## About mesh explosion

Firt, please note that the following method is derived from my personal experience. I cannot guarantee that it is completely correct or 100% effective. I just hope that it can inspire you or help you when you encounter the similar problems.

After putting on dForce clothes for your favorite character and posing her in a beautiful pose, you must be eager to see the final result of the dForce clothes. However, when you click the 'Simulation' button, what you get may be a mess, which looks like the mesh of the dForce clothes explodes.

The reason for the mesh explosion is that some parts of the dForce clothes are interpenetrated with other objects in the scene (such as body parts, furniture, floor, etc.) during the simulation. When DAZ Studio performs simulation calculations on these parts of the dForce clothes, calculation errors are likely to occur, leading to mesh explosions. Therefore, what we have to do is to avoid the interpenetration between the dForce clothes and other objects in the simulation to prevent the mesh explosion from happening again.

A careful observation of the location of the mesh explosion during the simulation will help us infer which objects are interpenetrated with the dForce clothes. If we find that the interpenetration occurs between the clothes and the character's body, then we need to adjust the corresponding joints. For example, when we see that the sleeve and the head are interpenetrated because the character's arm is too close to the head, we can adjust the joint of the arm to make the sleeve a little farther away from the head.
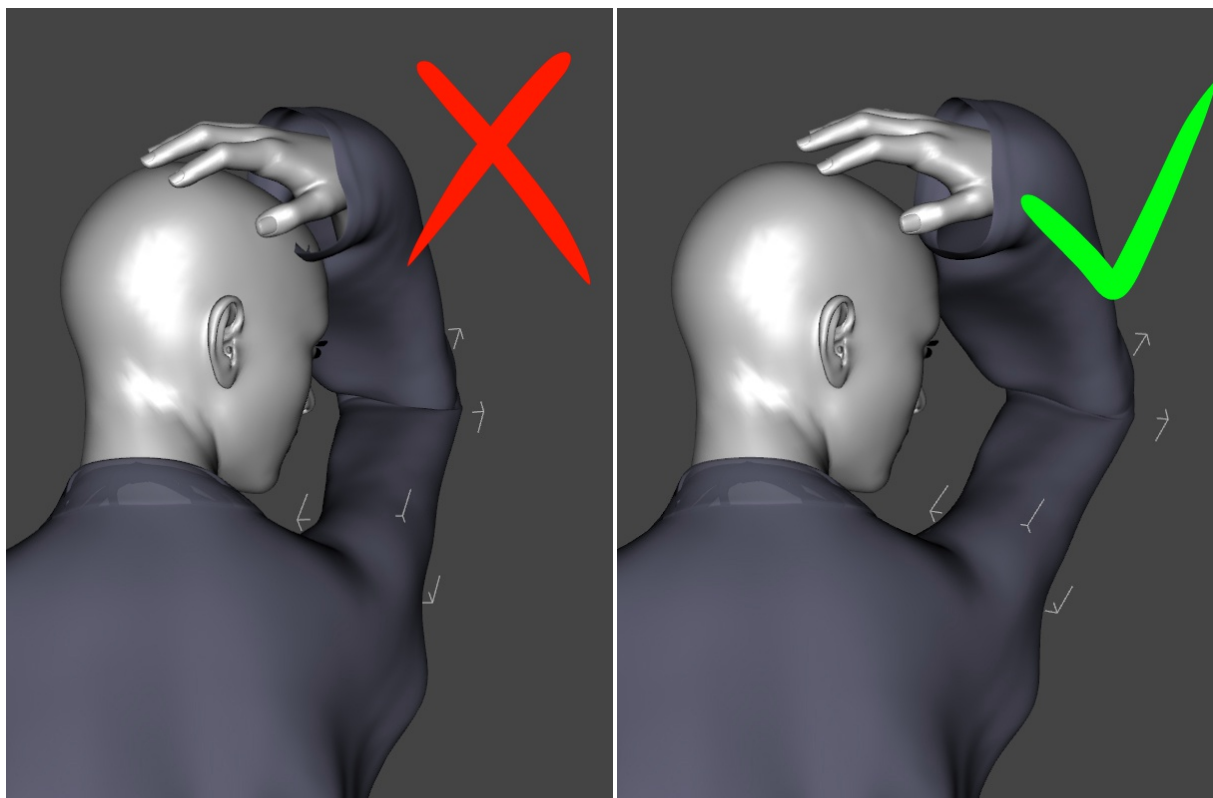
If the interpenetration occurs between clothes and other objects, we need to use DAZ Studio animation tool, the Timeline pane.

