

# **XNALARA to MMD conversion guide**

## *My way to export/import XPS models in MMD*

Many mmd editors use to export the models in OBJ or X format, then import them in PMD/PMX Editor and re-rig them from scratch. A terribly hard and long work.

This is a possible choice (actually the one choice) if your starting model doesn't have bones at all. Let's say, you find a Super Star Destroyer model, with no bones, just the 3d mesh and its textures. Yes, you have to convert & import it in PMX editor and then if you want to add some bones to control turrets, cannons, hangar bays and so on, you simply have to weight the parts of the mesh you're interested in.

**When you have a working skeleton yet, as in most of XPS character models, it's simply foolish to not use it and to rig the model again once imported in PMX editor!** OBJ/X format conversion loses model's bones. The way I'm going to show you avoids this issue and saves for you a HUGE amount of time.

Still this is not an easy task. There is no “From XPS to MMD in one click!” magic wand. XPS and MMD work differently, manage textures, morphs/expressions, lights and bones in different ways. Any model you convert from XPS to MMD will have some differences between the two environments. I'll show you what you need and the steps you have to follow to get a working PMX model, and how to save a lot of time without need to rig again a model from scratch, **but you'll still need a lot of work to adjust the models you'll work on.**

This tutorial won't cover how to use Blender, how to use XPS or how to use PMX editor. I'll assume you have the very starting bases to install and use these apps. Don't worry about Blender's difficulty, we're using it just as an intermediate converter to import XPS files and export to PMX format.

Finally, please take a look at “credits & rights” chapter if you plan to redistribute XPS converted models. Always consider that most of XPS models have been extracted/ripped from videogames or converted from third parts original models. **The operation of converting a third parts model from its original format into MMD format doesn't absolutely make you “owner” of any right on the converted model.**

### **Summary**

- Programs and plugins you'll need to work
- Opening the model in XPS (and translating bones to their japanese names)
- Saving a COPY of your bones-renamed model
- Importing the new XPS model into Blender
- Exporting the model from Blender into a raw PMX model
- Importing the raw PMX model in PMX Editor (resize & save your WIP model)
- Basic adjustments (bones connections, bones types, bones to be merged and textures)
- Optional but highly recommended: Importing IK legs bones
- Optional: Importing pre-made facial morphs
- Optional: Adding useful bones for MMD animations
- Credits and rights issues when converting and redistributing models

## **PROGRAMS & PLUGINS YOU'LL NEED**

Supposing you want to convert a **XPS model**, you'll need **XPS** to open the model, rename the bones to their japanese mmd names and save a copy you'll work on; after that you'll need an intermediate 3d modelling program, **Blender**, and the **import/export plugins** to manage XPS and PMX file formats. Finally you'll need **PMX Editor**.

These are the bases but you'll also find useful other files I'll show below.

- **XPS (XNALara Posing Studio)**: The most recent version you can find. Download it from XNALara Italia group's page, here: <http://xnalaraitalia.deviantart.com/> This is the program used to open, pose and edit any XPS model. You're not requested to know how to use it for posing and rendering operations, just to export a Work In Progress copy of the model you'll work on.
- **XPS Bone names dictionary**: Needed if you don't want to trash your time manually renaming all model's bones into japanese names used in MMD poses and animations. I keep an updated copy of this file here: <http://fav.me/dafbzfm> Download it and put it into your XPS main folder after saving a copy of original bonedict.txt file
- **Blender 3D**. This is a wonderful free and opensource 3d modelling application. It's extremely powerful but for our purposes, we'll use it just as an intermediate application in order to convert the model from xps format to pmx format. It's highly recommended you download and install the most recent version here: <http://www.blender.org>
- **Blender XPS Tools**: A Blender plugin needed to import XPS meshes into Blender. After installing Blender, download the plugin and install it into plugin folder. Note you have to activate the plugin in user preferences screen. You can find it here: <http://fav.me/d7vd86z>
- **Blender PyMeshIO scripts**: A Blender plugin needed to import/export in PMD and PMX formats. Download the plugin and install to Blender plugin folder. Download: <https://pypi.python.org/pypi/pymeshio/>
- **Blender MMD Tools**: A plugin allowing you to import/export PMX models into/from Blender. You can find it here: [https://github.com/sugiany/blender\\_mmd\\_tools](https://github.com/sugiany/blender_mmd_tools) Download it and install it into Blender plugins folder. You have to activate the plugin in user preferences screen.
- **[Optional] XPS2MMD basic facial expressions**: A basic set of facial expressions morphs, made by me. Note this works on models having facial bones with the same names I used for this set. *Most of DOA5 models should work fine but you could have to rename some facial bones for any model extracted from other games.* You find it here: <http://fav.me/d9ukqji>
- **[Optional] Photo editing programs** (Photoshop, GIMP, Paintshop, etc). This could be useful when dealing with models having DDS textures or when you also want to edit model's textures.

And finally... **A XPS model to convert!** Feel free to follow your own preferences, but consider not all xps models can be converted this way. Some models have bones issues or anomalies that make them hard to convert without a previous corrections (*this kind of work is not covered here*). For this tutorial purposes, we'll convert this lovely Sarah Bryant meshmod by KammyYx: <http://fav.me/d8jqlr7>



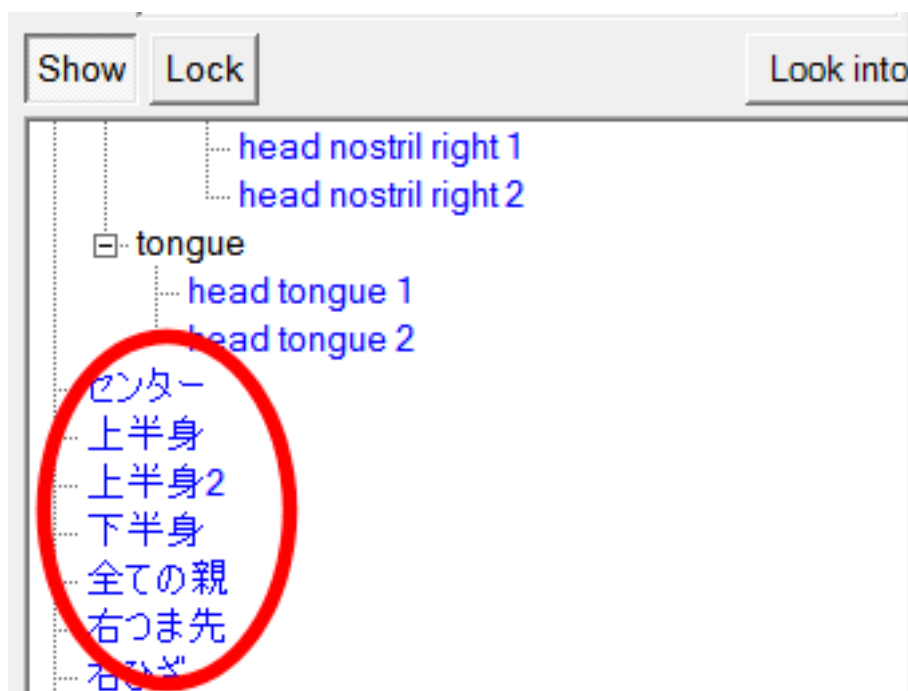
## OPENING THE MODEL IN XNALARA POSING STUDIO

The very first thing to do is to check the model you want to convert. **Check if it works in XPS, before spending your time in a conversion.** Some models are released with a lot of bugs and issues. Most common bugs are about parenting to root bone, but not only. If they don't work in XPS you can be almost sure they won't be correctly converted without a previous hard work in XPS to solve their issues.

