daz_dhdm_gen (v0.0.8) documentation

Contents

1 Main settings

Figure 1 shows the "Main settings" subpanel. For the addon to work, you must specify:

- **Working directory**: The addon will use this directory for temporary files and/or output files, so you have to make sure that you have the necessary permissions on it. It's highly recommended for this directory to be exclusively used by the addon, since the addon can delete and overwrite files when needed.

- **Unit scale**: Scale to convert from daz's units to Blender's units. If you are using Blender's default scene's units, you can leave this value at its default value (0.01).

- **Base mesh**: daz base mesh (in the image's case, the "genesis 8.1 female" base mesh).

- **Matching files directory**: Directory where matching files are currently stored or will be stored (see details in Generating matching files section). These files are strictly necessary for the correct generation of .dhdm files from Blender meshes.
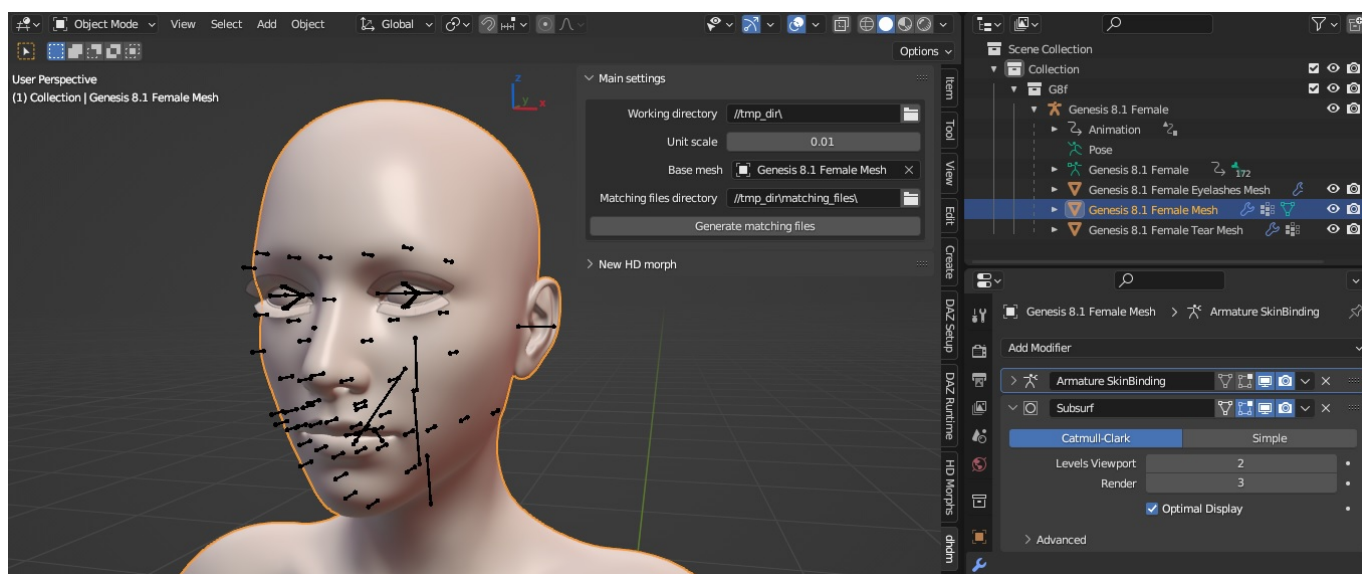

Figure 1: Main settings.

It's highly recommended to have Blender's console open while using this addon, to check the progress. To enable the console, go to Window>Toggle System Console.

1.1 Generating matching files

For this addon to work properly, the generation of matching files is necessary. These files are .json files which contain the vertex order mappings from Blender meshes to daz meshes, at every subdivision level up to a user-specified level. As such, they depend on the particular type of daz mesh being used (e.g. Genesis 8 Female, Genesis 3 Male, etc.).

It's only necessary to perform this step once per type of daz mesh that will be used. The generated matching files can be reused between .blend files by specifying the same **Matching files directory**, as long as the daz mesh type is the same. Only the daz mesh type matters for this step, not the particular shape. For example, a Genesis 8 Female figure with "baked" base morphs has the same matching files as a Gensis 8 Female figure without any base morphs.

To generate the matching files, press the **Generate matching files** button. You need to specify the maximum subdivision level, and you can force the regeneration of matching files (for example, in case of invalid morphs being generated) by checking the "Overwrite all" option. The console will show the progress during the process.