The following is the complete process of my simulation:

1. Create a new scene, load the character, the dForce clothes and other objects. Here, we do not need to add hair, lights and cameras for the time being.

2. Set the pose of the character and the position of each object. Considering to reserve enough space for the dForce clothes, we can set the distance between these objects and the character a little larger.

3. Make only the character and the dForce clothes visible and then do a test simulation. If there is a mesh explosion, correct it by adjusting the joints.

4. Make all other objects such as furniture, floors, rocks, etc. visible too, clear the previous simulation result and perform the simulation again. If there is a mesh explosion, find 'Frames To Simulate' in the Simulate pane. Its default option is 'Current Frame'. Just simply change it to'Animated(Use Timeline Play Range)'.
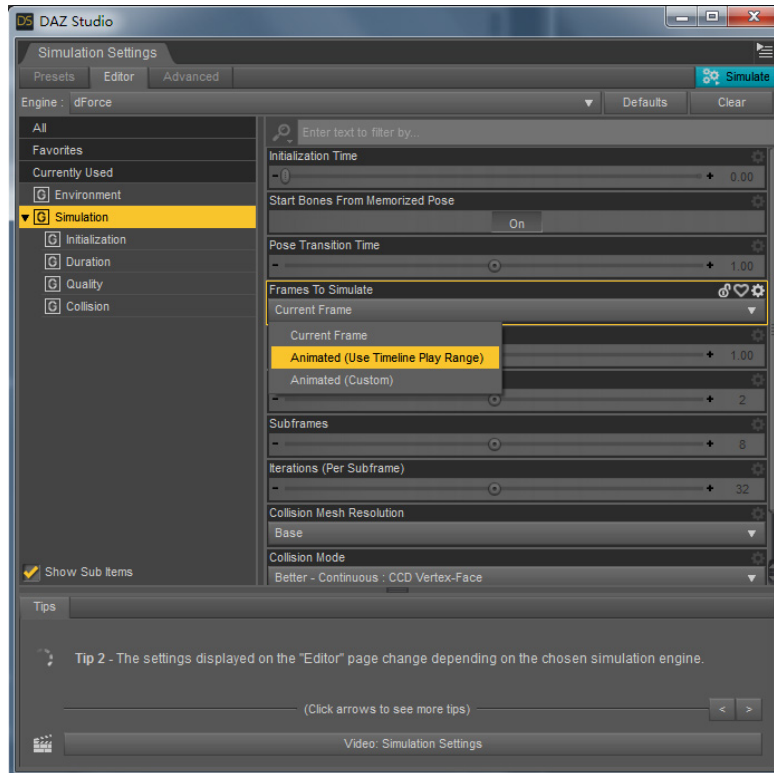
5. Except for the character, move all the objects that may be interpenetrated with the dForce clothes to the places far enough away from the character (I think it is best to move them vertically downwards. Please also note that before moving them, their original coordinates should be recorded).