Let's say we have downloaded and correctly opened Sarah's model in XPS. Of course you have previously put my bonedict.txt into XPS main folder, as shown here:

XNALara XPS.exe	18/04/2014 10.22	Applicazione	968 KB
XNA.cfg	23/12/2016 14.29	File CFG	2 KB
TW3.cfg	18/04/2014 10.23	File CFG	1 KB
last.scene	23/12/2016 14.29	File SCENE	1 KB
<b>BoneDict.txt</b>	24/11/2016 20.51	Documento di testo	5 KB
!ReadMe.txt	18/04/2014 10.23	Documento di testo	2 KB
scripts	16/12/2015 02.16	Cartella di file	
scenes	31/01/2016 17.01	Cartella di file	
poses	12/02/2015 18.39	Cartella di file	
images	12/01/2014 17.34	Cartella di file	
data	23/12/2016 14.25	Cartella di file	
Content	16/12/2015 02.16	Cartella di file	

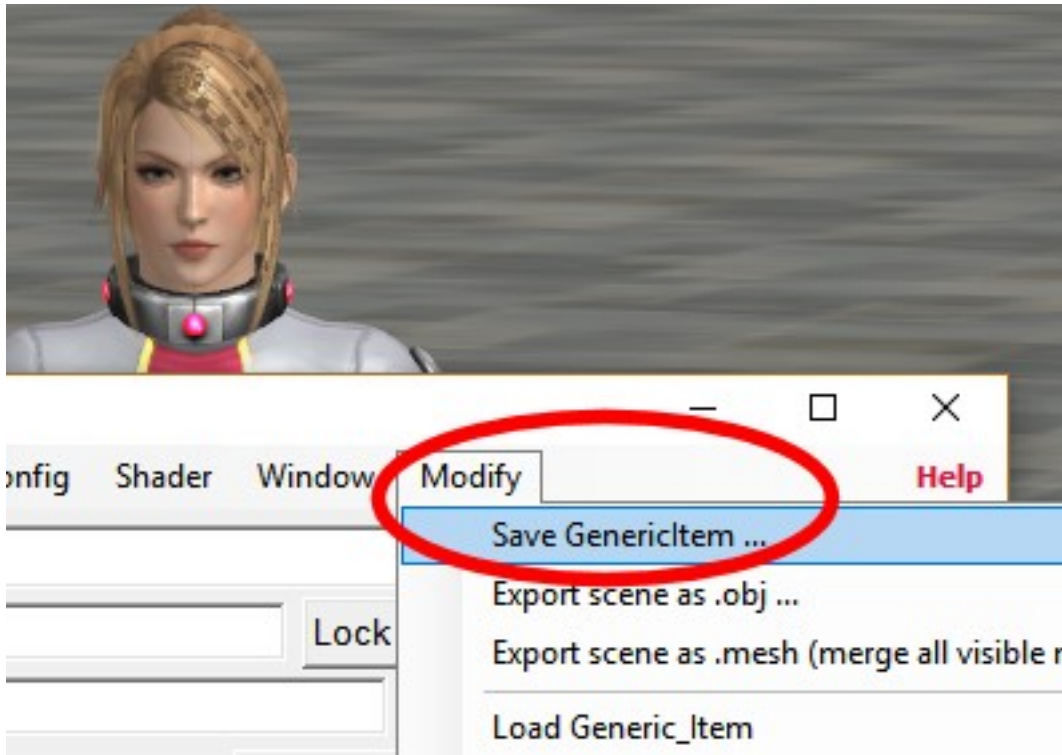
Let's take a look on Sarah.... You see in the bones list some nice japanese names you should know, if you're a MMD user. Yes, you're right! **These are the correct japanese names for bones, the ones used by MMD, instead of the XPS bones names.** If you don't see them you have probably done something wrong with my bonedict.txt; but also it could mean that the model you're using has not "standard" names for its bones so the bonedict.txt hasn't translated them. In this case you'll have to manually rename them later, once imported the model in PMX Editor.



## SAVING A COPY OF YOUR MODEL

Let's say you have tested the model's bones and all seems to work correctly. It's time to **SAVE A COPY of your XPS model**. This is needed because *if you don't make a new copy, the model will keep its original bone names*. The new one, instead, will have the japanese names.

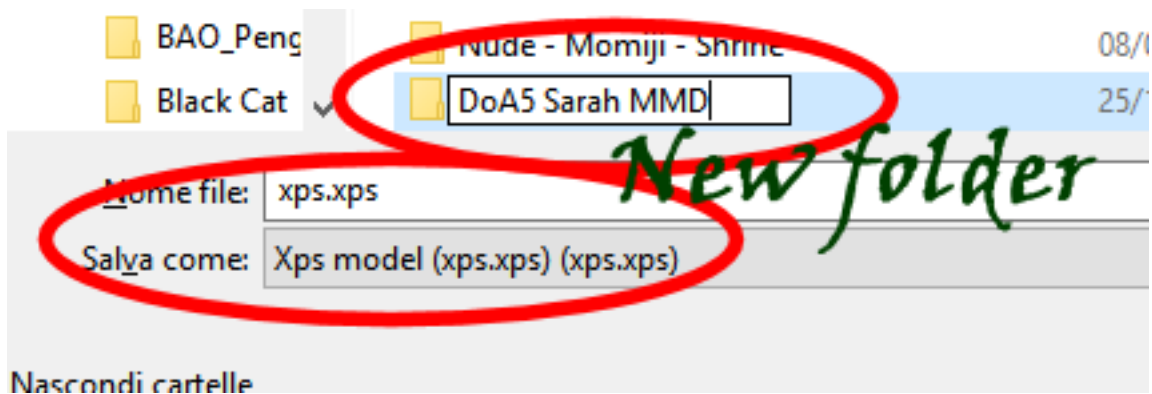
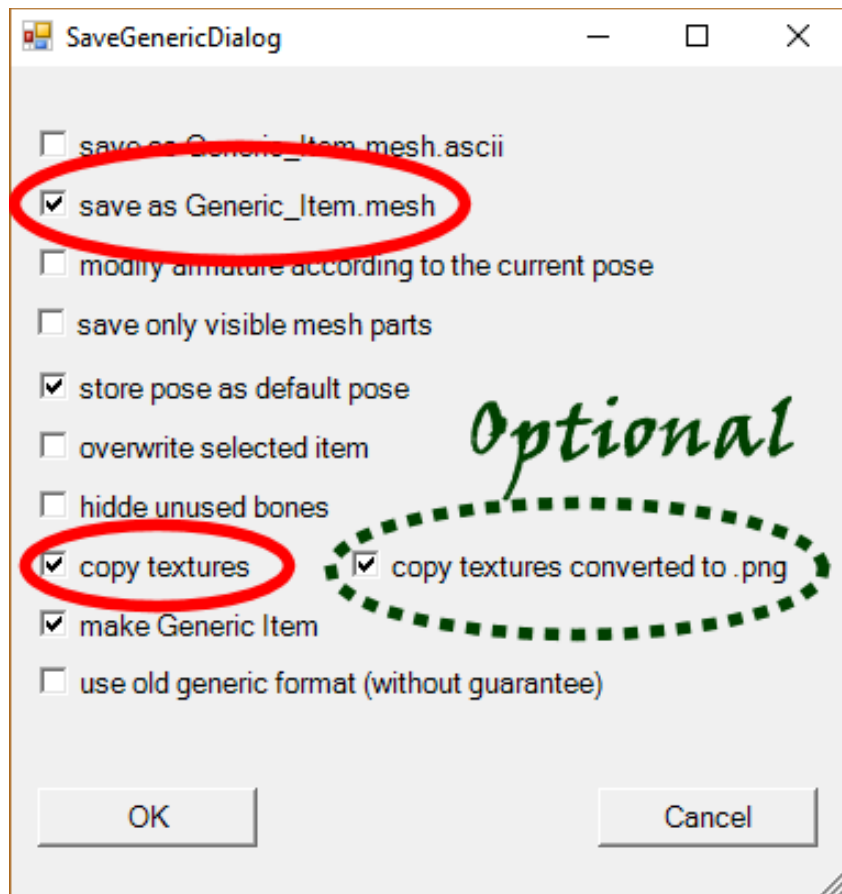
To export a copy go to **Modify** menu and choose **Save GenericItem**



**Don't export it as obj, don't export the whole scene.** We just need a working copy of the model. ***It's HIGHLY RECOMMENDED that you save the new model into a new working folder, to not mess with the original one.***

Set exporting preferences as shown:

- **Save as Generic\_Item.mesh** : This option will save the model as a new one, also if you'll give a .xps extension to saved file. Not really important to save it as .mesh or as .xps, Blender will import it in any case.
- **Copy textures**: Textures will be copied into the new folder you're saving your new model. This is absolutely needed if you are saving the new model in a new folder (and *you should* do this way!)
- **Copy textures converted to PNG**: Optional. I prefer to work on PNG textures and it's very useful to check this option if original model has TGA or DDS textures. PNG images keep transparency settings and PNGs are easier to edit without need to install any additional plugin to manage DDS images.