The are two groups of matching files. Which group is used depends on how the hd mesh will be created in Blender:

1. The first group corresponds to creating the HD mesh by using a multiresolution modifier on the base mesh, and editing/sculpting that mesh up to some level of subdivision. This mode doesn't require any additional addon. In the **Matching files directory**, these files have "mr" as a suffix in their filenames.

2. The second group corresponds to generating the HD mesh with possibly "baked" HD morphs by using the *daz_hd_morphs* addon (version 0.88.6+), then reconstructing the subdivision levels with a multiresolution modifier, and then further editing/sculpting that mesh as in the previous mode. This mode requires that addon to be installed and enabled. If the addon is not enabled when generating the matching files, this group of matching files won't be generated. In the **Matching files directory**, these files have "mrr" as a suffix in their filenames.

2 New HD morph

An example will be used to illustrate the process. In the example, the base mesh collection (Genesis 8.1 Female) was duplicated and the subdivision modifier from the duplicated base mesh was removed and a multiresolution modifier was added instead. Lastly, the mesh was subdivided two times through the multiresolution modifier, and sculpted as shown in Figure 2.
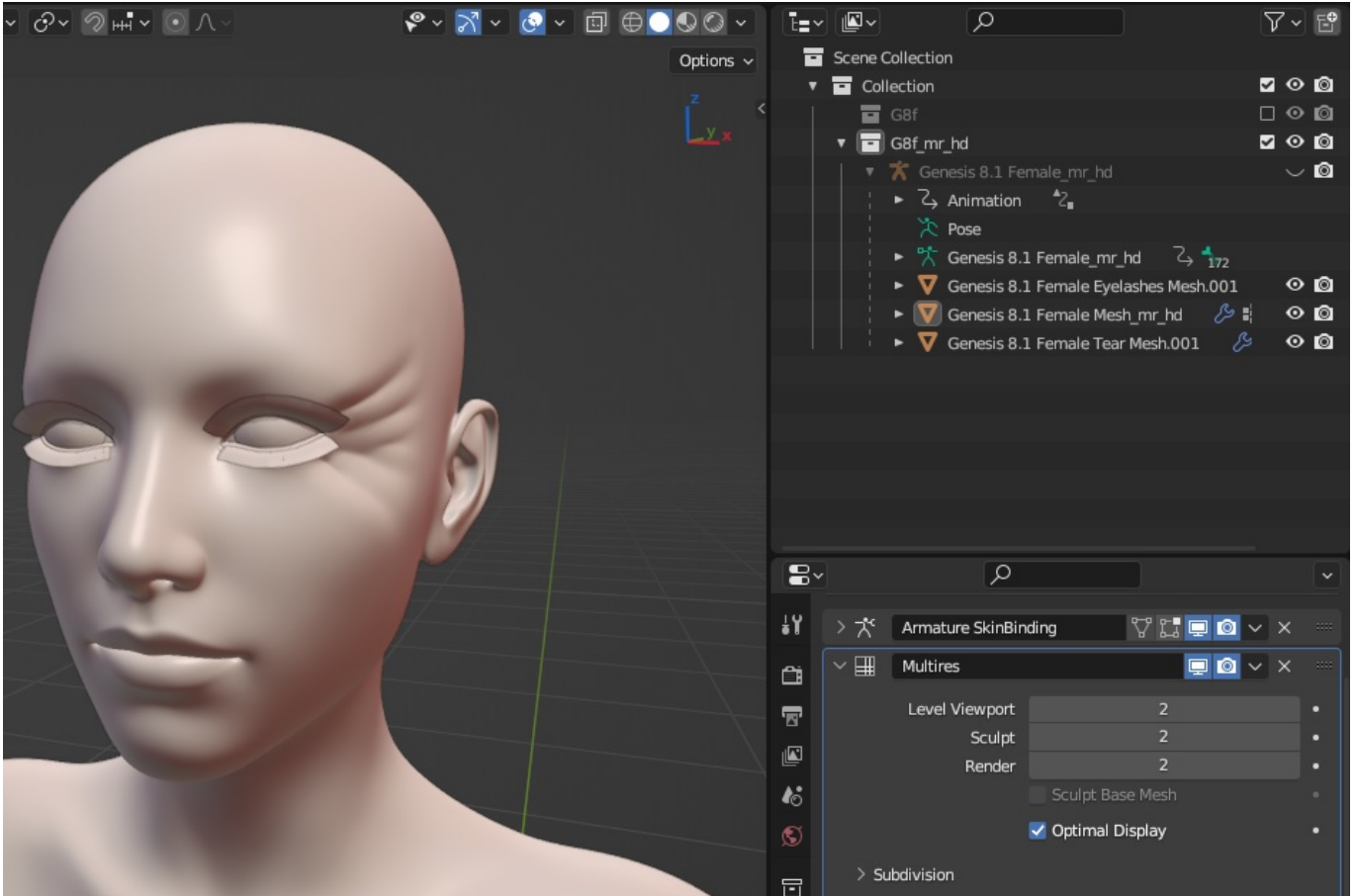

