) To make this subgroup accessible ONLY to young-sounding NPCs, click “Add New” next to “Allowed Attributes”. In the first box, enter “VTCK” and in the second enter “MaleYoungEager [VTYP:00013AD1]”. “VTCK” corresponds to the NPC’s voice type, and “MaleYoungEager” is the

corresponding value for young-sounding NPCs - you can find this information in xEdit.

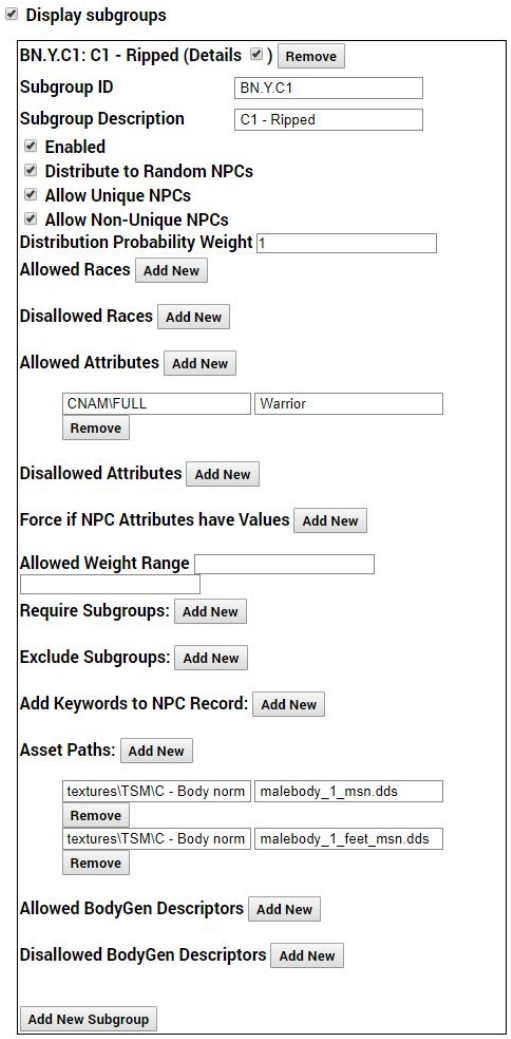
(6) Step 5 alone means that non-young-sounding NPCs won't get the young texture; however, young-sounding NPCs CAN still get the other diffuse textures. To force young-sounding NPCs to receive the young texture, click "Add New" next to "Force if NPC Attributes have Values". Again, enter "VTCK" in the first box and "MaleYoungEager [VTYP:00013AD1]" in the second. The final configuration should look as follows:



ii) "Warrior" type NPCs should always look shredded, but non-warrior NPCs should occasionally look ripped as well. Body muscle definition is controlled mainly by the body normal map texture (subgroup BN).

(1) Using the "Details" and "Display subgroups" buttons, navigate to BN\BN.Y\BN.Y.C1 (C1 - Ripped).

(2) To force warrior-type NPCs to use this normal map without restricting it to only warriors, add a new “Force if NPC Attributes have Values” containing [“CNAM\FULL”, “Warrior”]:



iii) When you’re finished setting conditions, scroll back up to the top and **click “Save”** next to the edited group name (Tempered Skins for Males). Otherwise your edits will be discarded.

4) Once you’re done setting conditions, click on “Build Patches” in the top left corner. Find zEBD and click “Build”.

5) Click “Show Log” to see updates on what the patcher is doing and any warnings or errors that it may show you.

6) Go grab a coffee and come back in ~5-10 minutes depending on the size of your load order.

7) Once the patcher finishes, close out of zEdit and save zEBD.esp when prompted.

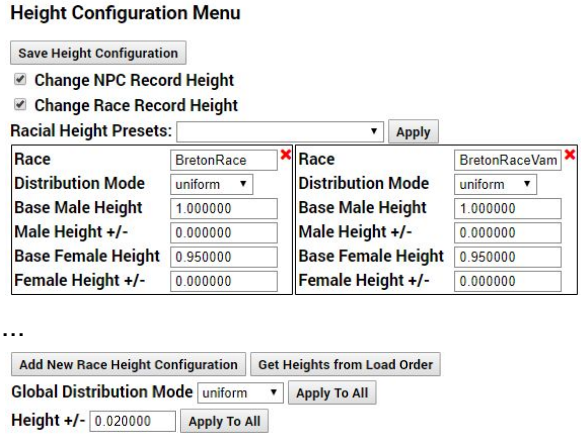
8) To see a log of the permutations generated and which NPCs they were assigned to, open zEBD\Logs\PermutationsGenerated.txt. To find the NPC that you're interested in, just search for their name, editorID, or formID:

```
9637: HD.H.D1,HN.YE1.B,HS,HSP.D1,HDE.BDM,BD.B1,BN.Y.C1,BS.H,BSP.B1,HAD.B1,HAN.Y,HAS,HASP.B1 (gender: male) from: Tempered Skins for Males - Dressed - Director's Cut
        Distribution enabled: true (to unique NPCs: true), (to non-unique NPCs: true)
        Permutation probability weighting: 8
        Contents: HD,HD.H,HD.H.D1 (Head Diffuse,Non-vampire,D1 - Younger), HN,HN.YE1,HN.YE1.B (Head Normals,E1 - Smooth,Breton), HS (Head Subsurface), HSP,HSP.D1 (He
        Allowed Races: BretonRace
        Disallowed Races: ElderRace,ElderRaceVampire
        Allowed Attributes: (VTCK,MaleYoungEager [VTYP:00013AD1]),(Head Parts\*,HumanBeard00NoBeard "HumanBeard00NoBeard" [HDPT:000F5009]),(RNAM,RedguardRace),(RNAM,
ior" [CLAS:0006766B]),(CNAM,EncClassThalmorMelee "Thalmor Warrior" [CLAS:0007289D]),(CNAM,CWSoldierClass "Soldier" [CLAS:0010B1D8]),(CNAM,GuardOrc2H "Orc Warrior" [C
        ForceIf Attributes: (VTCK,MaleYoungEager [VTYP:00013AD1]),(FULL - Name,Hjoromir),(RNAM,DarkElfRace "Dark Elf" [RACE:00013742]),(RNAM,DarkElfRaceVampire "Dark
        Weight Range: _ - _
        Filepaths:
                tsm\d - face diffuse options\d1 - younger\textures\actors\character\male\malehead.dds
                tsm\e - face normal options\e1 - smooth\textures\actors\character\bretonmale\malehead_msn.dds
                tsm\a - main files\a0 - required\textures\actors\character\male\malehead_sk.dds
                tsm\d - face diffuse options\d1 - younger\textures\actors\character\male\malehead_s.dds
                tsm\a - main files\a0 - required\textures\actors\character\male\blankdetailmap.dds
                tsm\b - body diffuse options\b1 - clean hairless\textures\actors\character\male\malebody_1.dds
                tsm\c - body normal options\c1 - ripped\textures\actors\character\male\malebody_1_msn.dds
                tsm\a - main files\a0 - required\textures\actors\character\male\malebody_1_sk.dds
                tsm\b - body diffuse options\b1 - clean hairless\textures\actors\character\male\malebody_1_s.dds
                tsm\b - body diffuse options\b1 - clean hairless\textures\actors\character\male\malehands_1.dds
                tsm\a - main files\a0 - required\textures\actors\character\male\malehands_1_msn.dds
                tsm\a - main files\a0 - required\textures\actors\character\male\malehands_1_sk.dds
                tsm\b - body diffuse options\b1 - clean hairless\textures\actors\character\male\malehands_1_s.dds
        Generated Records:
                SkinMaleHead1 [TXST]: 65001379
                MaleBody1 [ARMO]: 65001343
                MaleFeet1 [ARMA]: 65000E78
                SkinMaleFeet1 [TXST]: 65000B1A
                MaleHands1 [ARMA]: 65000E62
                SkinMaleHands1 [TXST]: 65000B04
                MaleTorso1 [ARMA]: 65000E2C
                SkinMaleTorso1 [TXST]: 65000ACE

        Assigned to the following NPCs:
                [|EncForsworn06Melee1HBretonM03|000442A3]
                [|EncForsworn03Melee1HBretonM03|0004426D]
```

Height Configuration

As of version 1.3, zEBD offers a height configuration menu that appears as follows:



There are two variables that control the NPC's height. There is a "height" element within NPC records, and a DATA\Male Height & DATA\Female Height element in each RACE record. It appears that the final NPC height is the product of the value in the NPC record and that in the RACE record. zEBD therefore lets you set both values. You can choose to override one or both of these settings with those configured in zEBD using the checkboxes at the top of the menu. The race record height will simply be overwritten to match the zEBD value, while the NPC record height will be randomized.

Each entry in the height config menu corresponds to the Editor ID of a given race. Below each Editor ID are boxes controlling the male and female heights of that race. You can set them manually, or load from several presets available from the *Racial Height Presets* dropdown menu (don't forget to click Apply after selecting).

Below the Base Heights are the controls for per-NPC randomization. You can set the probability distribution function (uniform vs. bell curve) and the range between which NPCs can vary. If the range is set to 0.02, the height value set in the NPC's record will be set to between 0.98 and 1.02. This will be multiplied with the base racial height. If using bell curve distribution, the range is interpreted as 3 standard deviations and any NPCs above or below the range will be clipped to those boundaries.

At the bottom you can add settings for a new race (for supporting custom races). You can also get the current race heights from your load order (but you'll need to add the race and set its Editor ID appropriately before zEBD will recognize and populate it). This can be useful if you want to examine and tweak the heights set by another mod.

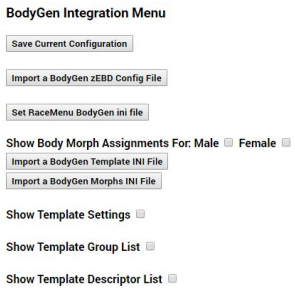
Below those options are "apply to all" buttons to quickly apply the given randomization options to all of the above configurations.

At the top, there is a "Save Height Configuration" button. Make sure to save your changes after customizing.

BodyGen Integration

As of Version 1.4, zEBD includes BodyGen integration. I am also providing a zEBD adaptation of “Diverse Races”, a collection of BodyGen configuration files generously provided by Nexus user MCSmarties (who had previously shared these files on the Lexy’s LotD Discord). I will use these files as an example of how to set up the configuration.

When you first open the BodyGen Integration Settings window, you will see the following options:



The key features are the Body Morph Assignments, Template Settings, Template Group, and Template Descriptor lists. These lists are empty when you first launch zEBD.

Body Morph Assignments tell the patcher, per race, which BodyGen *Groups* can be assigned.

Template Settings tell the patcher on a *per-morph* basis how the *Morphs* can be assigned. This is also where *Morphs* are assigned to *Groups*.

The Template Group List is where you find all *Groups* to which you can assign *Morphs*. You can assign any *morph* to any existing *group*, and here you can also define new *groups*.

The Template Descriptor List is where you put in *descriptors*. Each *morph* can be associated with one or more descriptor. The descriptors are how asset packs (e.g.) texture packs communicate with BodyGen distribution. For example, if you create the descriptor “stomach: out of shape” and assign it to a morph, you can then go into a texture subgroup for 6-pack abs and add “stomach: out of shape” to its disallowed descriptors list.

You can also import existing config files. For example, click the “Import a BodyGen zEBD Config file” and select the “BodygenConfig - MCSmarties Diverse Races Adaptation.json” file (found on the zEBD Nexus page). Now all four lists will be populated.

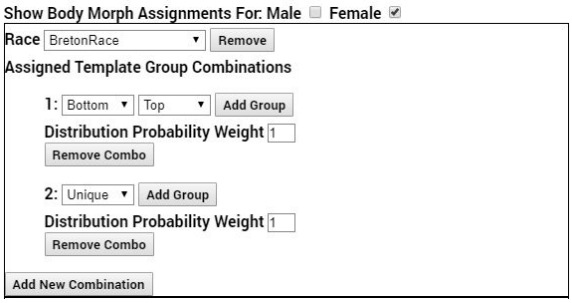
If you have BodyGen templates that have not yet been adapted to zEBD format, import them from the templates.ini file using the “Import a BodyGen Template INI File”. You will have to set the metadata yourself (see the subsequent section).

If you have made specific NPC assignments using a BodyGen Morphs.ini file (such as the one that comes with the MCSmarties Diverse Races Adaptation download), import it using the “Import a BodyGen Morphs INI File”. This will be loaded to your Specific NPC Assignments.

Don’t forget to click “Save Current Configuration” at the top of the menu, or your settings will be discarded.