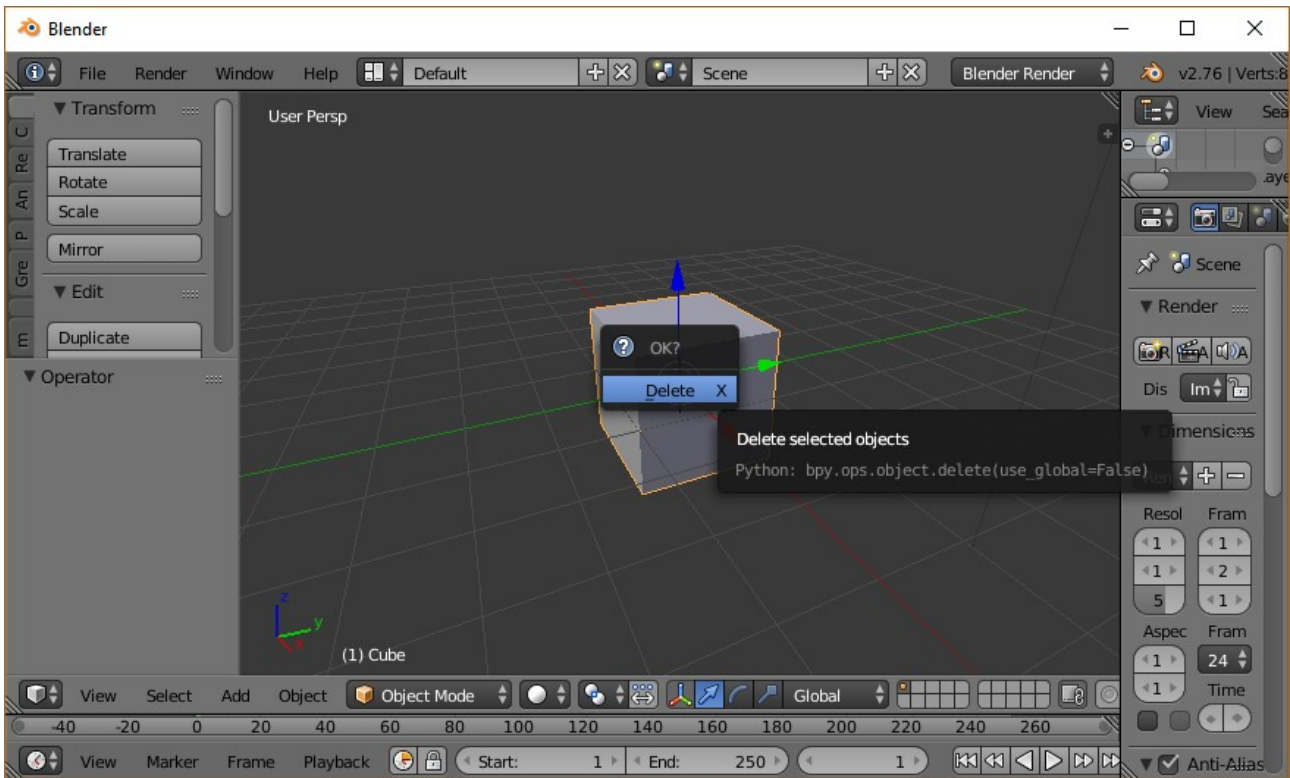
Ok. Let's say you have exported your new copy in the just created directory ("DOA5 Sarah MMD", in my example). Now you'll have your base to work on. At this time you have just given Japanese names to model's bones and saved a copy without risk to ruin your original model.

**Time to close XPS and open Blender!**

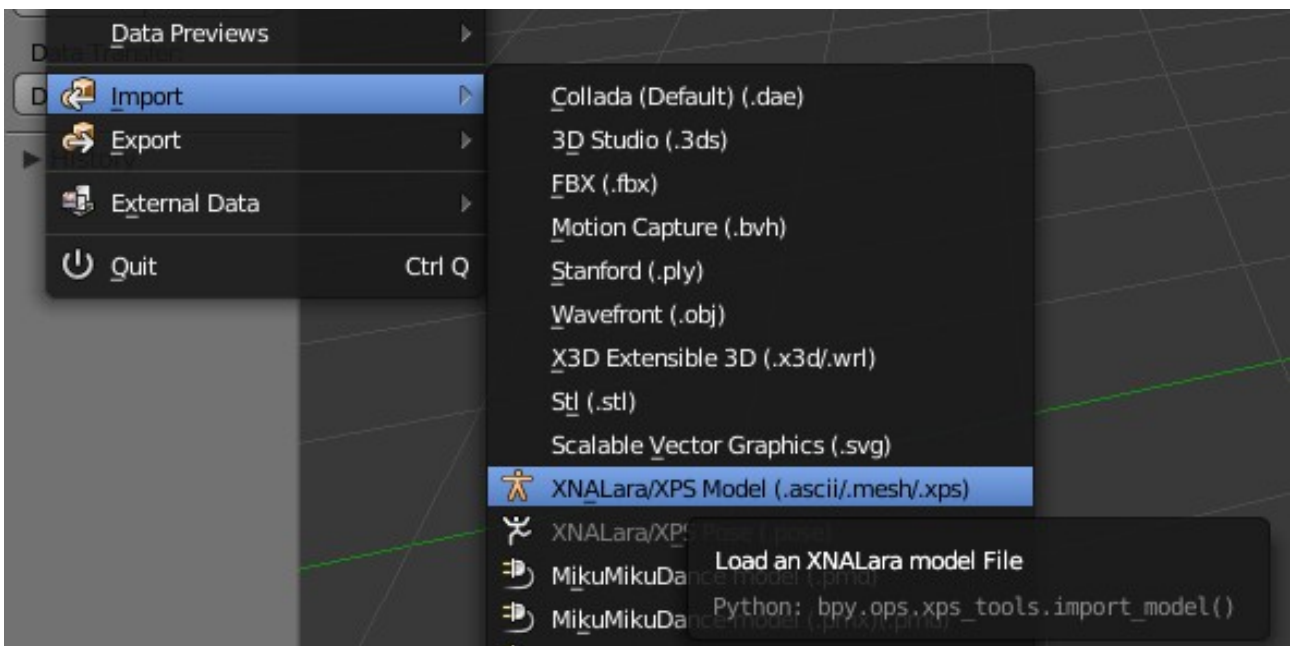


## IMPORTING THE XPS MODEL INTO BLENDER

You don't need to use Blender's features, but first of all you have to clear the scene, deleting the default Cube in the middle of the stage. Select it with right mouse button (if it's not selected yet), then press “DEL” or “x” on your keyboard, and confirm to delete the cube.