Figure 2: Sculpted HD mesh with multiresolution modifier.

The settings for the generation of .dsf/.dhdm files are located in the **New HD morph** subpanel:

- **HD mesh**: The HD mesh where the HD morph will be defined. How this HD mesh is created depends on the mode being used, as described in the Generating matching files section. In Figure 3 the first mode is used.

- **Subdiv method**: Defines the mode being used, as described in the Generating matching files section. The first mode corresponds to "From direct multires", while the second to "From daz_hd_morphs multires".

- **Base morphs**: Indicates how to obtain the base morphs. If set to "From hd mesh", the geometry of the **HD mesh** when the multiresolution modifier is disabled is interpreted as the base morph data, relative to the **Base mesh**. If set to "From morphed base mesh", an additional mesh (**Morphed base mesh**) can be provided to more accurately obtain the base morph data. This could be useful when using the second mode (see Generating matching files section), since the multiresolution modifier's subdivision reconstruction algorithm doesn't reconstruct the base mesh perfectly. In the example being illustrated, this is not necessary since the mode being used is the first one.

- **Morphed base mesh**: See previous item.

- **New morph name**: Name to use for the new morph. Also defines the filename of the .dsf file (if any) and .dhdm file to be generated.

- **Output**: Determines what files to generate. If set to ".dhdm only", no .dsf file is generated. Consequently, the generated .dhdm file will need to be manually added by the user to the .dsf file that will link to that .dhdm file (in the "hd_url" field of the .dsf).

  If set to ".dhdm and .dsf (template)", a **Template .dsf file** must be provided (this file is not modified), and a pair of .dsf and .dhdm files will be generated. The .dsf file will contain the base morph data and link to the .dhdm file for HD morph data. Moreover, the original data of the provided .dsf will be modified to replace the original name with the given **New morph name**. All other .dsf data (like formulas referring to other .dsf files) will be copied from the **Template .dsf file**. To use this morph in daz, the generated .dsf and .dhdm should be copied to the same daz library's directory where the **Template .dsf file** is (the template .dsf could be deleted if not needed anymore).

  If set to ".dhdm and .dsf (basic)", a basic .dsf will be generated, which will contain the base morph data and link to the .dhdm file. The directory where the morph will be placed within the daz library must be provided in the **Morph daz directory** option (the path must be relative, for example: "/data/Daz 3D/Genesis 8/Female/Morphs/DAZ 3D/Expressions"). If some .dsf information can't be obtained, like the "parent" figure data, the .dsf file generated will have "[TO_COMPLETE]" placeholders where the user must manually complete the missing information. The morph generated with this option will be accessible under Actor>Full Body>Real World in daz, provided the .dsf and .dhdm generated were copied to the directory given as **Morph daz directory**.

- **Template .dsf file**: See **Output** item.

- **Morph daz directory**: See **Output** item.

To generate the .dsf file (if any) and the .dhdm file, press the **Generate .dsf/.dhdm files** button (the settings used for this example are shown in Figure 3). The console will show the progress, and the new files will be placed in a subdirectory called "new_morphs" within the specified **Working directory**.

To check that the example morph is working properly, the generated files (.dsf and .dhdm) are copied to the given **Morph daz directory** (relative to daz's library's root), so daz can detect them. Next, the Genesis 8.1 Female figure is loaded in daz and the new morph is accessed under Actor>Full Body>Real World, as shown in Figure 4.