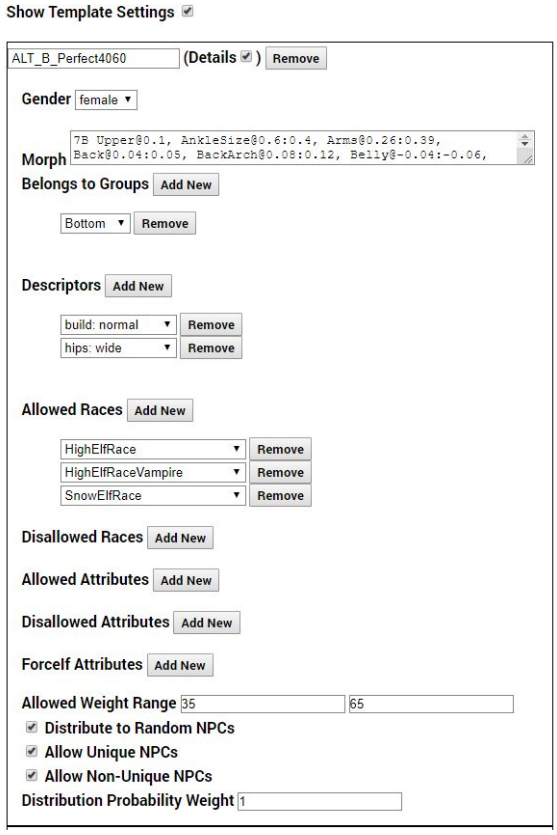
Configuring BodyGen

Body Morph Assignments: This menu tells the patcher which groups are eligible for each patchable race.



The above tells the patcher that it has two choices for Breton females: It can either assign two morphs (one from the “Bottom” group and one from the “Top” group, or a single morph from the Unique group). The Distribution Probability Weight controls the relative probability of making the given choice. You can remove any combination that you don’t want, or add a new one.

Templates: Templates (or morphs) are the actual BodyGen builds. Their customization appears as follows:



Name: Appears as-is from the Templates.ini import

Morph: The actual slider configuration. Appears as-is from the Templates.ini import. You can customize it here if you want.

Belongs to Groups: The groups to which the morph belongs. Used as described above to assign the given morph for distribution to one or more races.

Descriptors: Must be in format “category: description”. Descriptors allow Texture config files to allow/disallow specific morphs from being paired with specific textures.

Allowed Races: List of races that can receive the given morph. If empty, all races are allowed.

Disallowed Races: List of races that cannot receive the given morph. Dominant over Allowed Races.

Allowed Attributes: NPC characteristics that are allowed for the morph to be assigned. See the same setting for Asset Pack configuration files for a more detailed explanation.

Disallowed Attributes: NPC characteristics that are prohibited for the morph to be assigned. See the same setting for Asset Pack configuration files for a more detailed explanation.

ForceIf Attributes: NPC characteristics that, if present, force the morph to be assigned. See the same setting for Asset Pack configuration files for a more detailed explanation.

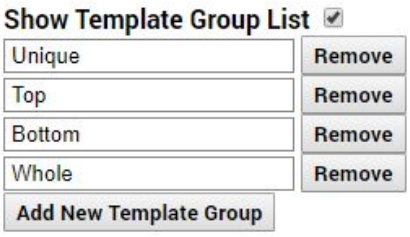
Allowed Weight Range: Lowest and highest weight that the NPC can have to get the given morph (inclusive). If the left box is left blank, there will be no lower bound. Similarly, if the right box is left blank, there will be no upper bound. If both boxes are left blank, the NPC’s weight is ignored.

Distribute to Random NPCs: If checked, any arbitrary NPC can get the given morph. If unchecked, morph can only be assigned if specified by the Specific NPC Assignments. It is recommended to assign such morphs to the “Unique” group.

Allow Unique NPCs: If checked, NPCs with the “unique” flag can be assigned the given morph

Allow Non-Unique NPCs: If checked, NPCs without the “unique” flag can be assigned the given morph.

Show Template Group List: Here you can add or remove template groups that can be assigned to each morph.



Show Template Descriptor List: Here you can add or remove descriptors that can be assigned to each morph.

Show Template Descriptor List ☑

build: normal	Remove
build: curvy	Remove
build: petite	Remove
build: powerful	Remove
build: thick	Remove
build: chubby	Remove
chest: busty	Remove
chest: saggy	Remove
hips: wide	Remove
sides: hourglass	Remove
sides: straight	Remove

Add New Template Descriptor

Pairing BodyGen with Textures

Within the texture config file that you want to pair, navigate to the subgroup that you want to link with a given BodyGen. At the bottom (if BodyGen integration is enabled in the main menu), you will see the following options:

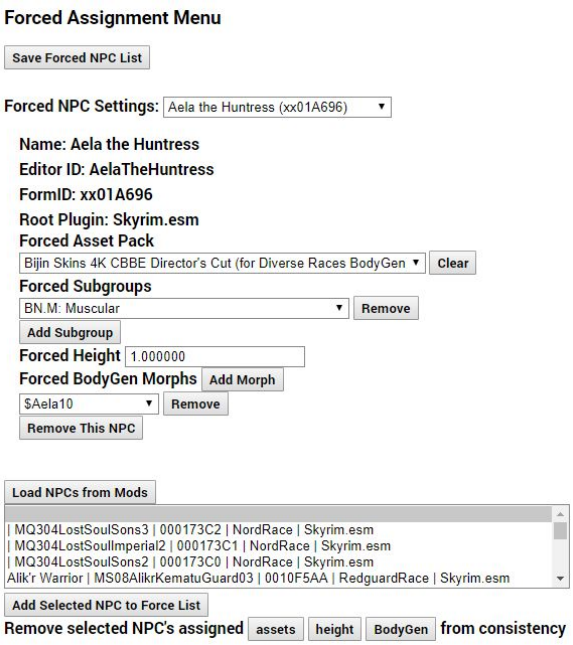
Allowed BodyGen Descriptors: Only morphs with those descriptors can be paired with the given subgroup.

- Note that this only applies to morphs within a group that has such a descriptor. For example, assume an Altmer is assigned to this subgroup. In the BodyGen distribution, the patcher will select the “Bottom”, “Top” group combination.
- It will then look at all “Bottom” morphs that are available for Altmer and check if any of them have a “chest: “ descriptor. Seeing that there are no such morphs within “Bottom”, it will assign any of them.
- It will then look at all “Top” morphs that are available for Altmer and check if any of them have a “chest: “ descriptor. Seeing that there are some that do, it will eliminate from consideration the ones that don’t match this descriptor value.

Disallowed BodyGen Descriptors: Morphs with these descriptors will not be paired with the given subgroup. This a direct comparison; much more straightforward than Allowed BodyGen Descriptors.

Specific NPC Assignments

NPCs can be forced to use specific config files, heights, and BodyGen settings. The Specific Assignments menu appears as follows:



To select an NPC, use the selection menu at the bottom. Click on the NPC you want to add (hint: if you click in the box and start typing, it will jump to your selection). Then click “Add Selected NPC to Force List”. Note that the selection window initially only contains NPCs from the base game + DLCs. Click “Load NPCs from Mods” to populate it with other NPCs in your load order.

Next, select the NPC that you added in the dropdown menu to the right of “Forced NPC Setting”.

You can now select the Forced Asset Pack from your installed asset packs.

Once an asset pack is set, you can add one or more Forced Subgroups from that asset pack.

You can also force a specific height.

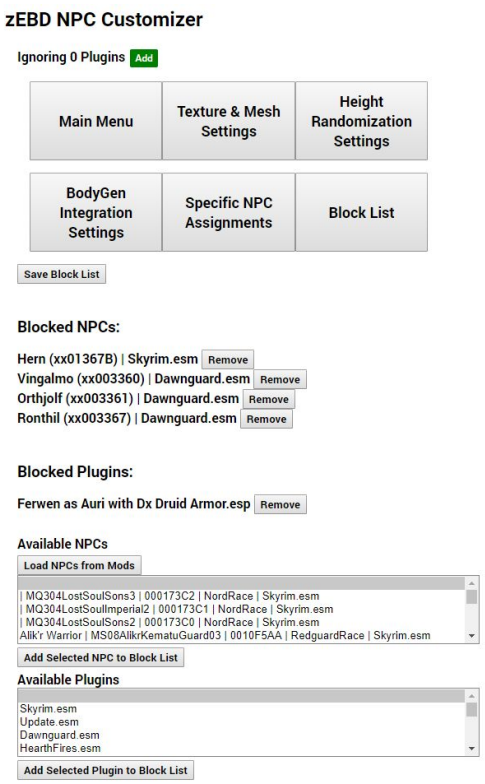
Finally, you can specify one or more specific BodyGen morphs to be applied to the NPC.

An additional functionality available from this menu is the ability to “re-roll the dice” for an NPC. If you don’t like the patcher’s assignment for a specific NPC, select them in the list and click the button to remove the corresponding assets, height, and or BodyGen data from the zEBD consistency file, which will force zEBD to re-randomize that NPC. **Note that BodyGen morphs are baked into the game after an NPC has been met, and must be cleared using a mod for that purpose**. One example is Asdasfa NiOverride Helper (not on Nexus).

Don’t forget to click the “Save Forced NPC List” button at the top or your settings will be discarded.

Block List

zEBD can be prevented from patching specific NPCs, either by directly blocking that NPC or by blocking a plugin. The Block List menu appears as follows:



Note that the “Ignoring 0 plugins” at the top comes from zEdit, not zEBD! This will make NPCs ignore the *root plugin* of NPCs, but not plugins that affect that NPC’s appearance.

The Blocked NPCs list shows specific NPCs that will not be patched. The block list is already populated with four Dawnguard NPCs whose rules confound this patcher (see Miscellaneous Notes B if you’re curious as to why). To add another blocked NPC, search for it in the Available NPCs list and click “Add Selected NPC to Block List.”

The Blocked Plugins list shows plugins whose NPCs are block from being patched. *This is the list you want to use if you need to exclude an NPC appearance overhaul (e.g. Bijin Warmaidens)*. Select the plugin in the Available Plugins list and click “Add Selected Plugin to Block List.”

Click “Save Block List” at the top or your settings will not be respected.

Note the difference between zEdit’s “Ignoring x Plugins (Add)” and zEBD’s “Blocked Plugins”. If I want to block zEBD from patching Bijin Warmaidens, I have to add it to “Blocked Plugins.” If I add it to the “Ignoring Plugins” list, all of the Bijin Warmaidens NPCs will still be patched because their *root plugin* is not Bijin Warmaidens.esp, but rather Skyrim.esm.

Using zEBD: For Asset Pack Settings Creators

Tutorial

So you want to put in your blood, sweat, and tears so that others can download your config file and use it with naught but a simple click of “Build Patch”? Here’s how it’s done (thanks to the blank config files provided, it’s less painful than it looks). Let’s create the configuration settings for the “Tempered Skins for Males” that we used in the “Installing an Asset Pack” tutorial.

1) Download “Tempered Skins for Males - Dressed Version” from the link above but **do not** install it using your mod manager.

2) **MO2:** Copy zEBD\Asset Folder Template into MO2\mods
   Vortex: Someone please tell me how to do this in Vortex :)

3) Rename the copied “Asset Folder Template” to “zEBD - Tempered Skins for Males - Dressed”.

4) Within the above folder, rename “meshes\EBD - YourMod” to “meshes\TSM” and “textures\EBD - YourMod” to “textures\TSM”. “TSM” is just a convenient folder label - you can make it whatever you want. Within our config file, all mesh paths will start with “meshes\TSM\...” and texture paths will start with “textures\TSM\...”.

5) Set aside a copy of the new “zEBD - Tempered Skins for Males - Dressed”. You will include this empty set of folders along with the config file itself for distribution, and you don’t want to accidentally share any assets themselves.

6) Extract the downloaded Tempered Skins for Males (the actual meshes and textures downloaded from the Nexus) into textures\TSM. Activate zEBD - Tempered Skins for Males - Dressed in MO2/Vortex.

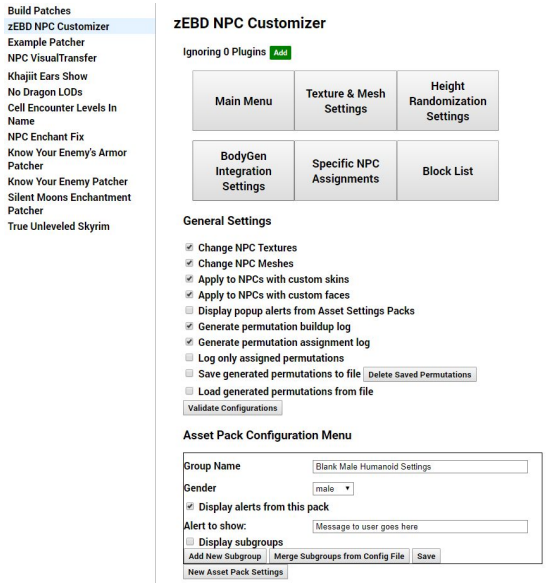
7) (optional but highly recommended to save disk space): in textures\TSM, using the search bar in the top right corner of the explorer window, search for “nif”. Wait for it to finish, hit ctrl+a to select all, and delete.