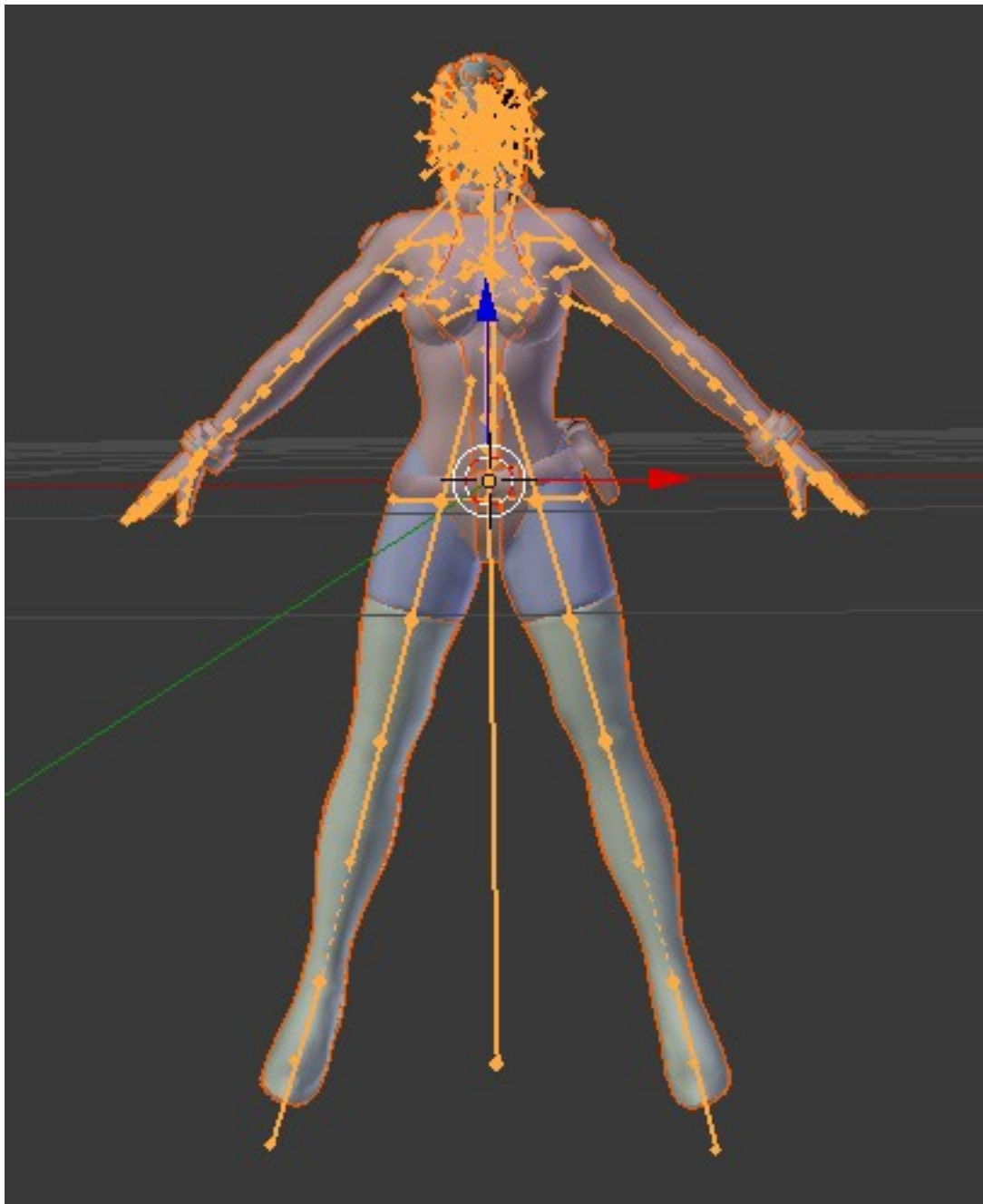
Then open the **file** menu, choose **IMPORT** → **XNALara/XPS Model**



Go to the folder path where you have saved the NEW xps model, select it and click on **Import**:



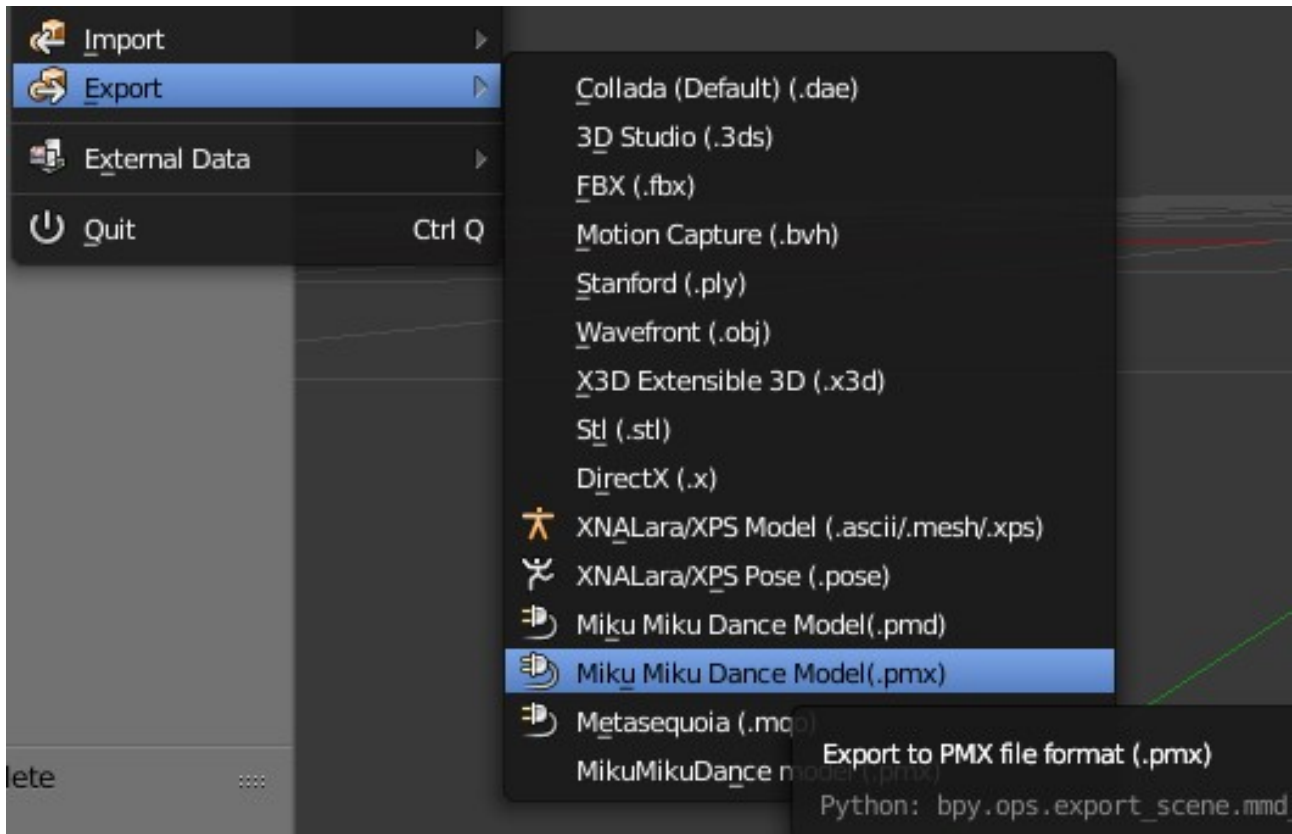
Woah! **Here's your Sarah's model.** Don't worry about her blank looking. By default Blender shows meshes in “solid” view, without textures. We won't stay here a long time, anyway, because it's time to export yet the model to PMX format.



## **EXPORTING THE MODEL TO A “RAW” PMX FILE**

Why “raw”? Because the first conversion will just create a basic **untitled.pmx** model. This is not the final model you can use for your animations in MMD. You'll need to open it later and correct several parameters. I usually export the PMX into the folder where I have my new xps model, so that textures are also there.

To export the model, go again to **File menu** → **Export** → **Miku Miku Dance Model (.pmx)**



**IMPORTANT:** Some XPS models, as said, have some issues or anomalies preventing Blender to recognize them as valid XPS model. In this case you could get errors while creating the PMX exported file. This can be really frustrating, but this means that you have to correct something on the original model before repeating all previous steps once resolved the model's issues.

If your new untitled.pmx model has been correctly created, it's time to close Blender and open PMX Editor to start the hardest part of your work :)



## OPENING PMXEDITOR AND IMPORTING THE RAW .PMX MODEL

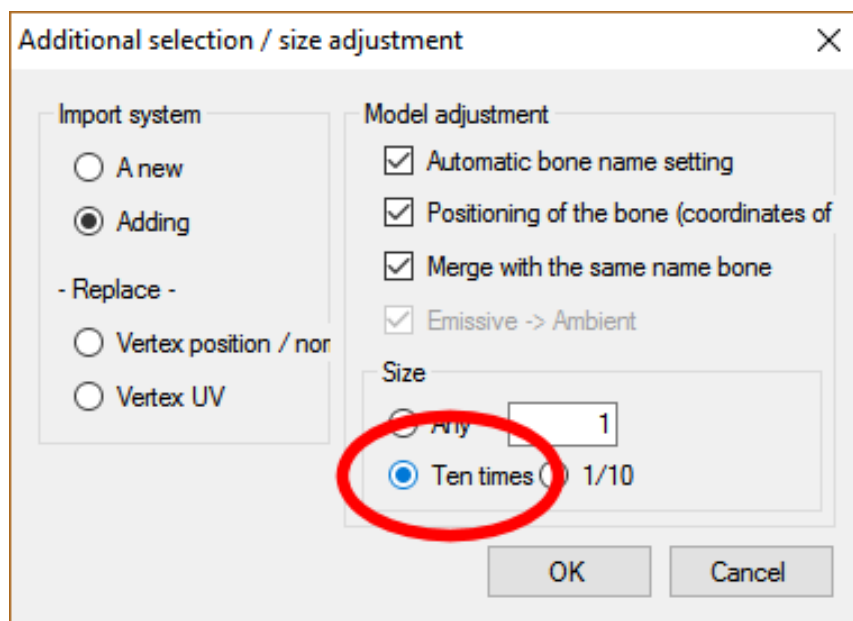
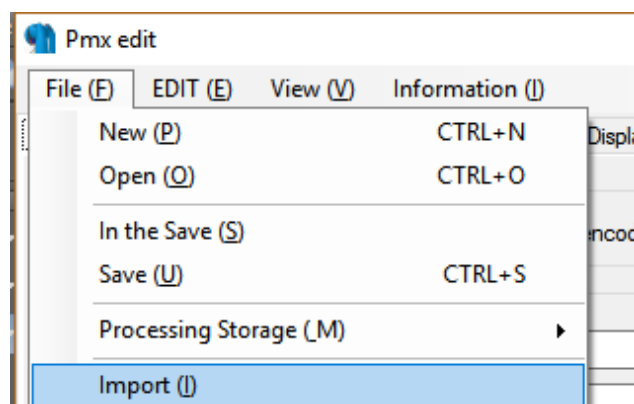
DoA5 Sarah MMD