There are two things to keep in mind about this quick example. First, because the base level wasn't sculpted, the generated morph only contains HD data (we could have used the "Apply Base" button of the multiresolution modifier to transfer some deformation to the base mesh). Second, although the mesh was quickly sculpted in the default pose, ideally you would want to sculpt in the pose where the morph will be active.

Since the created morphs are valid daz HD morphs, they can also be used in Blender with the *daz_hd_morphs* addon. Refer to that addon's documentation for details.
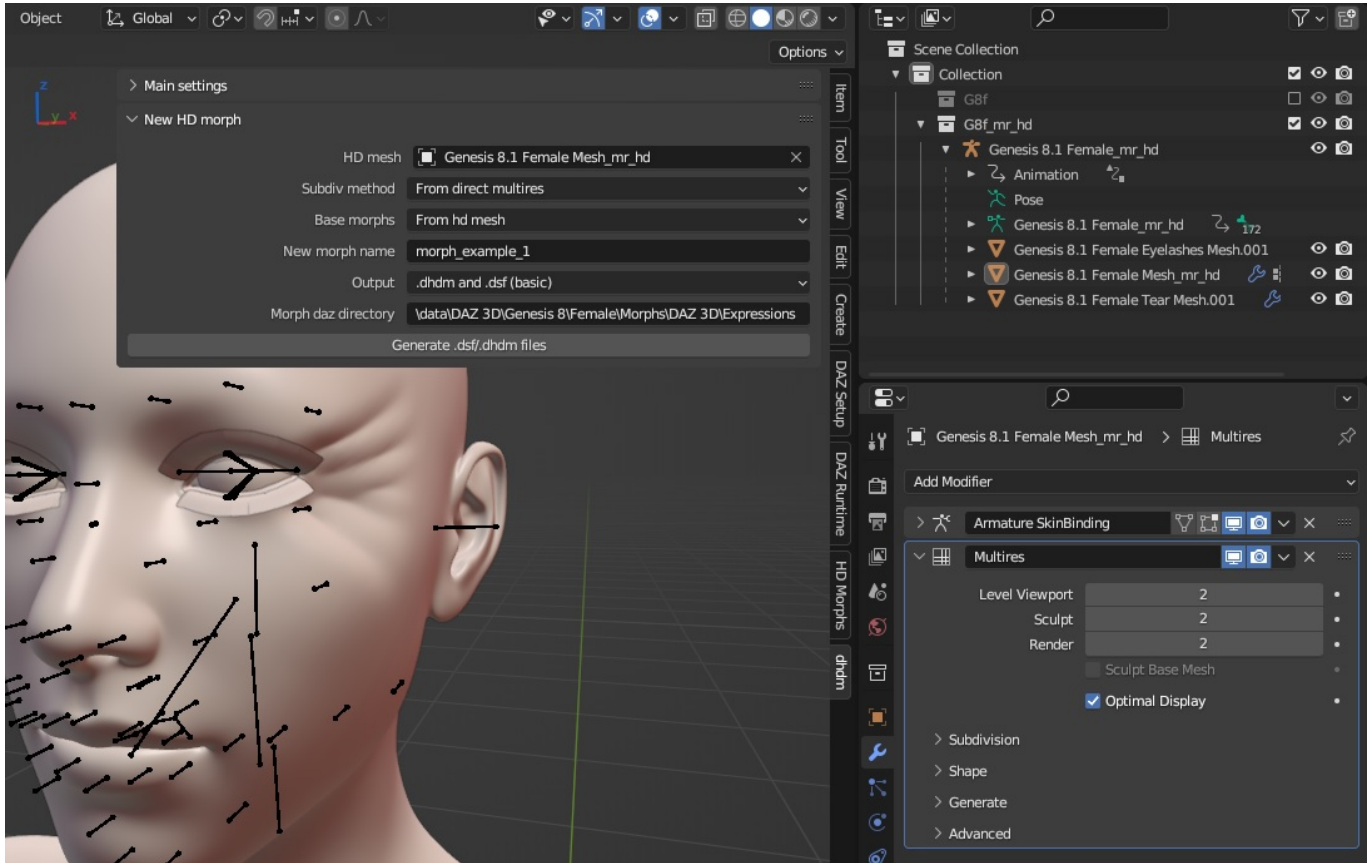
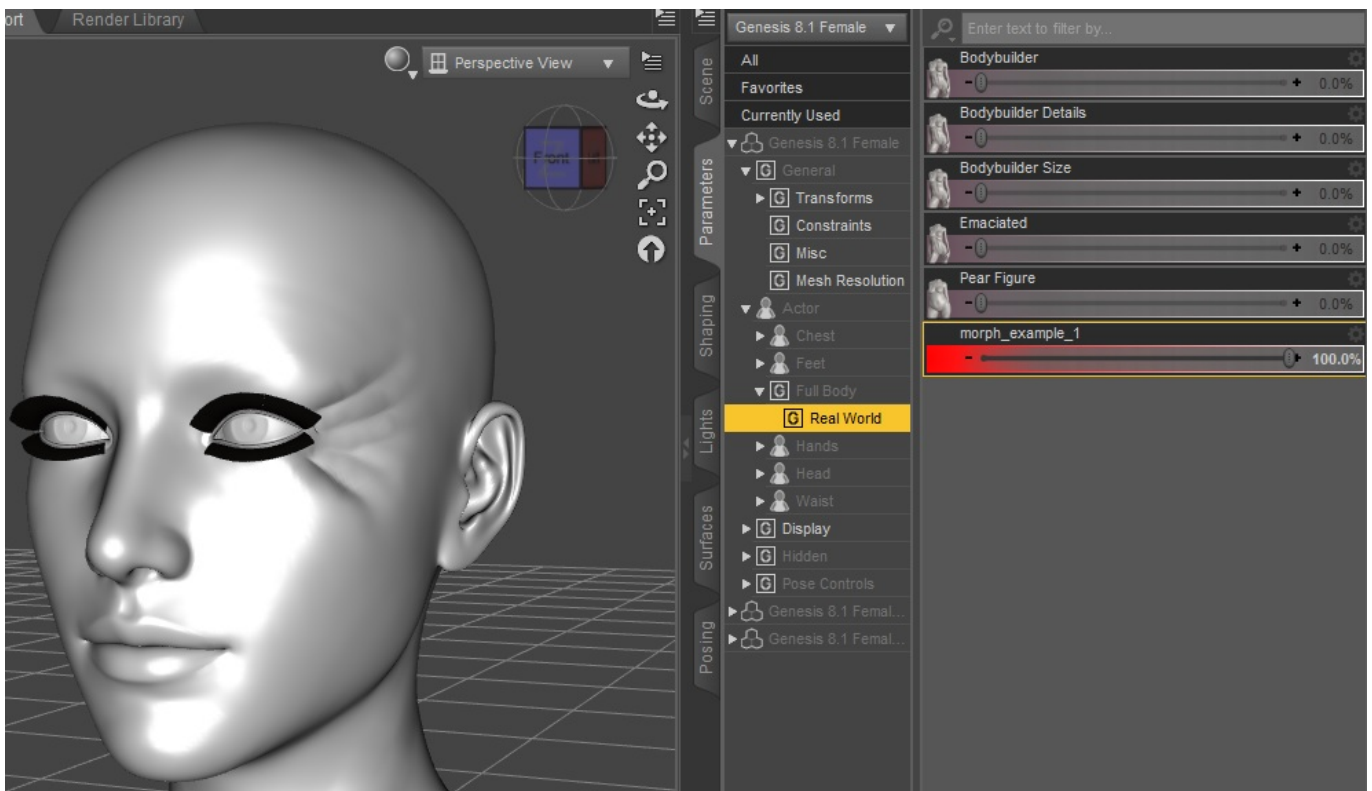Figure 3: Settings used to generate the .dsf and .dhdm files in the example.