8) Copy “zEBD\zEBD assets\Asset Pack Settings\Blank Templates\Blank Male Humanoid Settings.json” into “zEBD\zEBD assets\Asset Pack Settings\” and rename it to “Tempered Skins for Males.json”.

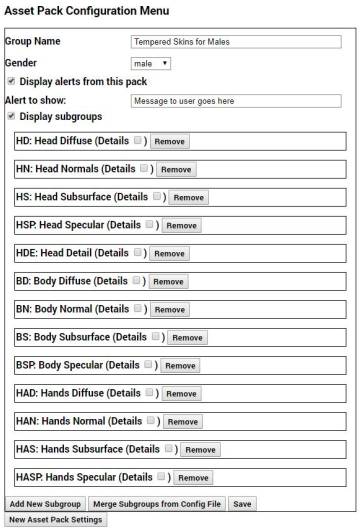
9) If you have not yet read “**Config File Structure**” (below), please do so now. *Note: zEBD makes no assumptions about the structure of your subgroups. When I started making config files, I followed the folder structure of the downloaded archive. However, I quickly realized that*

makes it almost impossible to keep track of which assets I had dealt with and which still needed to be assigned, so instead I adopted a strategy of making one top-level subgroup for each path that needs to be assigned. I found this to be a much better way to go about it, so that's what I will demonstrate in this tutorial.

10) Time to edit the config file. Launch zEdit, click on "zEBD NPC Customizer" in the left pane, and click the "Texture & Mesh Settings" box. Note: You can also create and edit the .json files directly if you feel more comfortable doing so. My strategy has been to set up the subgroups within the zEBD GUI and then fill in the details in a text editor. The problem with the GUI is that if you accidentally click outside of it in zEdit it'll disappear and discard all of your changes since the last save. For the sake of this tutorial I will just show how to use the GUI.



11) Change "Group Name" to "Tempered Skins for Males" and tick the "Display subgroups" box. You can see that the blank template was pre-populated with all of the top-level subgroups that you will need to assign.



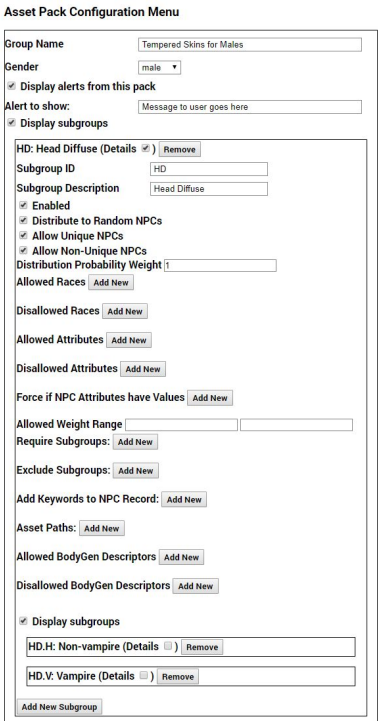
12) If you want to exclude certain types of NPCs from being patched with any subgroup within this config file, it's good practice to put these exclusions into the first subgroup, because all top-level subgroup conditions are carried through into the final permutation. For example, Bijin Skins doesn't provide Age40 or Age50 detail maps. Without them, the patcher tries to use the vanilla detail maps, but this causes a noticeable neck seam. Therefore, if you look at my Bijin Skin settings, I excluded all "Age40" and "Age50" NPCs from the "HD" subgroup, which effectively excludes them from the entire config file. Tempered Skins includes pretty much every male texture so this is not necessary here.

13) For each top-level subgroup, look through the downloaded archive for the relevant path. Let's start with Head Diffuse, which should correlate to malehead.dds and malehead_vampire.dds. Searching for malehead.dds in textures\TSM, we see that it's provided in four locations:

textures\TSM\D - Face diffuse options\D1 - Younger\textures\actors\character\male
textures\TSM\D - Face diffuse options\D2 - Elder\textures\actors\character\male
textures\TSM\D - Face diffuse options\D3 - Hard Life\textures\actors\character\male
textures\TSM\D - Face diffuse options\D4 - Stubbled faces by Geonox\textures\actors\character\male

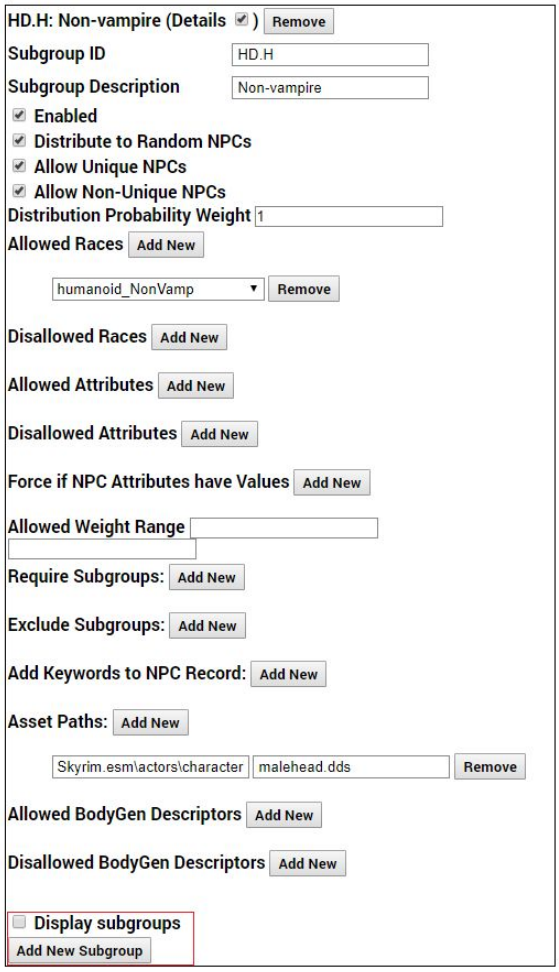
Meanwhile, maleheadvampire.dds appears only once, in: textures\TSM\A - Main files\A0 - Required\textures\actors\character\male. There is also a separate texture for Snow Elf and Afflicted.

14) Check the "Details" box next to "HD", and then check "HD"'s "Display Subgroups" box. You can see that the blank template has already prepared several race-specific subgroups with the paths already set.



15) Check “Details” for “HD.H: Non-vampire”. Since we are replacing this texture, click “Remove” next to the default path in “Asset Paths”.

16) Since we have four non-vampire malehead.dds texture to assign, click the “Add New Subgroup” button four times and then check “Display subgroups” (note: “Display subgroups only appears if the subgroup has subgroups, so you won’t see it until you click “Add New Subgroup”).



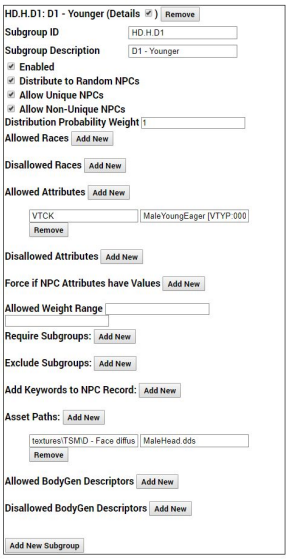
You should see four blank subgroups appear.

17) Check the “Details” box next to the first one. Change the subgroup ID and description to match the texture we’re assigning.

18) Now we need to add the path. Next to “Asset Paths”, click “Add New”. You will see two blank boxes appear. The first one should be filled with the filepath relative to the top-level mod folder:
textures\TSM\D - Face diffuse options\D1 - Younger\textures\actors\character\male\malehead.dds
The second box is the filename of the corresponding path in the corresponding recordTemplate (If you’re not familiar with Record Templates yet, read the **Record Template Structure** section). Go to zEBD\zEBD assets\RecordTemplates\. The texture we’re assigning is for male humanoid characters, so open StandardTemplates_Male.json in a text editor such as NotePad or NotePad++. Scrolling down to the "SkinMaleHead" record, we see that the diffuse texture is "TX00 - Difuse": "Actors\\Character\\Male\\MaleHead.dds". Therefore, in the second box we write the filename to replace: “MaleHead.dds”

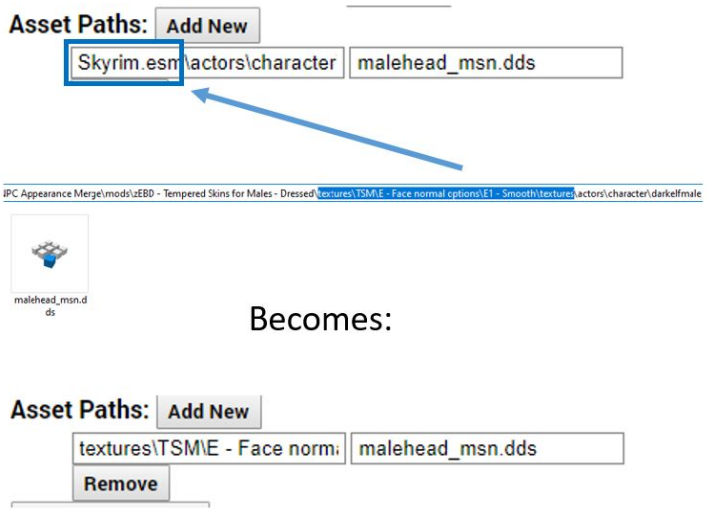
19) Since this texture is for humanoid non-vampire races, we could set allowedRaces to “humanoid_NonVamp” (from the Group Definition “humanoid”; see **Group Definition Structure** section if you’re unfamiliar). However, notice that the parent subgroup (HD.H: Non-vampire) already has that parameter set. Since all child subgroups will inherit their parents’ restrictions, we don’t need to set it again.

Also, looking at the preview pictures for this texture, it looks like it corresponds to NPCs in their early 20s. To reflect this in-game, let’s add an AllowedAttribute of VTCK, MaleYoungEager [VTYP:00013AD1] to restrict this texture to NPCs that have young-sounding voices (see **Attribute Searching**):

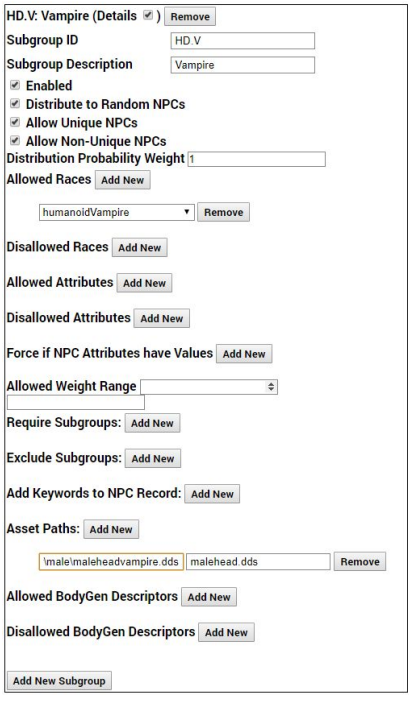


Congrats! You've assigned your first texture and it only took 19 steps. **Press "Save" next to "Group Name" to save your work!**

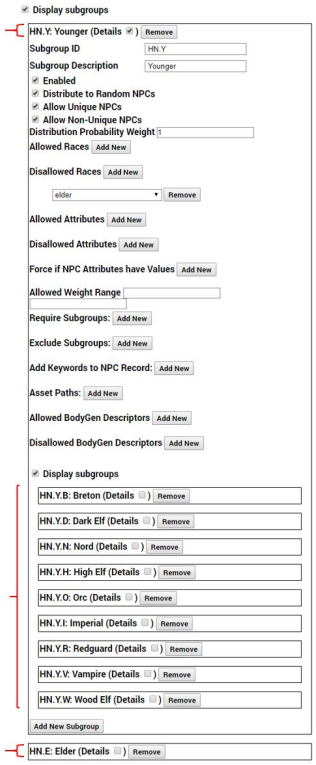
20) Repeat for all of the other asset types within the asset pack. I won't show what I did for every one, but I will highlight some important details.
    a) In the blank template, the default file paths begin with "Skyrim.esm\". If the mod author packaged the assets in a folder structure corresponding to Skyrim's data path (as almost all of them do), you can quickly change these without worrying about the full path by simply replacing "Skyrim.esm" with the partial directory of your asset:



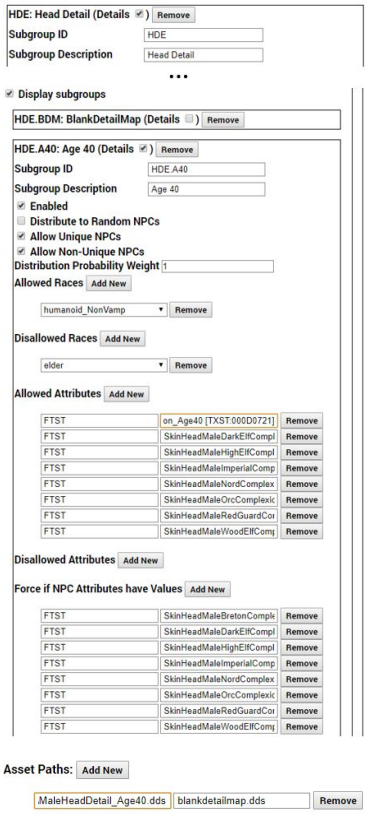
    b) For the HD.V (vampire diffuse textures), note that while the new file name is malehead_vampire.dds, <u>the destination filename in the Record Template remains "MaleHead.dds"</u>



c) In the blank asset pack templates, the normal map subgroups HN and BN all contain the expected type-specific subgroups that are ready to be filled out:



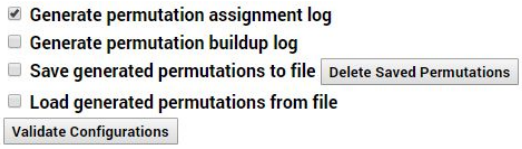
d) The “head detail” subgroup comes pre-filled with conditions to make sure that NPCs receive age-appropriate face textures. You just need to point the paths to the correct textures to replace blankdetailmap.dds and the other detail map variants. For example, the asset path for the Age40 subgroup should point to: [“textures\intervening_path\maleheaddetail_age40.dds”, “blankdetailmap.dds”].



A note about feet: The default feet texture paths in Skyrim.esm are the same as those of the body texture paths. However, some mods assign different textures to the feet. To make sure that feet can be uniquely assigned, the zEBD standard templates point to unique paths for them (e.g. “`actors\\character\\male\\malebody_1_feet.dds`” rather than what the vanilla records use “`actors\\character\\male\\malebody_1.dds`”. If you’re making a texture pack that contains some, but not all, feet textures (diffuse, normals, subsurface, specular), make sure that you revert the unassigned one back to its vanilla state. For example, if your texture pack provides only the diffuse feet textures, add the following path for normals: [“`Skyrim.esm\\actors\\character\\male\\malebody_1_msn.dds`”, “`malebody_1_msn_feet.dds`”]. Repeat analogously for the _sk and _sk feet textures.

Debugging Your Config File

There are several resources available to help with config file debugging. These are available within the Texture and Mesh Settings menu:



The permutation assignment log appears in zEBD\Logs\PermutationsGenerated.txt. It shows you all generated permutations, their assignment rules, and which NPCs they are assigned to.

The Permutation Buildup Log appears in zEBD\Logs\PermutationBuildupLog.txt. It shows you step-by-step how subgroups are combined into the final permutations. This is useful if you have a subgroup “dropping out” of the permutation list and you need to figure out where that’s happening and why.

To save time when playing with specific NPC assignments (while keeping config files constant), you can Save generated permutations to file. Setting to “true” will cause the logger to save permutations to a set of json files next time the patcher is run. These files are:

- zEBD\NPC Configuration\GeneratedPermutations.json
- zEBD\NPC Configuration\GeneratedRecords.json
- zEBD\NPC Configuration\GeneratedRecordsMaxPriority.json
- zEBD\NPC Configuration\GeneratedLinkageList.json

You can then load these permutations during subsequent patcher runs. If set to true, the patcher will look for the above four json files and load permutations and records from those files rather than generating them *de novo* from the config files. This speeds up the patcher time (significantly if you have a lot of config files installed). However, any changes made to the config files will be ignored (since it’s loading only from the json files), so this is useful mainly for playing with the block list and forced NPC assignment list.

Config File Structure

Each config file consists of “General” settings and “Subgroups”. Each subgroup has its own subgroup settings. In the example below I am showing the JSON file in a text editor, but all settings can be altered directly from within zEdit as well (in the zEBD configuration menu).

General Settings:

```
"groupName": "Blank Male Humanoid Settings",
  "gender": "male",
  "displayAlerts": true,
  "userAlert": "Message to user goes here",
```

groupName: *A name for this config file*. Should be similar to the asset pack for which you’re making the config.

gender: *either “male” or “female”*. Reflects the gender of NPCs to which this config file can be applied.

displayAlerts: *true or false*. If true, the userAlert will be displayed as a popup when the user opens zEdit’s settings menu. The user can disable this once they’ve seen the message.

Subsequently, the config file contains subgroups. Each subgroup contains variants of the assets to be assigned to the given NPC. Top level subgroups will be concatenated together to make the final permutation that can be assigned to an NPC. In addition to the file paths of the assets themselves, the subgroups contain rules about which NPCs can use the given assets. Subgroups can have their own nested subgroups to arbitrary depth (don’t worry, there will be an illustrated example below - see *Generating Permutations from Subgroups*).

```
"subgroups": [
    {
      "id": "HD",
      "enabled": true,
      "distributionEnabled": true,
      "allowedRaces": [],
      "disallowedRaces": [],
      "allowedAttributes": [],
      "disallowedAttributes": [],
      "forceIfAttributes": [],
      "allowUnique": true,
      "allowNonUnique": true,
      "name": "Head Diffuse",
      "requiredSubgroups": [],
```

```
    "excludedSubgroups": [],
    "addKeywords": [],
    "probabilityWeighting": 1,
    "paths": [],
    "subgroups": []
  }
```

id: *Every subgroup gets its own unique id*. This can be whatever you want, but try to keep it short and reasonable, such as “HD” for the subgroup responsible for providing the head diffuse texture. Subgroup ids do not need to include their parent IDs (the way I structured mine in the tutorial) but it’s helpful to keep track of inheritance. **IMPORTANT: Make sure each id in your config file is unique!**

enabled: *true or false*. If false, this subgroup will be ignored. This is for the end user to disable variants that they don’t want. If you find yourself setting subgroups in your config file to “enabled: false” as you’re making it, please consider just creating a separate config for the disabled variants. For example, Bijin Skins provides either default or black subsurface textures. The end user probably won’t want both, so rather than setting one to enabled and the other to disabled, just make two different config files (Bijin Skins - Subsurface Default and Bijin Skins - Subsurface Black). **IMPORTANT: If you set a top-level subgroup to “enabled = false”, the entire config file will be disabled.**

distributionEnabled: *true or false*. If false, the subgroup will not be assigned to NPCs at random unless the NPC is also a match for its forceIfAttributes (see below). This can be used to restrict certain assets to appear only on certain NPCs (see the “HDE” subgroup within any of my provided config files as examples). This setting is overridden by forceifAttributes and user-specified assignments in zEBD\NPC Configuration\ForceNPCList.json”.

allowedRaces: *Races to which the given subgroup can be applied*. This can include both EditorIDs (e.g. BretonRace) or groups of EditorIDs defined in zEBD\zEBD assets\RestrictionDefs*.json. Within that folder, zEBD comes with a GroupDefs.json file which contains useful groups. If your subgroup requires a grouping which isn’t present in this file, make a new .json file in the same format as GroupDefs.json and instruct your users to drop it into the same folder. zEBD will load all group definitions within the RestrictionDefs folder. If allowedRaces is left empty, the subgroup can be applied to all races. *Nothing, including* zEBD\NPC Configuration\ForceNPCList.json*, overrides allowedRaces*.

disallowedRaces: *Races to which the given subgroup cannot be applied*. If an entry appears in both allowedRaces and disallowedRaces, it will be removed from allowedRaces at runtime (the config file will not be altered). This means that you can set allowedRaces to [“humanoid_NonVamp”] and disallowedRaces to “[“elven”] to get a subgroup that can only be applied to Nords, Bretons, Redguards, Imperials, Orcs, and Elders. *Nothing, including* zEBD\NPC Configuration\ForceNPCList.json*, overrides disallowedRaces*.

allowedAttributes: *Element values that the NPC must have for the subgroup to be applied*. This is an array of length 2, where array[0] is the element path and array[1] is the element value. For example, adding an allowedAttribute of ["VTCK", "MaleYoungEager [VTYP:00013AD1]"] will allow this subgroup to be added only if the NPC has the MaleYoungEager voice type. Attributes can be queried through arrays and layers of records (see the **Attribute Searching** section). Only one attribute from each subgroup must be satisfied by the NPC to permit the permutation to be applied (*e.g. OR logic within the subgroup and AND logic between subgroups*).

disallowedAttributes: *Element values that the NPC may not have for the subgroup to be applied*. If the provided value at array[1] is found at path array[0] relative to the NPC being patched, the patcher will skip this subgroup and move on to the next one. Has priority over allowedAttributes.

forceIfAttributes: *Element values that will force the patcher to apply the given subgroup*. If the value at array[1] at path array[0] is found, the patcher will apply this subgroup in preference to others. This overrides distributionEnabled. For a usage example, see the "HDE" subgroup within any of my provided config files. Important behaviors:

- Only one forceIfAttribute from each subgroup must be satisfied by the NPC to permit the permutation to be applied (*e.g. OR logic within subgroups*).
- In cases where permutation A has one subgroup with forceIfAttributes satisfied by the given NPC while permutation B has two such subgroups, permutation B will win because it is more specific.
- forceIf attributes are not first-come, first-served. The list of all generated permutations is first filtered such that only permutations with forceIfAttributes that apply to the given NPC remain. The list is further filtered to maximize the forceIf specificity (see the above paragraph). From this filtered list, a permutation is drawn at random. Therefore, it is possible for a permutation to satisfy forceIf criteria and still not get selected, although this should be a rare event.

Allowed Weight Range: Lowest and highest weight that the NPC can have to get the given subgroup (inclusive). If the first value is undefined or null (empty), there will be no lower bound. Similarly, if the right box is left undefined or null, there will be no upper bound. If both boxes are left blank, the NPC's weight is ignored.

allowUnique: *true or false*. If false, NPCs with ACBS - Configuration\Flags\Unique (unique NPCs) will not receive this subgroup. Overrides everything besides user-specified assignments in zEBD\NPC Configuration\ForceNPCList.json".

allowNonUnique: *true or false*. If false, NPCs *without* ACBS - Configuration\Flags\Unique (non-unique NPCs) will not receive this subgroup. Overrides everything besides user-specified assignments in zEBD\NPC Configuration\ForceNPCList.json".

Name: *A short description of this subgroup*. For legibility purposes only.

requiredSubgroups: *Array of other subgroups (list only the id) that must be applied for this subgroup to be applied*. Useful, for example, to link “elder” face normals and body normals if present in different subgroups.

excludedSubgroups: *Array of other subgroups (list only the id) that may not be applied if this subgroup is applied*.

addKeywords: *Any text string added here will be converted into a keyword object and applied to the NPC that receives the given subgroup*. Potentially useful for integration with Dynamic Animation Replacer, though I haven’t tried it yet.

probabilityWeighting: *The relative probability of an NPC receiving this subgroup.* Set to 1 by default. Note that this is multiplicative: If a permutation containing subgroupA and subgroupB is generated, and subgroupA has probabilityWeighting = 5 and subgroupB has probabilityWeighting = 10, the permutation will be 5*10 = 50 times more likely to be assigned than another permutation where the probabilityWeighting of all subgroups is 1.

paths: *array containing the asset paths for this subgroup*. Paths are mapped onto record objects found in zEBD\zEBD assets\RecordTemplates*.json (see Record Template Structure). Array[0] is the path of the new asset (wherever you as the config file author instruct the user to extract the assets), and Array[1] is the file name to be matched within the RecordTemplate. Paths must be prefaced with their asset type (“textures” or “meshes”). Example:

```
"paths": [
        [
          "textures\\CoverKhajiits -
Male\\khajiitmale\\Data\\Textures\\actors\\character\\khajiitmale\\khajiitmalehead_s.
dds",
          "khajiitmalehead_s.dds"
        ]
]
```