Nome	Ultima modifica	Tipo	Dimensione
untitled.pmx	25/12/2016 22.33	File PMX	1305 KB
xps.xps	25/12/2016 22.08	Documento XPS	1717 KB

If you have done all correctly, this should be similar to your folder view, where you have both the new xps model and the raw pmx model you've just created (and also all of its textures).

DON'T DOUBLECLICK TO OPEN THE MODEL!

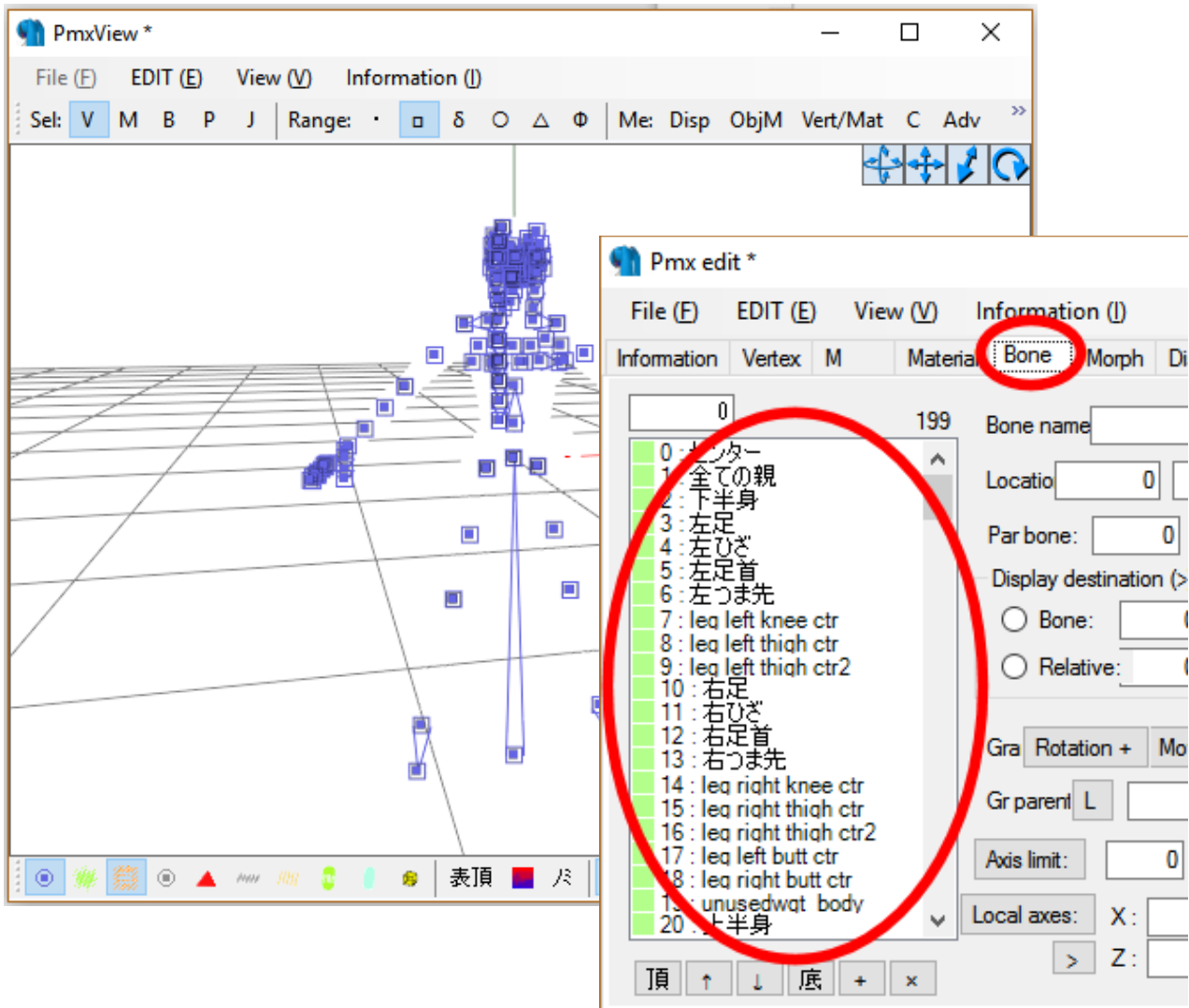
You don't have to open and work directly on this PMX. It's recommended that you open PMX Editor before, and then **IMPORT the pmx just created**. This is because Blender and PMX use different size scale values for meshes. Importing the model into a blank PMX Editor window, you can choose a "ratio" to apply on the model, making it bigger than it is for now. **Specify a 10x ratio.**



Click OK after checking "Ten times" to import the model in PMX Editor.

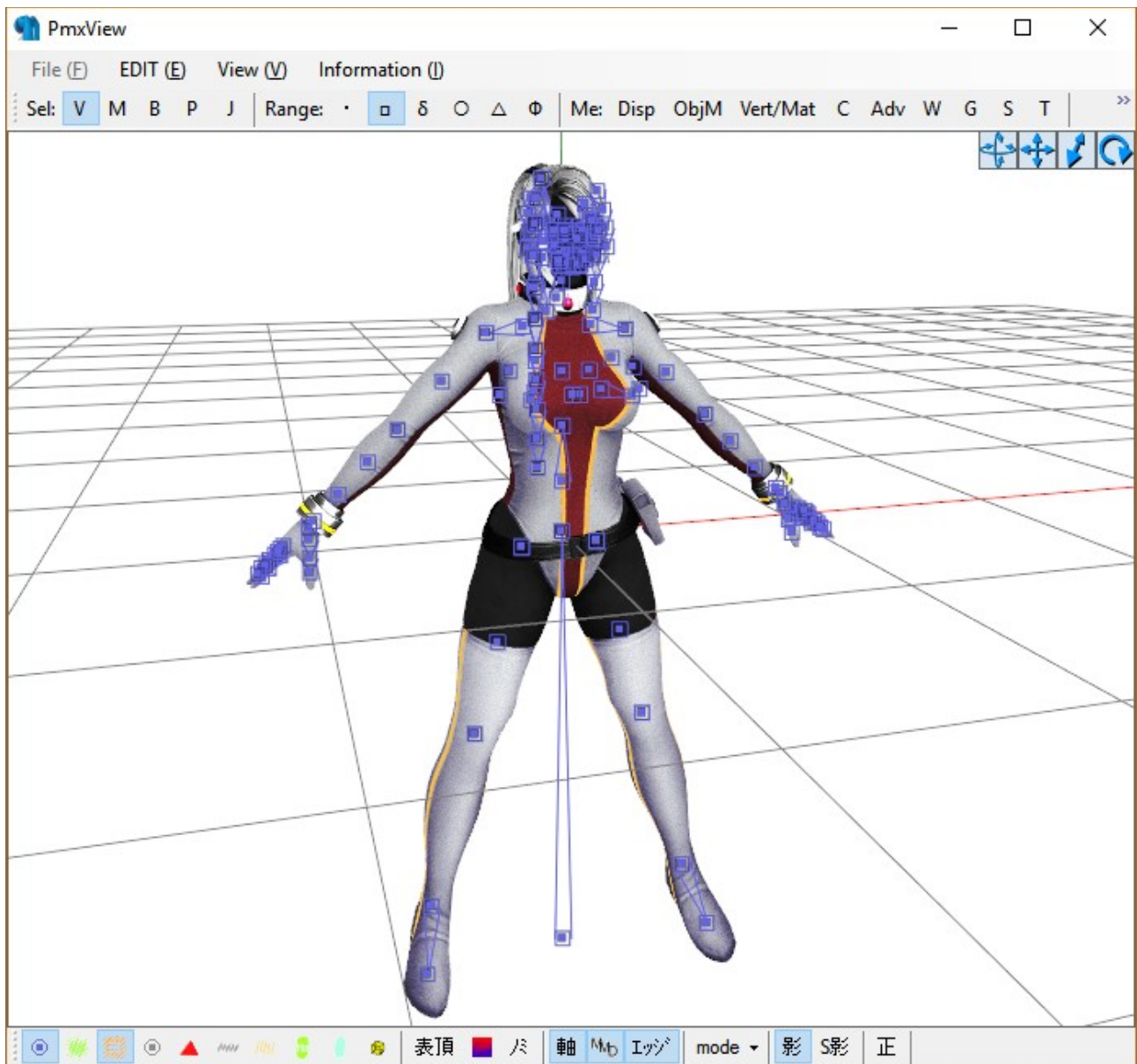
This should be similar to what you are looking at, when you have just imported the model. **A blank shape with no textures and a lot of “square” bones.**