Figure 4: Generated HD morph in daz, with 2 levels of subdivision.

3 Step by step walkthroughs

3.1 Creating new HD morph starting from already HD morphed mesh

This example shows how you can create a new HD morph starting from an already HD morphed mesh. This corresponds to the second mode described in the Generating matching files section.

1. Install and enable the *import_daz* addon, the *daz_hd_morphs* addon (version 0.88.6+), and this addon. Be sure to get the latest versions of them suitable for your Blender installation. This example uses Blender 3.6.0.

2. The figure which will be used is the base genesis 8.1 female. With *import_daz*, use the "Easy Import daz" button and select the base genesis 8.1 female .duf (see *import_daz* documentation for details about how to do this step if you are not familiar with it). Remove the subdivision modifier from the imported mesh. Set this mesh as the **Base mesh** in both the *daz_hd_morphs* addon and this addon.

3. Generate the matching files as described in the Generating matching files section, setting max subdivisions to 2. Be sure that the matching files with "mrr" suffix are being generated.

4. Next, press the "Import_Expressions" button of the *import_daz* addon and select "Wink_HD" and "Wink_HD_div2" (if you don't have these, any other expression with HD details should work).

5. With *import_daz*, pose the mesh by setting the "Wink HD" Expression to 1.

6. With the *daz_hd_morphs* addon, generate an HD mesh as shown in Figure 5. You can add the morph you need to the Morph Files list by pressing "Add base morph files" in the menu you can access from the down arrow in the upper right corner. For more details on how to use this addon, refer to that addon's documentation.

7. If successful you should have an HD mesh with the HD morph baked in. Rename the "hd_collection" collection to "hd", the hd mesh to "hd_mesh", and the base mesh's collection to "base".

8. Add a multiresolution modifier to the generated hd mesh, and press the "Rebuild Subdivisions" button of the modifier. Notice how disabling the multiresolution modifier results in a base mesh that doesn't exactly match the real base mesh.

9. To address the previous issue, duplicate the "base" collection, call the new collection "base_morphed", and rename the duplicated base mesh in that collection to "base_morphed_mesh". Apply the shape keys of this mesh and its armature modifier.

10. Delete the shape keys of the base mesh in the "base" collection, and then apply its armature modifier. Applying the armature modifiers in this step and the previous one is needed in this example because we generated the HD mesh posed (by setting **Base export modifiers** to "All but shape keys" in Figure 5), to get a better idea of the final look of the morph during sculpting. If the HD mesh hadn't been posed, the armature modifiers wouldn't need to be applied.

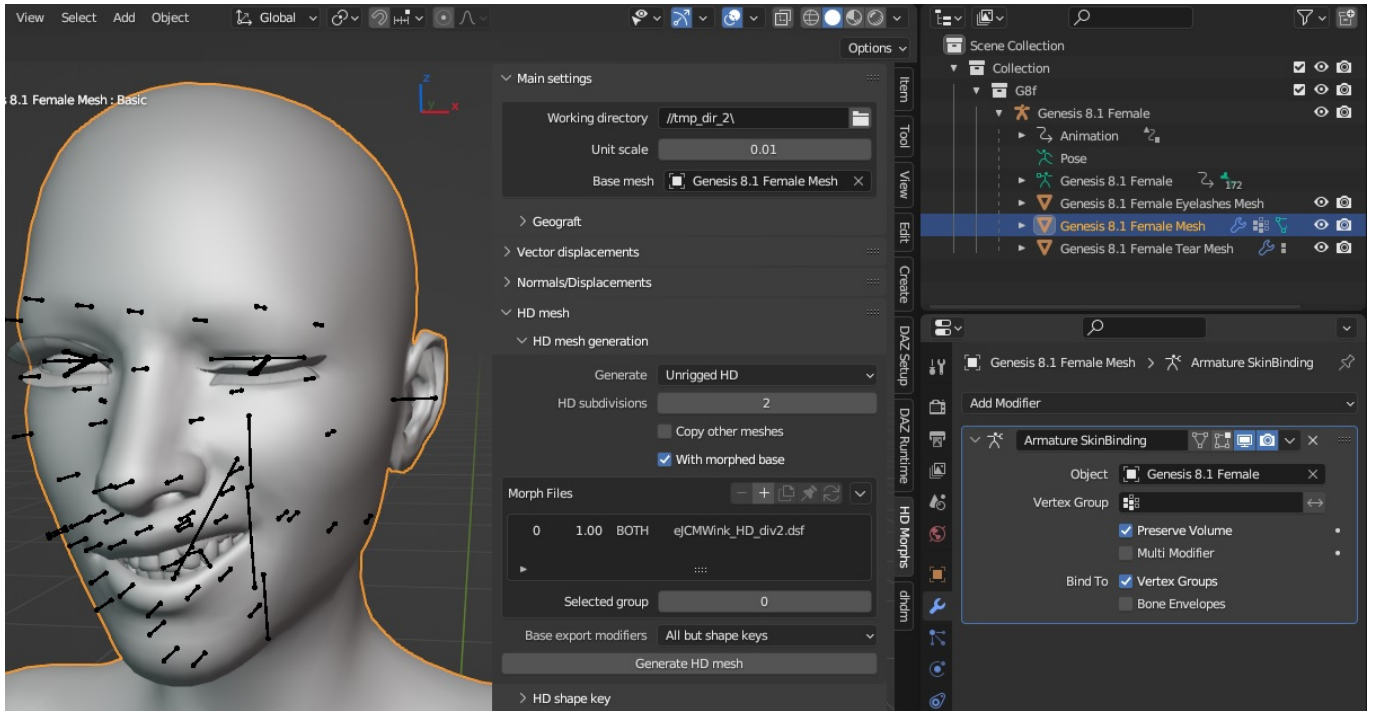11. Sculpt or edit the hd mesh (called "hd_mesh"), which should already have the HD morph on it, further.