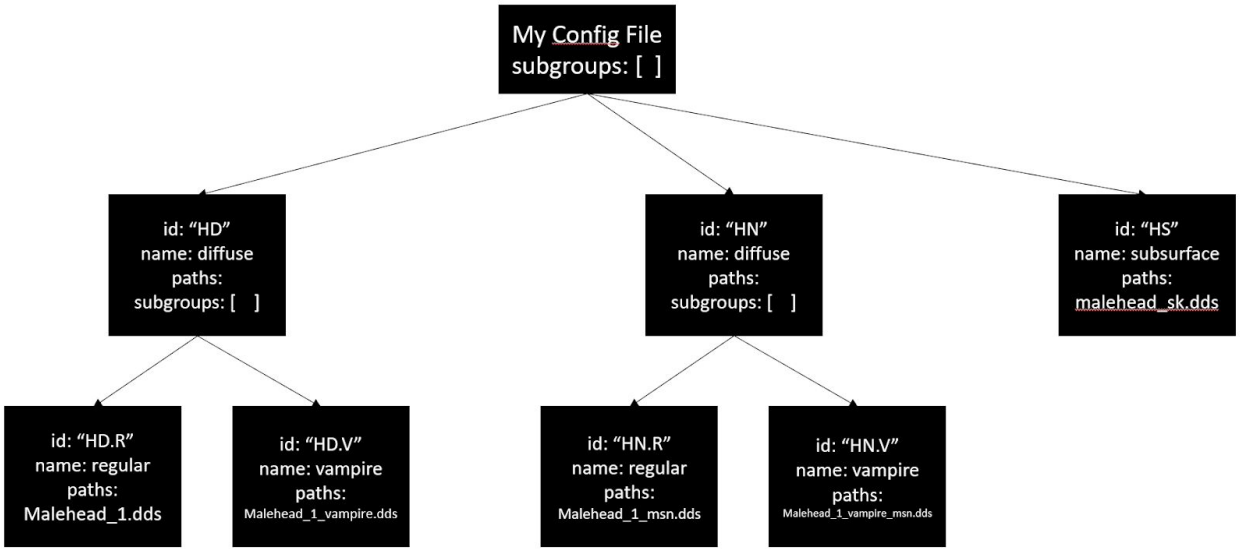
Remember, the goal here is to make it as easy as possible for the user to extract assets and run the patcher, which might mean you generate obnoxious file paths such as the one above.

Subgroups: *an array of other subgroups nested within the current one* (see *Generating permutations from Subgroups*).

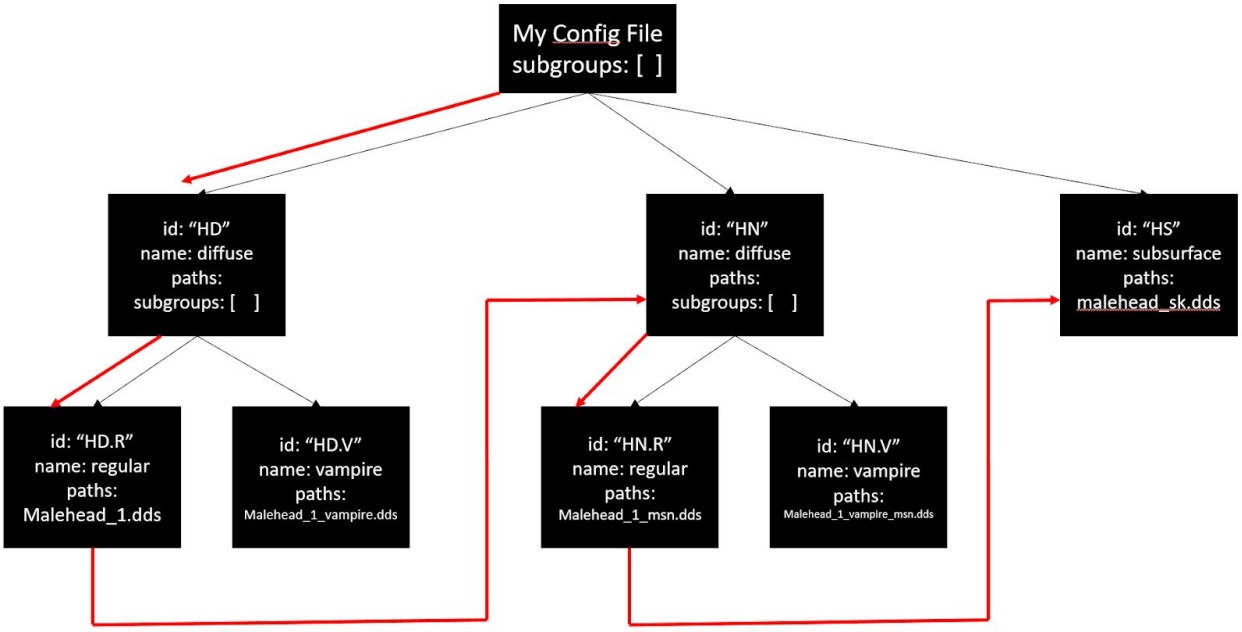
Generating Permutations from Subgroups

To generate a permutation, the patcher traverses to the bottom of the available nested subgroups for each top-level subgroup and combines the top-level variants together. TL;DR: Top-level subgroups are combined together after choosing a single subgroup from lower-level subgroups.

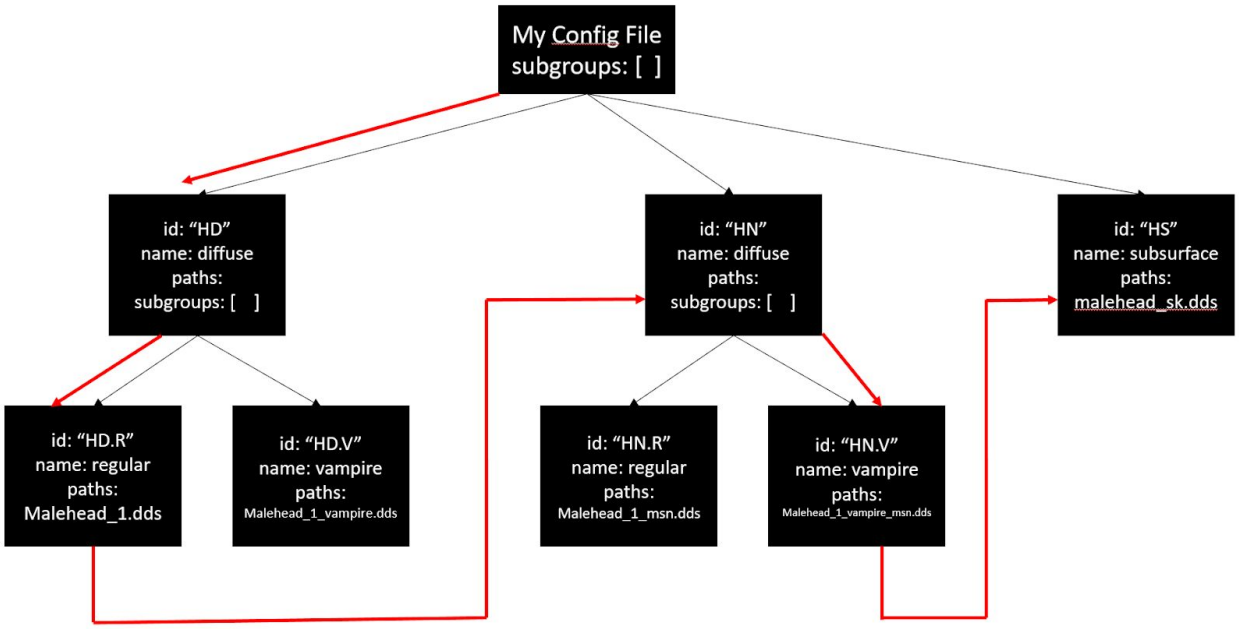
For example, say you have set up a config file as follows:



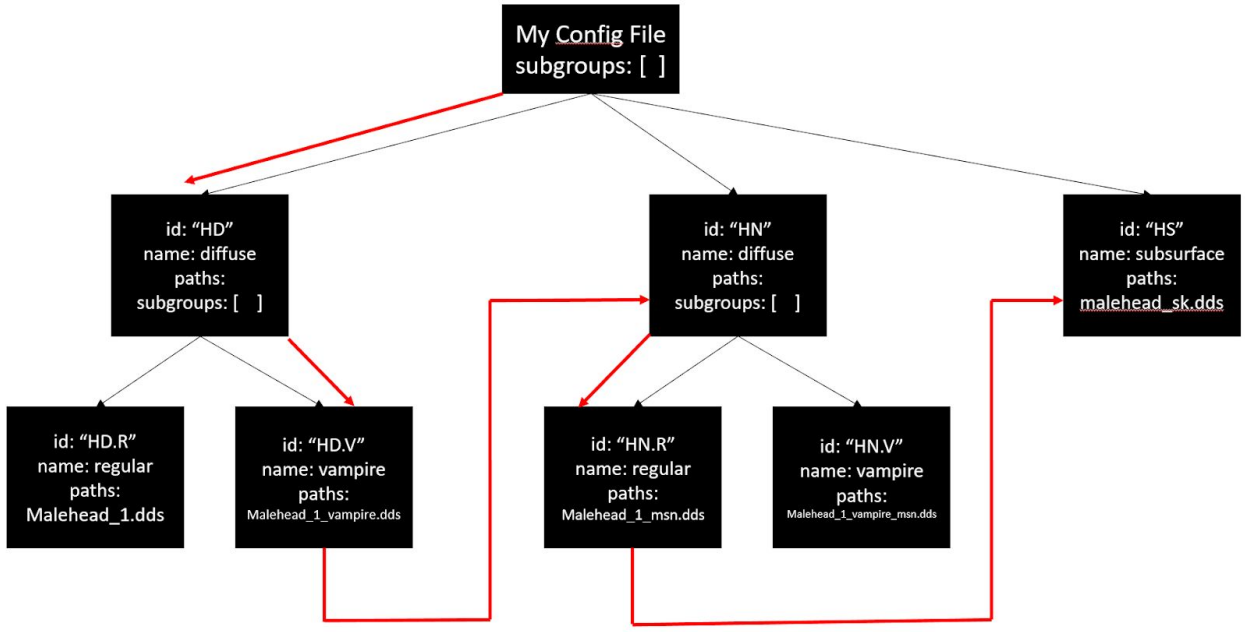
The patcher will first generate Permutation 1, containing the subgroups HD.R, HN.R, and HS. Even though "HD" and "HN" contain no paths, their associated rules (allowedAttributes, etc) will be carried forward into their child subgroups and then into the permutation itself.



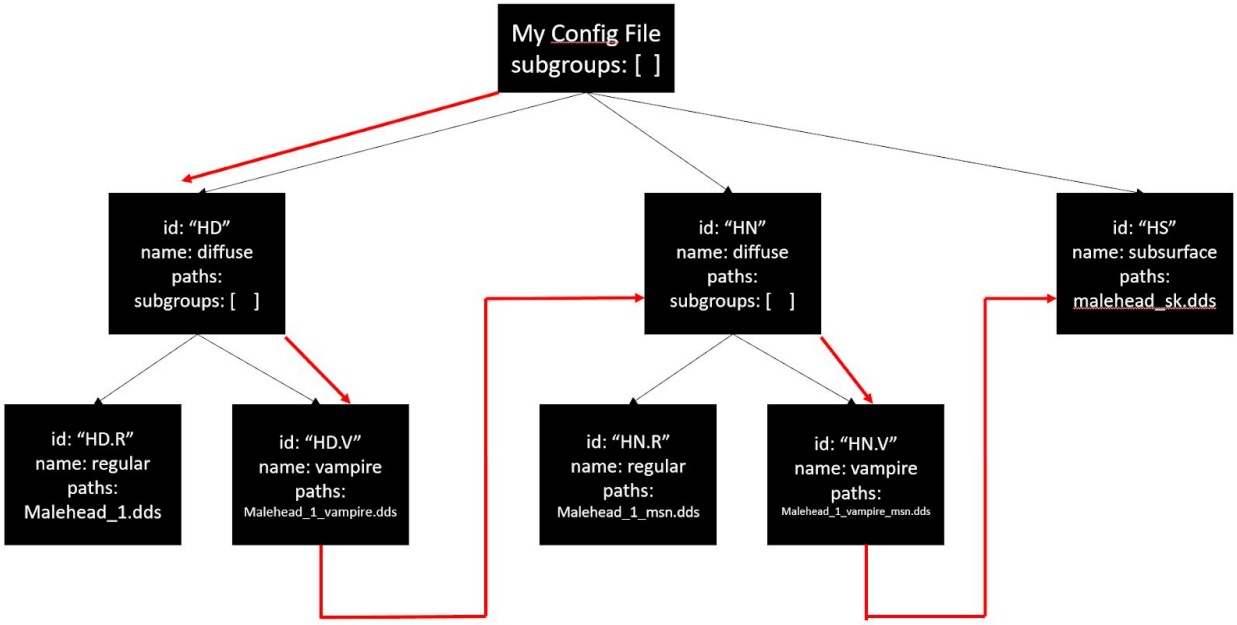
The patcher will then generate Permutation 2: HD.R, HN.V, HS:



You probably don’t want regular diffuse textures being combined into a permutation with vampire normal maps. To avoid this, you would set HD.R.requiredSubgroups to [“HN.R”] and HN.R.requiredSubgroups to [“HD.R”], and then link the vampire variants similarly. If this is done, the patcher will immediately discard this permutation and move on to Permutation 3: HD.V, HN.R, HS:



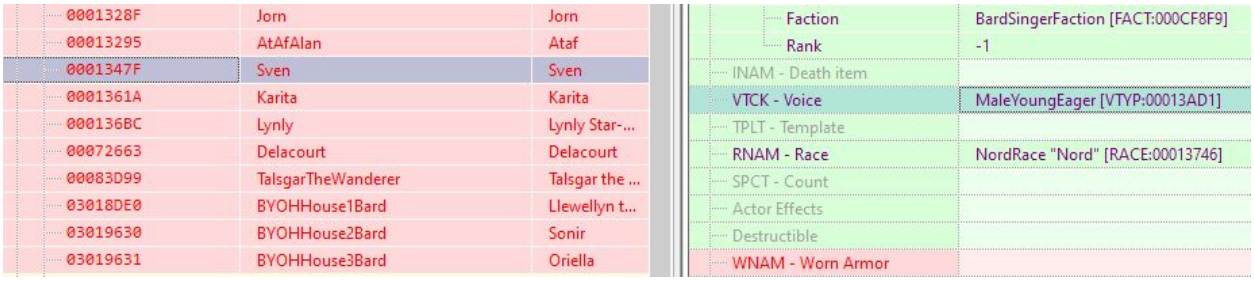
If the linkages are set appropriately this one should also be discarded, leaving the patcher only to generate Permutation 4: HD.V, HN.V, HS:



This is of course a simplified example with only four possible permutations, but the same algorithm is applied no matter how many subgroup variants you have. **The Permutation (combination of top-level subgroups) is what eventually gets applied to the NPC.**

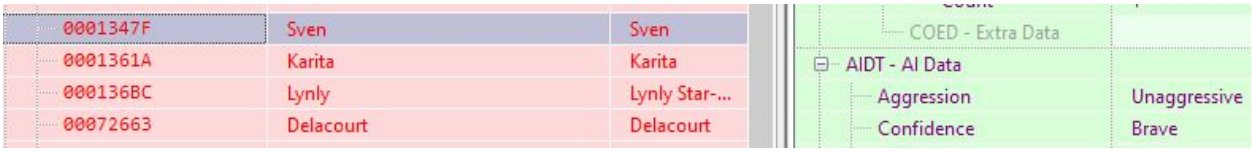
Attribute Searching

allowedAttributes, disallowedAttributes, and forceIfAttributes make use of the record search function. This function searches for a path relative to an NPC record and returns the value at that path. For example, if a patcher is assigning a subgroup to Sven, and the subgroup has allowedAttributes = [[“VTCK”, “MaleYoungEager [VTYP:00013AD1]”]], the search function will look at Sven’s VTCK record.

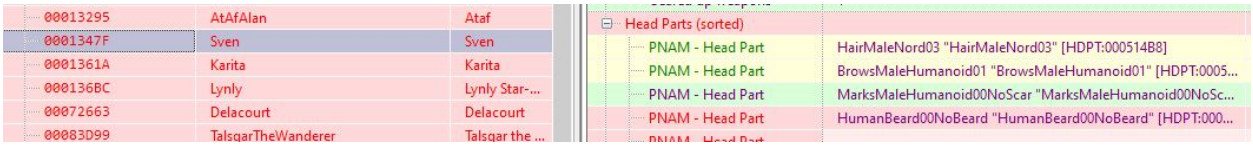


Since Sven has that voice type, the subgroup will be applied. If Sven did not have that voice type, the patcher would move on to another subgroup.

The search function can also search through nested values. You could, for example, provide the following attributes: [[“AIDT\Confidence”, “Brave”]].

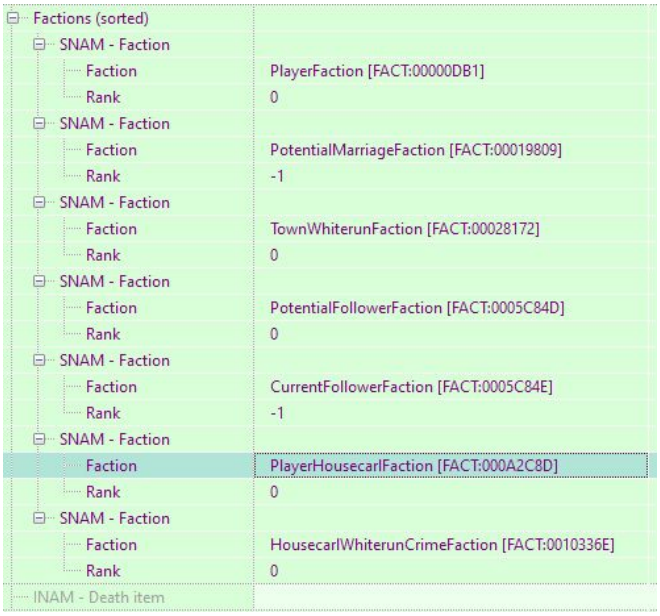


You can also search through arrays. If you know the array index to search, you can provide it as follows: [[“Head Parts\[0]”, “HairMaleNord03 "HairMaleNord03" [HDPT:000514B8]”]].



If you don’t know which array index your value resides at, you can use an asterisk to have the function search all elements of the array: [[“Head Parts*”, “MarksMaleHumanoid00NoScar "MarksMaleHumanoid00NoScar" [HDPT:0008555F]”]]

Note that if the array consists of a particular struct type, that type should **NOT** be included in the path!
For example, if you want to determine if the NPC is a housecarl:



The “SNAM - Faction” is already an element of the array. Therefore, the correct attribute pair for checking this condition would be:

[“Factions*\Faction”, “PlayerHousecarlFaction [FACT:000A2C8D]”]

NOT:

[“Factions*\SNAM - Faction\Faction”, “PlayerHousecarlFaction [FACT:000A2C8D]”]

If trying a new attribute, I recommend making a test config file with only that attribute as an allowed attribute, so that you can

Finally, you can search within records: [[“CNAM\DATA\Teaches”, “One Handed”]].

Note that the function can be a bit finicky with capitalization and abbreviations. If you set an attribute condition that doesn’t seem to get applied, try varying the above (e.g., replace “DATA” with “DATA - DATA”).

Record Template Structure

Record templates are how zEBD converts subgroup information into records within zEBD.esp. The record templates are JSON objects that contain all of the information to be written into the record. zEBD will replace the template's file paths with those supplied by a permutation of subgroups. Any remaining paths will be left as they are defined in the template. These templates make the patcher extensible; any "part" can be added as a record template and made into variants using subgroups. Record Templates are found in zEBD\zEBD assets\RecordTemplates. Let's use MaleTorso in StandardTemplates_Male as an example:


```
{
        "zEBDUniqueID": "MaleTorso",
        "zEBDPosition": "MODL",
        "zEBDSignature": "ARMA",
        "zEBDAddValidRaces": [
          "Additional Races"
        ],
        "zEBDsupportedRaces": "humanoid",
        "EDID": "MaleTorso",
        "BOD2 - Biped Body Template": {
          "First Person Flags": [
            "32 - Body",
            "34 - Forearms",
            "35 - Amulet",
            "36 - Ring",
            "38 - Calves"
          ],
          "Armor Type": "Clothing"
        },
        "RNAM - Race": "DefaultRace \"Default Race\" [RACE:00000019]",
        "DNAM - Data": {
          "Male Priority": 0,
          "Female Priority": 0,
          "Weight slider - Male": [
            "Enabled"
          ],
          "Weight slider - Female": [
            "Enabled"
          ],
          "Unknown": "02 00",
          "Detection Sound Value": 0,
```

```
            "Unknown": 17,
            "Weapon Adjust": 0
          },
          "Male world model": {
            "MOD2 - Model FileName": "Actors\\Character\\Character
Assets\\MaleBody_1.NIF"
          },
          "Female world model": {
            "MOD3 - Model FileName": "Actors\\Character\\Character
Assets\\FemaleBody_1.NIF"
          },
          "Male 1st Person": {
            "MOD4 - Model FileName": "Actors\\Character\\Character
Assets\\1stPersonMaleBody_1.NIF"
          },
          "Female 1st Person": {
            "MOD5 - Model FileName": "Actors\\Character\\Character
Assets\\1stPersonFemaleBody_1.nif"
          },
          "NAM0 - Male Skin Texture": {
            "zEBDUniqueID": "SkinMaleTorso",
            "EDID": "SkinMaleTorso",
            "zEBDPosition": "NAM0 - Male Skin Texture",
            "zEBDSignature": "TXST",
            "OBND - Object Bounds": {
              "X1": 0,
              "Y1": 0,
              "Z1": 0,
              "X2": 0,
              "Y2": 0,
              "Z2": 0
            },
            "Textures (RGB/A)": {
              "TX00 - Difuse": "Actors\\Character\\Male\\MaleBody_1.dds",
              "TX01 - Normal/Gloss": "Actors\\Character\\Male\\MaleBody_1_msn.dds",
              "TX03 - Glow/Detail Map": "Actors\\Character\\Male\\MaleBody_1_sk.dds",
              "TX07 - Backlight Mask/Specular":
"Actors\\Character\\Male\\MaleBody_1_S.dds"
            },
            "DNAM - Flags": [
              "Facegen Textures",
```

```
                "Has Model Space Normal Map"
            ]
          },
          "NAM1 - Female Skin Texture": "SkinBodyFemale_1 [TXST:0003EDE7]",
          "NAM2 - Male Skin Texture Swap List": "SkinMaleHumanBody [FLST:0007BBB1]",
          "NAM3 - Female Skin Texture Swap List": "SkinFemaleHumanBody
[FLST:0007BBB2]"
        }
```

zEBDuniqueID: *Tells the patcher that this is a record template*. Can be whatever you want; I just set it to the EDID for convenience. Note that all zEBDuniqueIDs must actually be unique across all recordTemplates.

zEBDposition: *Tells the patcher where the record corresponding to this template belongs within the record that receives it*. This really only matters for top-level recordTemplates since they are assigned directly to an NPC and the patcher needs to know where to put them. However, I left it in subrecords for the sake of consistency.

zEBDsignature: *The type of record this is to be*. For example, “ARMA” for an armor addon. This matches what you should see in xEdit.

zEBDaddValidRaces: *An array containing record elements to which the patcher will add patchable races*. This is necessary, for example, for ARMA records - if an ARMA record doesn’t have the NPC’s race within its array of “Additional Races”, it won’t show up in the game.

zEBDsupportedRaces: *The races to which this record template can be applied*. Just like in config files, this can be EditorIDs or one of the groupings contained in a Group Definition. If you add a custom record template, make sure that it doesn’t overlap in scope (e.g. contain the same zEBDsupportedRaces) as an existing record template. Note that while all of the default zEBDsupportedRaces are strings, this can also be an array of strings.

Everything else within the record template will be written as-is to zEBD.esp. Note that if a record contains sub-templates, they are defined as objects with their own zEBDuniqueIDs (see above:)

```
          "NAM0 - Male Skin Texture": {
```

Group Definition Structure

zEBD comes with convenient group definitions for races that can be used to assign subgroups and/or record templates. These are found in zEBD\zEBD assets\RestrictionDefs. If you create a config file that requires custom group definitions, create a new json file containing the new definition in the appropriate format and tell users to drop it in this folder. The default group definitions are found in GroupDefs.json. The definition object is very simple: it contains the group's name and an array of all EditorIDs that are assigned to it:

```
    {
      "name": "humanoidYoungNonVampire",
      "entries": ["NordRace", "BretonRace", "DarkElfRace", "HighElfRace",
"ImperialRace", "OrcRace", "RedguardRace", "WoodElfRace"]
    },
```

Any config file or record template that references "humanoidYoungNonVampire" will have that term replaced with the above entries during patcher execution.

Important Considerations

A) **Try to keep the number of options in the setting file as low as possible.** If the asset pack comes with textures in multiple resolutions, make separate config files for each resolution. Same with other options that the user probably wouldn't want to mix, such as default vs. black subsurface maps. The number of possible permutations scales geometrically and the more permutations there are, the more RAM is eaten by the patcher.