The first issue is because you have not yet saved your new model so PMXE doesn't know where to find the textures. The second issue is because by default all bones are imported with move/rotate/prop settings. The good news is that all “strategic” bones should have their correct Japanese names yet :)



**Save your model.** Overwriting it or better giving a new name, like “sarah\_mmd.pmx”. From this time forward, you'll have a more useable model to work with. And this is when you start the hardest part of the work ;)

Once you re-open your model you finally see something, even if the textures are not right and most of bones need to be adjusted.



What you should see now.

**The next steps are your daily work as MMD editor.** I won't explain most of details, assuming you are at least a little experienced editor if you have downloaded and read this tutorial. I'll just mark some “critical” steps you have to consider when converting models from XNA Lara.

## **BASIC ADJUSTMENTS: BONES**

First of all. Check if **all “strategic” bones have been correctly renamed**. I mean all **spinal** bones (lower and upper body, spine 1 & 2, neck, head), **legs** bones and **arms/hands** bones. In particular check:

- **Lower and upper body bones**, because many XPS models have different ways to call them. You could find them correctly renamed in Japanese, but also you can find them with their original XPS names. Verify they're connected the right way to center bone and to legs and other spinal bones.
- **Upper body & Spine 2**: Most of MMD model have two spine bones only. Some, like Montecore's ones, have three of them, but normally they have 2 bones only. Most of XPS models, instead, have 3 or more than 3 spinal bones to better control the torso bending and rotation. It doesn't matter how many spinal bones the model has, consider that the last spinal bone (the one pointing to NECK and which neck bone is parented to) should even be called as Spine 2 (上半身 2) because most of MMD motion data consider spine 2 as parent for both shoulders and neck (首). Feel free to rename as you wish any additional spinal bone you find between Upper Body (上半身) and Spine 2 (上半身 2), but try to keep 上半身 2 as last spinal bone before neck.
- **Bones settings**: except for Center, Mother and Groove bones, all your “standard” bones should be “light blue” type, i.e. capable of Rotation/op. At the beginning you'll find all of your bones “green type”, i.e. Rotation/Move/Op. Keep center, mother and ALL FACIAL BONES “green”, but *change any other bone controlling arms, spine and legs, to rotate/op (light blue)*.
- **Bones connections**: You'll find bones normally connected, non connected after importing a XPS model. This means you have to edit those bones, giving them the right parent and destination bones.
- **Invisible destination bones missing**: XPS models don't have any of those “gray” MMD bones, the ones used to end a bone chain like in fingers or hair, or as head top. Add them manually where needed.

### **“SPECIAL ARMS/LEGS BONES”**

Most of MMD models have a few bones to control arms and legs: Shoulder + Arm + Elbow + Wrist for arms, Tigh + Knee + Ankle + Toe for legs. ***XPS models often have more bones***, used to adjust the leg or arm looking when moved during a game animation. You'll often find some bones like “adjust knee”, “adjust biceps” and so on.

In some cases you can ignore them but in other cases you must merge all them with one of the standard MMD bones. For example, you could merge all “Left tigh adjust” bones into Left Tigh bone (左足). How to do that? Simply renaming all the bones you want to merge together with the name of the desired bone (左足, this case), and then going in PMXEditor menu **EDIT** → **Bones** → **Merge all bones with same name**

**Pay great attention when you merge, hide or delete this kind of bones. Open the Posing View (T) in PMX Editor and test the behavior of any bones you have merged or you plan to delete/hide, to check how they act when moved or rotated. Also do this for ANY bone named a way you are not familiar to.**

If you choose to not merge them (you could want to keep better control on how a bicep bends during an animation) take care they are correctly parented or you'll risk to see arms or legs moving weirdly.

### **“UNCOMMON BONES”**

Some models have metacarpal or thumb0 bones, more than usual in standard MMD models hands. Consider also these bones when you'll use your model in an animation or pose. Other uncommon bones could be some move/rot bones to adjust breasts or throat. If you don't plan to use them, don't delete, just “hide” them making them “gray”.

### **“MOTHER BONE”?**

You'll probably find a “mother bone”. This was in XPS the “root bone”. Forget it, for now. In some rare cases it acts as a real mother bone, but in most cases this is not a real “all parent bone”. At the very end of your adjusting work you should manually add a “real” Mother bone, move it on top of bones list and replace or merge the old root to real Mother Bone.

### **IK legs bones: Where are they?**

They're.... Nowhere. XPS doesn't know our beloved IK legs bones. You have to set IK chains by yourself. The fastest way to do is to open another working MMD model, removing all parts (materials), physics and joints and *removing all bones but center, lower body and legs bones (including IK bones of course)*. Save that as “Iklegs.pmx” or something similar, then IMPORT them into your converted model. An of course adjust any wrong bone position once imported.