Figure 5: Settings for HD mesh generation with *daz_hd_morphs* addon.

12. Figure 6 shows the scene with the sculpted hd mesh and the settings to use for the generation of the .dhdm and .dsf files. Notice that we use the initial HD morph .dsf file as **Template .dsf file**. Unhide all meshes and press the button to generate the .dhdm and .dsf files. Within the **Working directory**, the files should have been created in the "new_morphs" subdirectory.

13. Finally, to check that the morph is working properly, the files could be placed in the same directory where the **Template .dsf file** is, so daz can detect them. Next, the Genesis 8.1 Female figure is loaded in daz and the new morph is activated by dialing the expression that controls the morph defined in the **Template .dsf file** ("Wink HD" in this case), as shown in Figure 7. Notice that the original morph, "eJCMWink_HD_div2", was disabled to show only the effect of the new morph ("morph_example_2").
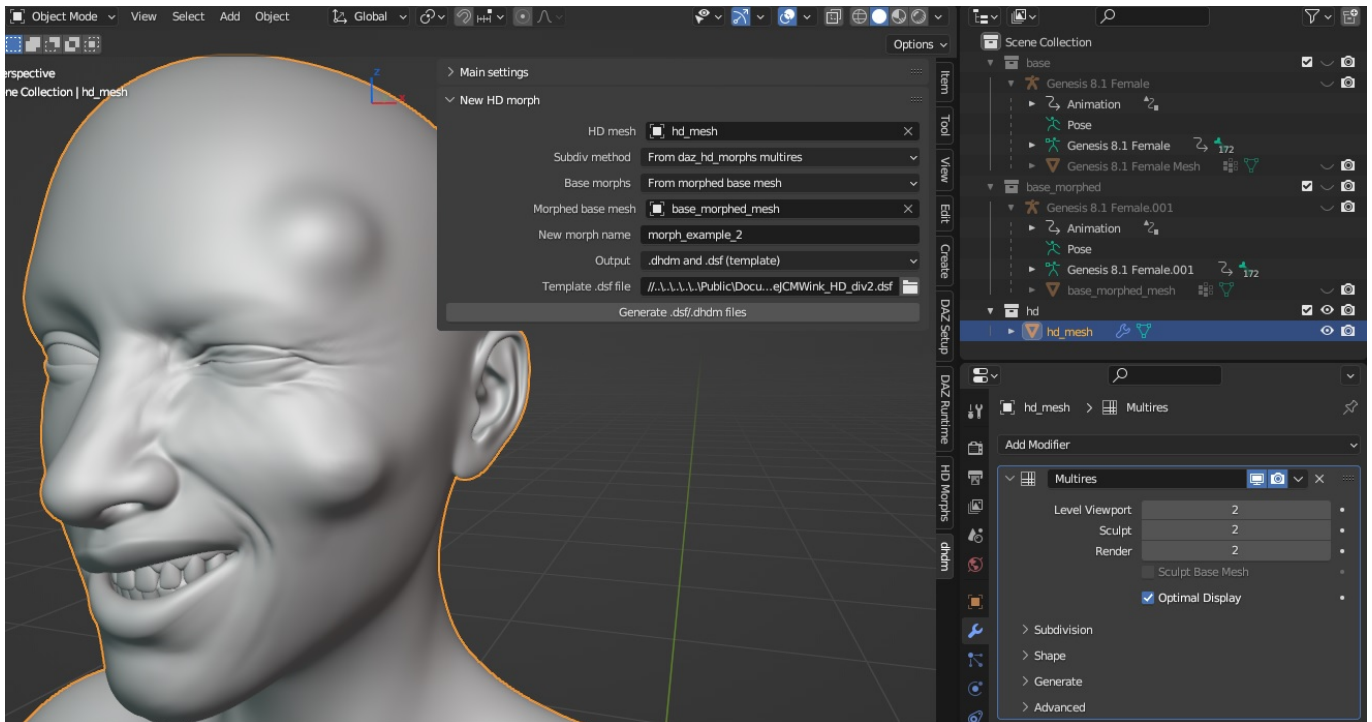
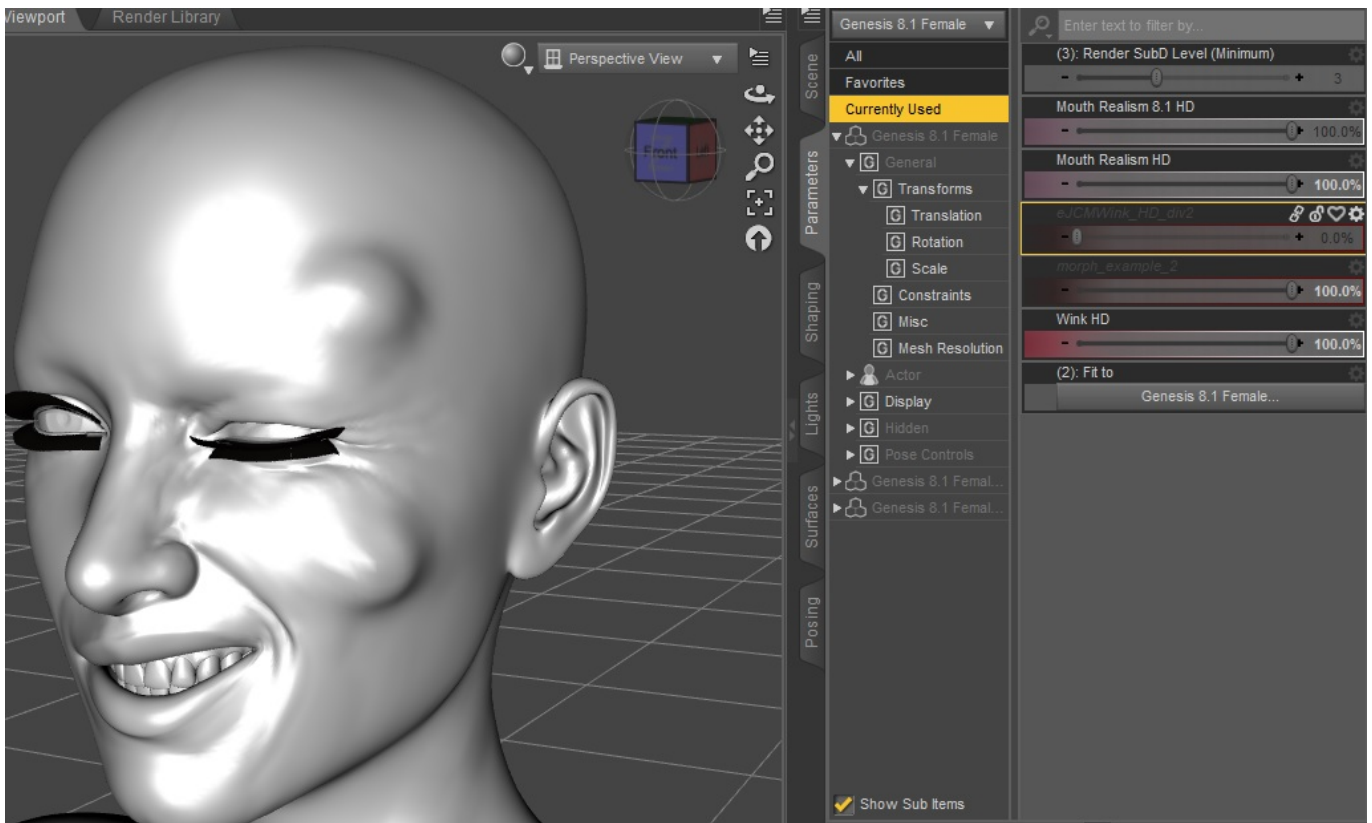Figure 6: Settings to use to generate .dhdm and .dsf files (all meshes should be unhidden beforehand).

Figure 7: Generated HD morph in daz, with 2 levels of subdivision.