B) If you're creating a config file for an asset pack that has a lot of options, please make **liberal** use of the "requiredSubgroups" and "excludedSubgroups" fields. For example, in the demo config file for Tempered Skins for Males, the number of top-level subgroup variants (excluding beast races) is:

Head diffuse	Head normal	Head sub-surface	Head specular	Head detail	Body diffuse	Body normal	Body subsurface	Body specular	Hands diffuse	Hands normal	Hands subsurface	Hands specular
7	34	1	4	6	10	4	1	8	9	2	1	8

That's 263,208,960 possible permutations, each of which has conditions that need to be stored. That will easily cause an out of memory exception. By adding the appropriate requiredSubgroups and excludedSubgroups, the count is trimmed down to < 10,000.

Miscellaneous Notes

A) **When assigning normal maps**, don't forget that DA13AfflictedRace uses Breton head normals and SnowElfRace uses High Elf head normals. These are set in the blank templates for your convenience. If you're making a new config file from the blank templates and your asset pack doesn't contain resources for Afflicted and Snow Elf, don't forget to remove them from the HN section.

B) **Dawnguard vampires are a mess.** The blank template files distributed with zEBD should take care of the following complexity, but for the sake of explanation:

Almost all male XRaceVampire NPCs, where X is any humanoid race, use the SkinHeadMaleDarkElfVampire head texture. But don't be fooled; this has nothing to do with dark elves. If you look at the texture paths, they point at actors\character\male\maleheadvampire(_msn).dds.

Females use SkinHeadFemaleVampire, SkinHeadFemaleOrcVampire, or SkinHeadFemaleDarkElfVampire. SkinHeadFemaleDarkElfVampire uses FemaleHeadVampire.dds diffuse but DarkElfFemale\FemaleHead_msn.dds normals. Likewise, the orc uses Orc normals. SkinHeadFemaleVampire uses femaleheadvampire_msn normals.

Elder Race Vampires use SkinHeadMaleOld/SkinHeadFemaleOld. As far as I can tell there is only a single Elder Vampire in all of the vanilla records (dunBloodletThroneVampireBoss [NPC_:0005B830]). In Dawnguard he gets assigned the SkinHeadMaleOld texture. Therefore, ElderRaceVampires are eligible for the same face textures as Elders.

The default texture assignments (DFTM) set in the XRaceVampire records in Dawnguard.esm are as SkinHeadMaleDarkElfVampire for males and SkinHeadFemaleVampire for females, so it's safe to set those as default. For females, check for assigned SkinHeadFemaleOrcVampire and SkinHeadFemaleDarkElfVampire FTST records using ForceIfAttributes (this is done in the blank templates using subgroups `HN.Y.V.DE` and `HN.Y.V.O`).

You get into even more confusion with some unique Dawnguard vampires. For example, Hert is a NordRaceVampire with standard SkinHeadMaleNord textures. It's been so long since I played Dawnguard that I don't remember if that's supposed to be a plot point. Vampires using non-vampire textures:
Hert: SkinHeadMaleNord
Vingalmo: SkinMaleHighElf
Orthjolf: SkinHeadMaleNordComplexion_Age50
Ronthil: SkinMaleHeadWoodElf

I added the above four NPCs to the default blocklist to prevent them from receiving vampire textures.

Note that Serana, Harkon, and Valerica are NordRace, not NordRaceVampire

C) On a much simpler (but still confusing) note, **Wood Elf** males use face normals found in Actors\Character**Wood**ElfMale\MaleHead_msn.dds, but females use Actors\Character**High**ElfFemale\FemaleHead_msn.dds. Why? Ask Todd.

D) When setting up config files for beast races, make sure to handle “old” characters. Note that paths that are untouched by any subgroup will default to those in the RecordTemplate. This is a problem for “old” characters because the detail maps in the RecordTemplates all point to “blankdetailmap.dds”, so the old characters will have young detail maps. If your texture pack contains “blankdetailmap.dds” and its “old” detail map counterpart, your config file will need to handle them anyway so you won’t forget. However, if your texture pack does not contain the detail maps, you’ll need to remember to set them up using the default Skyrim paths. Below is how to do that for Argonians. See my CoverKhajiits config file for how to handle it for Khajiits.

```
{
  "id": "HDE.Arg",
  "enabled": true,
  "distributionEnabled": true,
  "allowedRaces": [
    "argonian"
  ],
  "disallowedRaces": [],
  "allowedAttributes": [],
  "disallowedAttributes": [],
  "forceIfAttributes": [],
  "allowUnique": true,
  "allowNonUnique": true,
  "name": "Argonian",
  "requiredSubgroups": [],
  "excludedSubgroups": [],
  "addKeywords": [],
  "probabilityWeighting": 1,
  "paths": [],
  "subgroups": [
    {
      "id": "HDE.Arg.Y",
      "enabled": true,
      "distributionEnabled": true,
```

```
      "allowedRaces": [],
      "disallowedRaces": [],
      "allowedAttributes": [],
      "disallowedAttributes": [
        [
          "FTST",
          "SkinHeadMaleArgonianOld [TXST:000B3047]"
        ]
      ],
      "forceIfAttributes": [],
      "allowUnique": true,
      "allowNonUnique": true,
      "name": "Young",
      "requiredSubgroups": [],
      "excludedSubgroups": [],
      "addKeywords": [],
      "probabilityWeighting": 1,
      "paths": [
        [
          "Skyrim.esm\\Actors\\Character\\ArgonianMale\\BlankDetailmap.dds",
          "BlankDetailmap.dds"
        ]
      ],
      "subgroups": [],
      "$$hashKey": "object:5021"
    },
    {
      "id": "HDE.Arg.O",
      "enabled": true,
      "distributionEnabled": true,
      "allowedRaces": [],
      "disallowedRaces": [],
      "allowedAttributes": [
        [
          "FTST",
          "SkinHeadMaleArgonianOld [TXST:000B3047]"
        ]
      ],
      "disallowedAttributes": [],
      "forceIfAttributes": [
        [
```

```
                "FTST",
                "SkinHeadMaleArgonianOld [TXST:000B3047]"
              ]
            ],
            "allowUnique": true,
            "allowNonUnique": true,
            "name": "Old",
            "requiredSubgroups": [],
            "excludedSubgroups": [],
            "addKeywords": [],
            "probabilityWeighting": 1,
            "paths": [
              [
"Skyrim.esm\\Actors\\Character\\ArgonianMale\\Actors\\Character\\ArgonianMale\\ArgonianMaleHeadOld.dds",
                "BlankDetailmap.dds"
              ]
            ],
            "subgroups": [],
            "$$hashKey": "object:5033"
          }
        ],
        "$$hashKey": "object:4966"
      }
```

FAQ (Anticipated)

Q) I'm getting an error about failing to parse JSON. What do I do?

A) Your JSON file is in the wrong format. The warning should tell you which JSON file it is. Run it through an online parser such as this one and track down where the formatting error is. This should only happen if you manually edit one of the configuration files.

Q) I'm getting an error about ng-repeats when pulling up the GUI. What does this mean?

A) Did you edit an Asset Pack Settings file outside of the GUI? If so, did you copy any subgroups? If so, within the duplicated subgroup delete the "$$hashKey" that's automatically generated by zEdit when exporting to JSON. Duplicate hash keys are not allowed.

Q) I added a new asset pack but my NPCs aren't using it after patching.

A) If consistency is enabled, you need to clear it. Otherwise, if your previous asset packs are still installed the patcher will assign them right back to those same NPCs, because that's what consistency does.

Q) I'm getting an out of memory error during patching. What should I do?

A) I've only ever encountered this using developer mode, but it's possible in standard zEdit if your config file is very complex and doesn't have enough subgroup restrictions (see Important Consideration B). Try identifying subgroups that can be linked together using RequireSubgroups/ExcludeSubgroups. That said, for large config files the patcher can use 1 to 2 GB of RAM, so keep that in mind.

Q) My NPCs are completely white/purple!

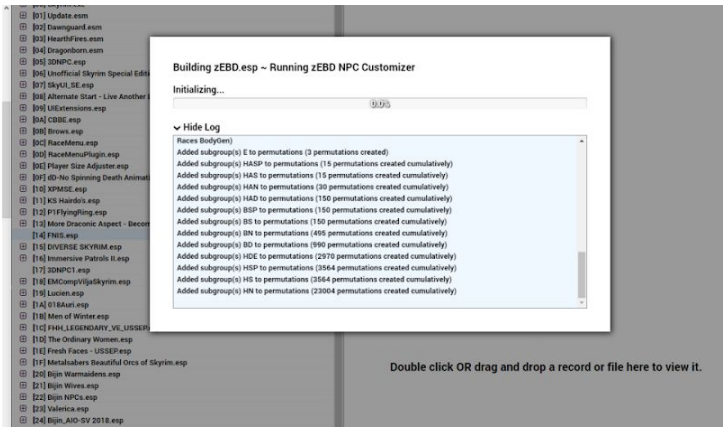
A) That's the secret "Ghost" texture pack! ... kidding, did you remember to check (enable) the zEBD - Mod folder in the left panel of MO2? zEBD warns you if any of the file paths expected by the config file don't exist, so this shouldn't happen unless you ignore the warning.

Known Issues

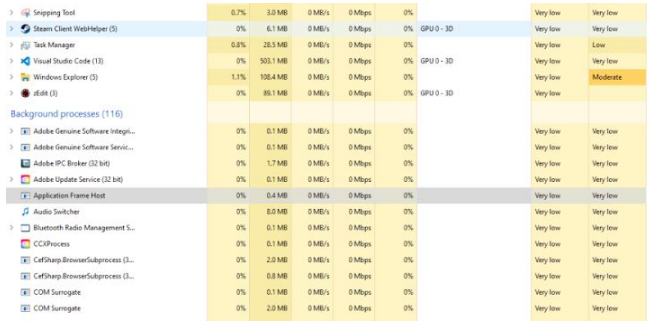
1) After saving an Asset Pack Settings file or viewing a popup alert from a settings file, you can no longer edit any settings or save again until you minimize zEdit or alt+tab out of zEdit and bring it back up again (thanks Mator for finding the fix).

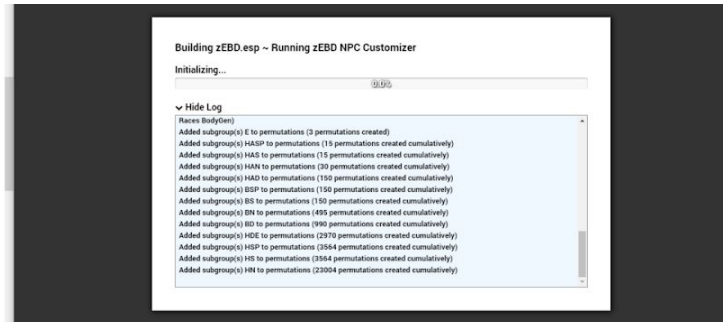
2) Having many complex config files can result in the patcher running out of memory during execution. This is manifested in the zEdit window going dark in the background, and the task manager showing zEdit using only a few MB of RAM and no CPU. This can also occur when saving large permutations to JSON:

   Before:



   After:





   If this occurs, first try rerunning the patcher - I have seen the issue resolve itself spontaneously upon a re-run. If the issue persists, try disabling one or more subgroups in your more complicated config files (Demoniac is a frequent culprit) until the number of permutations is small enough to allow the patcher to continue.

Change Log

2020 05 02 Beta 1:

- Initial Release

2020 05 02 Beta 2:

- Permutations are assigned to NPCs during **filter()** rather than during **patch()** to avoid creating ITMs in the case where no valid permutations can be generated for the given NPC

2020 05 08 Beta 3

- Reduced a significant source of unnecessary memory consumption to better support config files with many variants.
- “RequiredSubgroups” and “ExcludedSubgroups” can now contain a parent subgroup. Previously they had a “silent” requirement of being bottom-level subgroups.
- Permutation log now correctly displays allowed/disallowed attributes
- New General Setting: *Link NPCs by Name/Race/Gender*: If checked, NPCs that appear as multiple records with unique FormIDs (e.g. several Ulfrics, Ciceros, and a couple Dawnguard characters, as well as a few NPCs such as Sven and Nazeem in Interesting NPCs) will get assigned the same permutation.
- Fixed bug where permutation log showed ForceIf attributes as DisallowedAttributes (attributes themselves were correct; this was purely a display error).
- RecordTemplates: (fe)malebody_1_msn_feet.dds changed to (fe)malebody_1_feet_msn.dds to comply with the naming convention for other texture types. **All config files updated to comply with this change**.
- Fixed GUI bug where changes to “disallowedRaces” were not being saved.