### **UNUSED BONES**

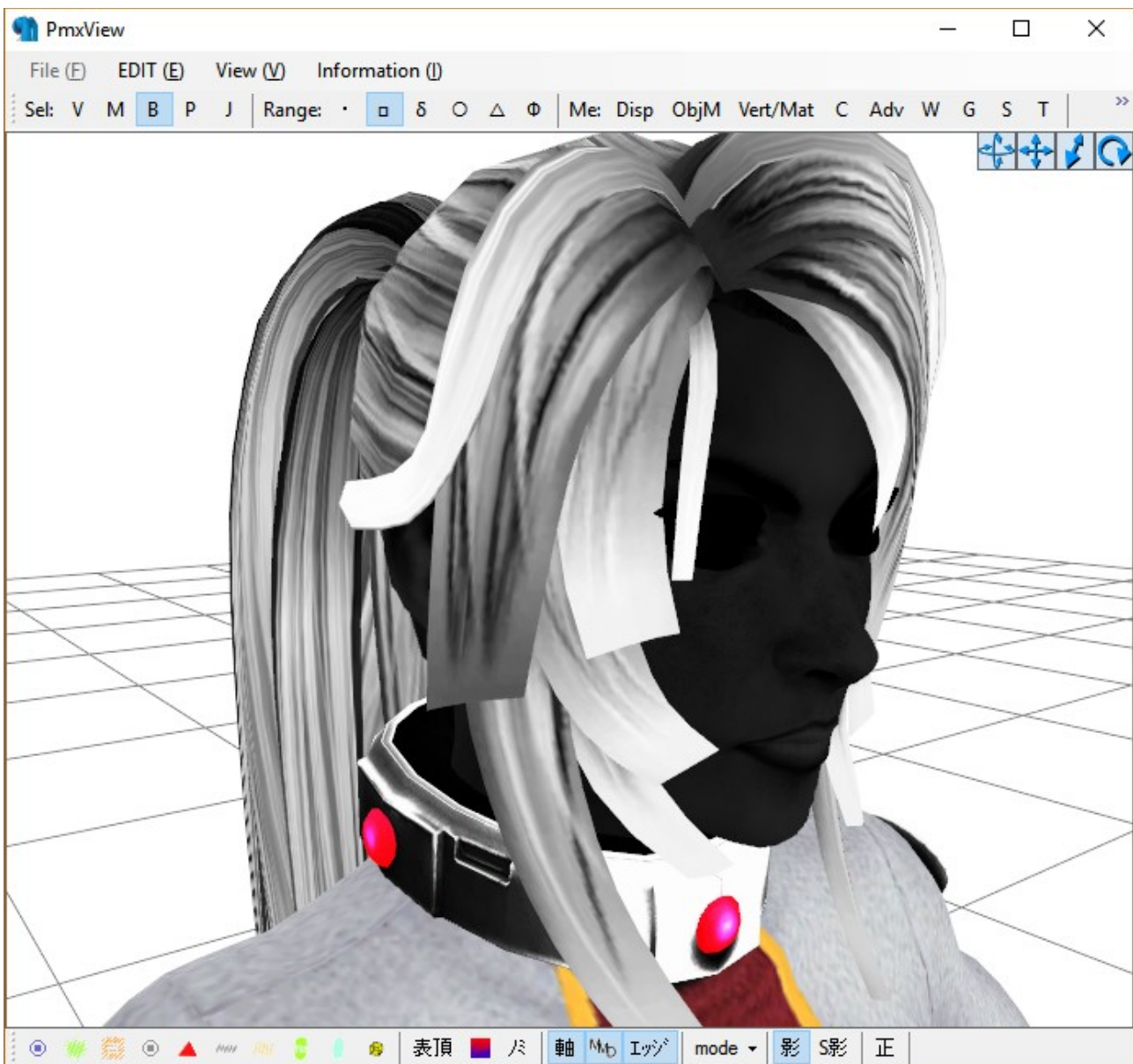
XPS Models, in particular meshmods made assembling different models, often have a lot of unused bones. Let's pay attention to what “unused” means. An unused bones should be a bone without relationships with other bones and/or vertices. Deleting an unused bone is normally a safe operation. You SHOULD remove any unused bone, actually. But pay attention, because I've often found bones labeled as “unused” but weighted to some minor parts. Before deleting any bone I always recommend to check if/what they're related to. Once you are sure an unused bone can be deleted, just delete it in order to keep your model clean.

## **BASIC ADJUSTMENTS: TEXTURES**

By default in most cases you'll find weird grayscaled or violet/purple textures on your model. This is because XPS models manage textures in a different way. The wrong textures you see are specular/reflection maps or normal/bump maps. MMD doesn't know how to mess with them. You have to search in your model folder what are the right "diffuse" textures to be used on each part/material listed in material tab of PMX Editor and change it.

Pay attention with transparencies, like in hair/lashes or cloth/glass parts. *MMD requires that materials with transparent textures are listed at the bottom of the material list*, so that MMD draws them later and transparency is not overwritten by other materials.

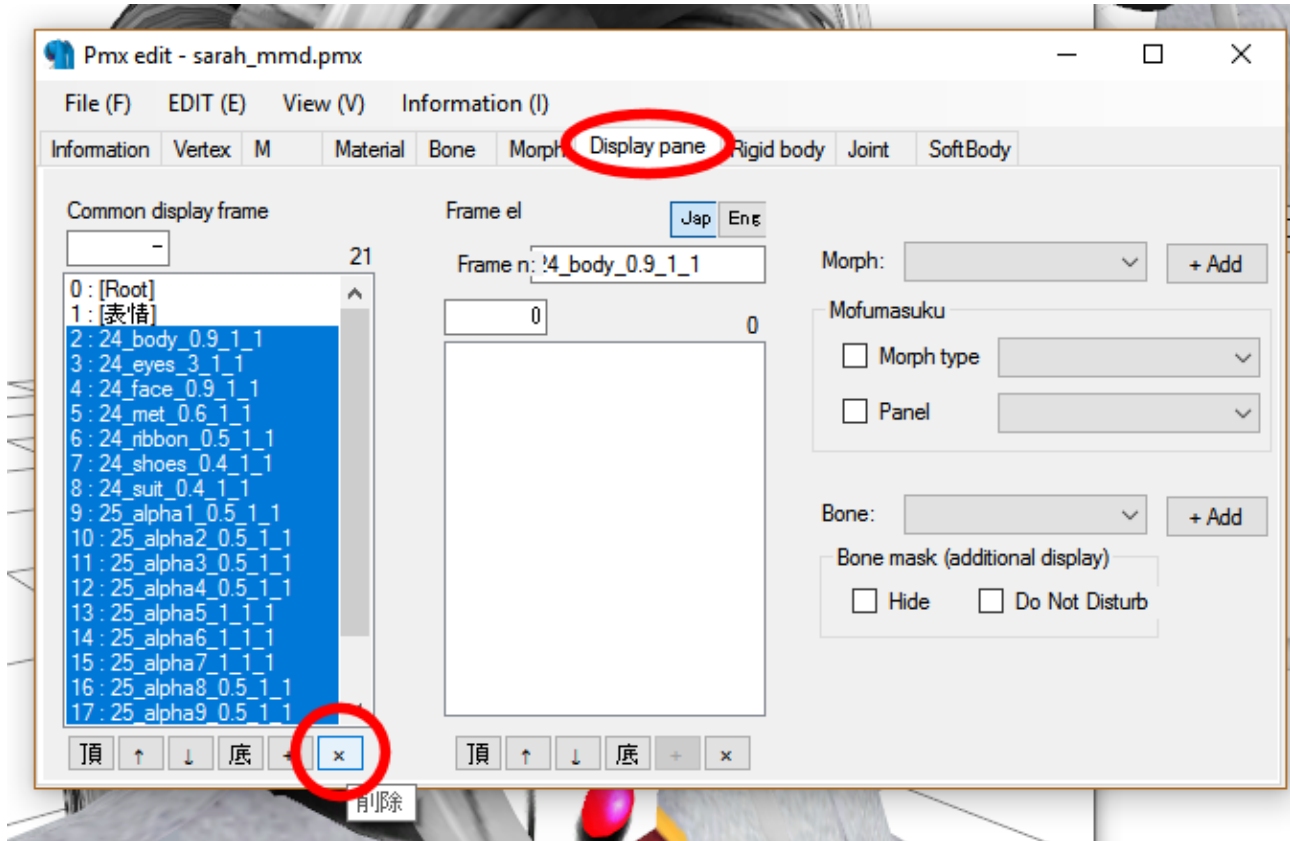
Also check for colors used by materials. I particular check the reflection color, because by default XPS models have full white reflection and the model has a shiny look when loaded in MMD. SPA and SPH files. Unknown in XPS, if you need to add, add them in PMX Editor.



Alternatively you can run a script suggested by Hogarth-MMD (thanks), in order to remove all non-diffuse textures before exporting the PMX from Blender. I've not tested it yet, but you can find it here: <http://sta.sh/0fxuvo7kxz>

## **BASIC ADJUSTMENTS: DISPLAY PANE**

You can remove ALL displayment groups but root and xp. By default you'll find listed all materials as displ. groups, with their bones under. **Remove all these settings** and – if needed – remake bones groups according to your needs.



## **BASIC ADJUSTMENTS: HAIR**

Depending on the model you're editing, you could find nice looking hair. First of all check the textures because they often have a weird look due to transparency managed differently than in XPS. It's possible you just have to remove them and search for a more appropriate hair model to put on. In case hair has an acceptable look and are well textured, you can add physics and joint chains to them. See other tutorial on ho to select a hair bone chain and automatically set up a physics/joints chain.