6. Open the Timeline pane and add keyframes for these objects at frame 0. Then drag the time slider to frame 10, move these objects back to their original coordinates and add keyframes for them.
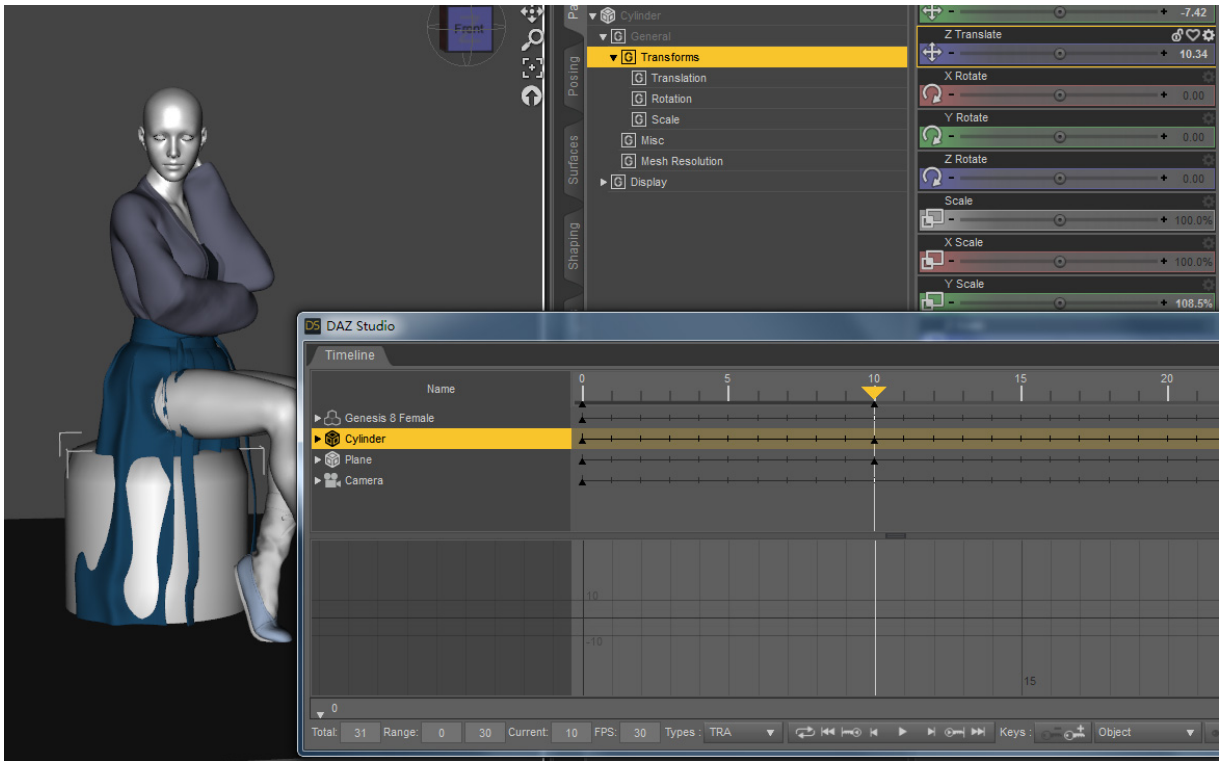
7. Drag the time slider to frame 0 and perform the simulation again. The mesh explosion should disappear. Then we can add the lights and the cameras for the next rendering work.

Unfortunately, the above method is not a panacea. Please look at the image below. The character adopts a basic pose of G8F, 'Base Pose Kneeling B'. She kneels on the ground and put her right arm between her legs. Obviously, in this case, there will be serious interpenetration between the dForce clothes and the body during the simulation, and the mesh explosion will inevitably occur. I can't find a way to avoid such interpenetration at present. If you have any ideas or suggestions, please write to me and share it with me. For now, I can only recommend avoiding using similar poses.
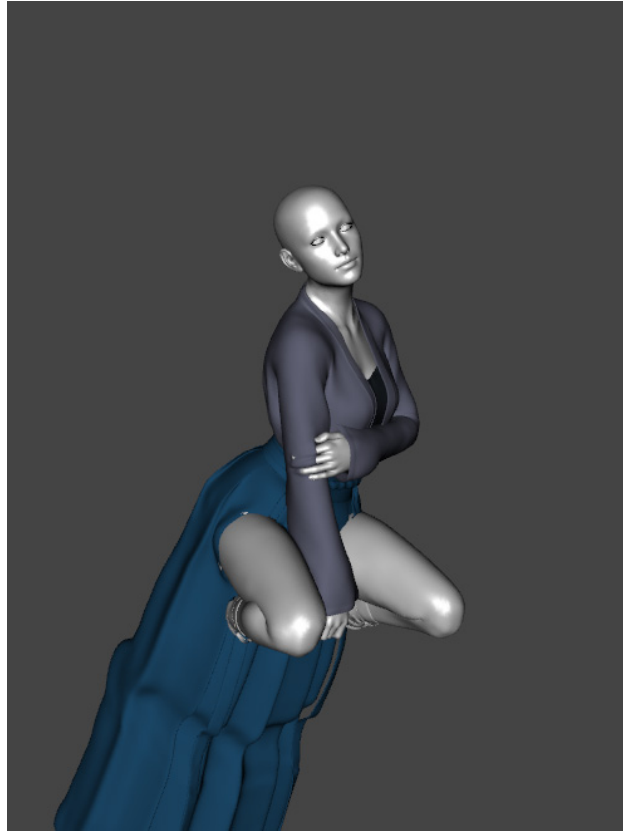
Another thing is, if we can't find any signs of interpenetration, but the mesh explosion presists in the simulation. At this point we can save the current scene, restart DAZ Studio, and then load the saved scene and do the simulation again. In this way, the mesh explosion may no longer appear. I have encountered this situation for several times. So when you are sure that the dForce clothes are not interpenetrated with other objects during the simulation, you can try this.