2020 05 13 Beta 4

- Fixed function that was broken in Beta 3 - gives users a popup alert if the config file validator encounters an error upon parsing a subgroup.
- Fixed an error string that’s sent to the error log if the parser encounters a duplicate subgroup name. Error log now correctly tells the user that this is the problem.
- Deleted src folder: not needed (duplicate code from index.js)
- “RequireSubgroups” now has implicit OR functionality - if multiple subgroups belonging to the same top-level subgroup are entered, then any of them will satisfy the RequireSubgroups criteria. **This is backwards compatible with config files from Beta 3**.
- “RequireSubgroups” now bidirectionally checks parent subgroup (previously the added subgroup’s parent subgroups were checked, but the sub-permutation’s constituent parent subgroups were not).
- Updated blank example config files (humanoid male and female) to reflect the new record templates introduced in Beta 3 (switch from “msn_feet” to “feet_msn”).
- Added zEBD assets\MiscConfig\DevControls.json to enable permutation buildup logging and verbose mode
- forceIf permutations are checked for validity for the given NPC before being prioritized for random assignment. This slightly slows down the patching process but prevents a lot of spurious error messages.
- Cleaned up the warning generated if a config file references files that don’t exist.

2020 05 15 Version 1.0

- Code unchanged since Beta 4.
- Config files updated with Director's Cuts

2020 05 18 Version 1.1

- Fixed bug where permutations with incompatible RequiredSubgroups would use the requiredSubgroup from the first top-level subgroup rather than being discarded
- Fixed config files for Tempered Skins for Males (vanilla and SOS Light) - Snow Elves were getting High Elf textures (thanks to **afboak** for pointing out the error!)
- Fixed record templates to remove unnecessary texture swap lists (thanks to **afboak** again for pointing out the error!)

2020 05 21 Version 1.2

- Minor bug fix (line 84 of permutationGenerator.js had a typo in a variable name)
- Minor bug fix (patcher would fail when a race defined in GroupDefs.json was not present in the user's load order in some circumstances)
- Fixed path for `ArgonianFemaleHead_s.dds` in Argonian Female record template

2020 06 02 Version 1.3

- **Feature update for end users:** Added NPC Height Configuration
- **Feature update for config file developers:** Added the ability to bypass creation of permutations and records from JSON. These options are in zEBD Assets\MiscConfig\DevControls.json.
- Bugfix: When two subgroups's requiredSubgroups were compared, if one contained the child of the other, they were deemed incompatible rather than being trimmed down to just the child subgroup. This is now fixed. This is a rare case that specifically affected the Mature Skin UNP HD (Alternate Complexions) Younger NPCs Director's Cut config file (but not the CBBE version).
- Fixed config files for Demoniac UNP and CBBE. Sweaty v2 textures were dropping out because of faulty "requiredSubgroups". My bad.
- Validation for required and excluded subgroups now tells the user if those subgroups don't exist.
- There is also now a "validate" button next to "Show Asset Pack Configurations". This lets you validate changes to your config files as you're making them (they are also still validated upon saving).
- Fixed a mistake in Blank Female Humanoid Settings.json (not used for patcher generation; only a blank template for users to make their own config file) that prevented female vampires from receiving their correct normal maps. Thanks again to **afboak** for the heads up!
- Under the hood update - separates the code to get NPC information from xelib into its own separate function (no longer in the choosePermutation function). Prevents a bit of code redundancy, and more importantly facilitates non-permutation-related functions such as height assignment.
- Under the hood update - got rid of lib\NPCAssignmentClass.js because it was a very cumbersome way to do what I was trying to do.
- UI update to the NPC config menu: Config Files and subgroups are now boxed. This should hopefully make editing a bit less confusing for configs with multiple nested subgroups.
- Huge UI update courtesy of **a lot** of help from **Mator**, both to make the cool layout for the height menu and also to get rid of some of my crappy UI code to eliminate the menu lag that would happen when loading multiple config files. Thanks Mator!

2020 06 16 Version 1.4

- **Feature update for end users:** Added BodyGen Integration.
- All settings are now controllable with the new GUI.

2020 06 18 Version 1.4b Hotfix

- Changed the record templates for humanoid males and females to include vampire lord and werewolf armor addons. This prevents the “invisible werewolf” (and presumably vampire lord) bug. Note that this is a bit of a “brute force” solution in that now every patched NPCs get these armor addons. From some brief testing, I don’t *think* that this affects gameplay in any way (e.g. NPCs don’t become werewolves just from having these armor addons), but if anyone knows better please inform me.

2020 06 29 Version 1.5

- **UI update for end users:** Allowed separate blocking of asset assignment, height assignment, and BodyGen assignment (for both NPCs and plugins).
- Blocklists from previous versions will be automatically updated to block all three. If you’re carrying over a blocklist from a previous version, I recommend unchecking “Height” and “BodyGen” for the four default blocked NPCs, because only asset assignment needs to be blocked (the default block list shipped with version 1.5 is configured this way automatically so if you’re starting fresh, no further assembly is required).
- Blocked plugins now work even if they’re not the conflict winner. I.E. in previous versions if you blocked Bijin Warmaidens but then had a Smashed Patch that included Aela, Aela would not be blocked because Bijin Warmaidens wasn’t the conflict winner. As of 1.5, she would be blocked in this situation.
- **UI update for end users**: Added a search filter for NPCs and plugins in the Specific NPC Assignments and Block List menus. You could previously search for NPCs by clicking into the NPC list and typing, so this is an “ease of access” update for those who’ve never had the pleasure of meeting Mavis Beacon.
- **UI update for end users**: Allowed separate clearance of asset assignment, height, and bodygen configurations from consistency.
- Fixed an issue where NPCs with a forced BodyGen but no forced height were getting supersized.
- Implemented a NaNny function to make sure that NPCs would not get assigned “NaN” for height as a failsafe for the above issue.
- Fixed an issue where Specific NPC Assignments with specified asset packs but no specified subgroups would get ignored.
- Added more detailed descriptions for the situation wherein no permutation or morph can be assigned to an NPC - the logger now tells you the reasons that each potential permutation or morph was discarded.
- Added a warning if the user saves or validates a config file with a top-level subgroup disabled.
- Fixed crash if patcher is run with a top-level subgroup disabled (patcher will still abort if no permutations are generated unless user de-selects asset assignment from main menu).
- Updated Demoniac Director’s Cut for MCSmarties’ Diverse Races config file.
    - All Demoniac body normal map options are unsuitable for average and petite body morphs due to shading around the chest. MCSmarties’ Diverse Races only has average and petite morphs for Imperials, Dunmer, and Bosmer, so these are no longer eligible to receive Demoniac textures (use Bijin for these NPCs).

2020 07 13 Version 1.6

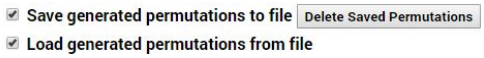
- Bugfix: Disallowed races for Bodygen morph distribution were being ignored (because I’m a dolt and forgot to write a check for them).
- **Feature update for end users**: Main menu now has an option to load settings from the Skyrim (SE/VR)\Data\zEBD folder rather than from the zEdit\modules\zEBD folder. This enables multiple MO2 profiles with profile-specific configs.
- **Feature update for end users**: There is now a “Specifically Linked NPCs” section under the Miscellaneous Settings section of the main menu. Each NPC within the same link group will receive the same assets, height, and/or BodyGen. Made by request from afboak to catch NPC records for the

same NPC which don't have the same name (such as the NPC with Editor ID "MQ304Ulfric", which has no "NAME" value even though it's a variant of Ulfric Stormcloak).
- Slight tweaks to MCSmarties' Diverse Races BodyGen

2020 08 14 Version 1.7
- Several fixes for bugs discovered by Nexus user ViCarryUs (Thank you!)
    - Fixed "ReferenceError: i is not defined" when BodyGen morphs are given AllowedAttributes
    - Fixed "TypeError: xelib.HasElement is not a function" when BodyGen morphs are given forceIf attributes
    - Fixed an issue that prevented NPCs from getting linked BodyGen morphs despite having the same name and race values
    - Fixed female racial heights using the value assigned to males (whoopsie).
- Feature updates requested by VicarrUs
    - You can now use Specific NPC Assignments to assign assets to an NPC even if that asset's AllowedRaces do not include the race of that NPCs. For example, you can assign Wood Elf head normals to Elisif the Fair, a Nord. **Please note that if you force a combination of subgroups that is not assembled into a permutation, the patcher will still tell you that the forced subgroups are invalid, and will choose a random one instead**. For example, if you force subgroup A with allowedRaces = "WoodElfRace", and also subgroup B with allowedRaces = "HighElfRace", that combination will be disallowed because no permutations containing these two subgroups combined would have been generated.
    - I am planning to introduce an analogous capability to Specific NPC Assignments for BodyGen morphs in Version 1.8. Releasing Version 1.7 as-is in the meantime to prioritize the availability of these bugfixes.
- Clicking the "Set Racemenu BodyGen Ini File" button can now auto-detect between the SSE and VR versions.
- This button no longer touches the "iScaleMode" parameter in skee(64/vr).ini. While MCSmarties' instructions say to set this value to 2, this causes a bug in RaceMenu weapons scaling. Therefore, this button will leave scale mode to whatever you currently have it set to. This will be reverted if Racemenu updates to fix the issue.

2020 09 15 Version 1.8
- Algorithm update: Integrated Bodygen selection into the permutation selection function.
    - Each chosen permutation is immediately fed into the BodyGen selection function. If that function fails to find a compatible morph, a different permutation is chosen.
    - Previously, a permutation would be picked first irrespective of BodyGen, and then a BodyGen morph would be selected. This could result in the patcher getting "trapped" with a permutation without valid BodyGen morphs even if other permutations that would have been compatible with a BodyGen morph were available.
- Algorithm update: Speed boost in both generating and linking records.
- Feature update: Assets (subgroups) and BodyGen morphs now both have "Weight Range" fields to restrict their application to NPCs of specific weights.
- Feature update: Added an option to alias races as other races for the purpose of patching (e.g. tell the patcher to give assets/height/bodygen to race X NPCs as if they were race Y).
- Algorithm update: Record Templates can now be within non-record structs. Thanks to Nexus user chuckseven1 for noticing the deficiency.
    - This change does NOT break compatibility with existing config files. The default record templates shipped with zEBD also remain unchanged.

    - This change DOES break compatibility with saved permutations and records. These are the enormous json files created by this option within the Texture & Mesh settings menu:



- Algorithm update: the function that checks if a given permutation is allowed for a given NPC has been overhauled.
    - Instead of “de-conflicting” the subgroups within the permutation and then checking the entire permutation against the NPC’s attributes, each permutation is checked “subgroup-by-subgroup”. This prevents unintended behavior noticed by Nexus user ViCarryUs (thank you again) such as user-forced subgroups being allowed due to “rescue” permutations that should have been discarded.
- Bug fix in both permutation and BodyGen assignment where linked data (by name or Link Group) would override user’s specific assignments.
- Bug fix in BodyGen assignment - nasty little hard-to-track-down bug that could cause the assignment function to occasionally and randomly ignore a permutation’s Allowed BodyGen Descriptors has been found and squashed.
- Bug fix in Block List - blocking NPCs by plugin from new plugins works again (thanks ViCarryUs).
- Bug fix: Saving BodyGen config when “Load settings from Data folder instead of zEBD folder” is checked now saves to the data folder instead of the zEBD folder, as it’s supposed to.
- Misc: Smoothed out the progress bar so that it’s not slow during “filtering” and fast during “patching”
- Misc: optimization in the permutation choice selection - if a permutation with probability weighting > 1 gets discarded, all of its clone permutations get discarded as well.
- Misc: Added UI options to add new BodyGen morphs and remove existing morphs.
- Misc: Cleaned up the permutations/records generated by “Save generated permutations to file” so that they are saved to a single file instead of four.
- Misc: Updated MCSmarties’ BodyGen Config to make use of the Weight Range fields for some morphs
- Misc: Updates to several config files:
    - Since the new BodyGen distribution algorithm now pre-checks whether a given permutation is compatible with the available morphs for an NPC, I removed the allowed/disallowed race restrictions that had previously been necessary. The only remaining difference between the original Director’s Cut configs and the Director’s Cut for Diverse Races BodyGen configs is the BodyGen descriptor tags, which are ignored if the user doesn’t have BodyGen integration enabled anyway. Therefore, I have removed the originals and am now distributing only “Director’s Cut - tagged for Diverse Races BodyGen” to avoid needing to maintain multiple versions of the same file.
- Misc: Fixed a small error with Legate Rikke in the Director’s Cut config files for Mature Skins
- Misc: Added Housecarls to the ForceIf list for muscular normals in Director’s Cut config files
- Misc: Updated Bijin subgroup names from BN.M(C) to BN.Y.M(C) for consistency with my usual naming scheme