## **OPTIONAL ARRANGEMENTS: FACIAL MORPHS / EXPRESSIONS**

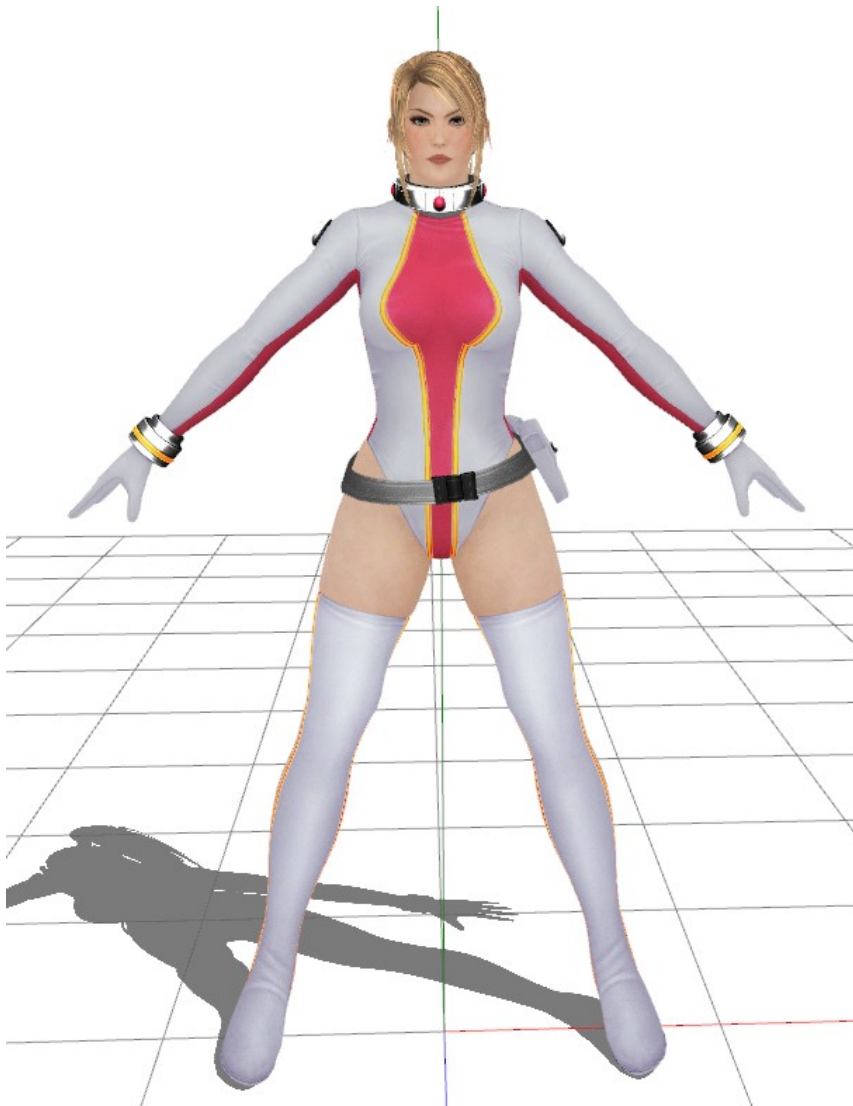
Once you have set almost all basic settings you can think about some other improvements. What's a MMD model without facial morphs? Answer: A useless model, unless you plan to make it stay mute and with the same expression during all your animation!

Forget about vertex-by-vertex moving facial morphs. You don't need this! Almost all XPS imported model have FACIAL BONES. These bones are incredibly useful and most powerful in designing facial morphs.

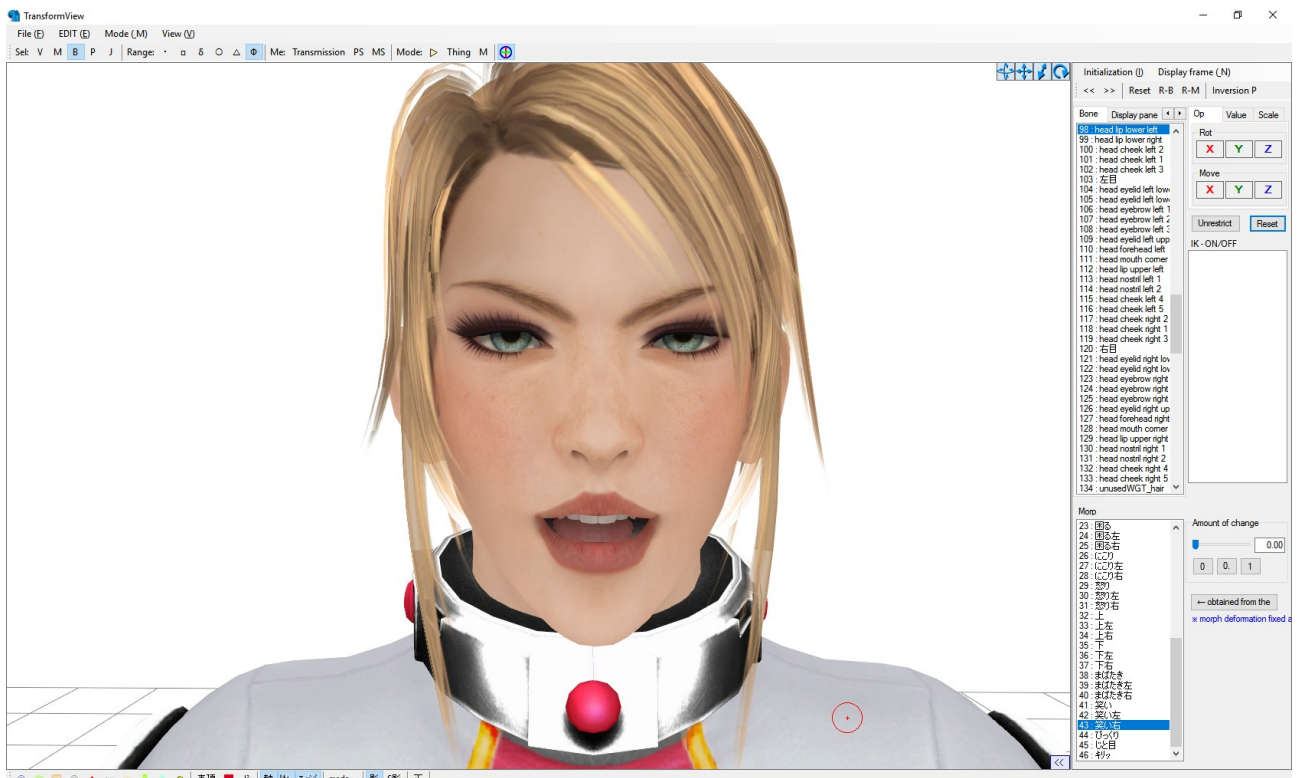
If you like to make them by yourself, feel free to do it. But if you like to save a lot of time you also can use my facial expressions preset. It's a simple PMX with only facial bones and their morphs in it. You can simply import it in your model to get a basic but complete set of facial morphs according to most used facial morphs in MMD motion data, to control mouth, eyes and eyebrows.

**IMPORTANT:** Since any xps model has its own facial bones names, be sure your facial bones names match the ones contained in my PMX, or you won't get any result using them. In this case I can easily import them just because I built that set using standard DOA5 models and so, our model or Sarah should get these expression without need to rename any bone :)

Final look:







This is Sarah after importing my basic expressions set :)

## **CREDITS & RIGHTS WARNINGS**

Please note that unless you are the original author of the model AND you also own the rights to copy and redistribute it, NO CONVERTED MODEL CAN BE PASSED AS YOUR JUST BECAUSE YOU HAVE CONVERTED IT!

Converting a model in PMX format and making it useable in MMD is a hard work, I agree, but this still doesn't give you ANY permission to consider "yours" the converted model. In particular models extracted/ripped from videogames. **Once you have converted a model you cannot add any restrictive condition like "don't edit / don't redistribute / dont' take parts" and so on.** You are redistributing *yourself* something you do not own, so you cannot deny other users to further edit or redistribute it.

This can be frustrating but that's the point. The only thing you can do is to ASK users that download, use and edit or redistribute the model you have converted to credit or mention you hard work as converter. That's all.

And please, in the name of all gods, NEVER, NEVER try to gain ANYTHING (including DA points, pay-per-view/pay-per-click ad campaigns, and so on) by redistributing a model extracted from a videogame or converted from a model made by third parts without their explicit permission.

### **Credits about this guide:**

**Riveda1972** <http://riveda1972.deviantart.com> (author of this guide)

**Hogarth-MMD** <http://hogarth-mmd.deviantart.com/> (useful suggestions)

**KammyYx** <http://kammyyx.deviantart.com> (Sarah Bryant mesh mod used)

**XNALara Italia** <http://xnalaraitalia.deviantart.com> for XPS

### **Programs used:**

Blender 2.76, PMX Editor 2.2, XPS 11, LibreOffice Writer, Corel Paintshop Photo PRO XII.

### **Notes:**

**Sarah Bryant** is an original character from **Dead or Alive 5** videogame series and owns to **Teamninja**