

Ao Dai for Dawn/Sora/Alexis/Diva User Guide

by Gadget Girl

What's included

This package includes four dynamic smart props, (a pair of pants, two dresses, and a set of sleeves) four scripts to help set up cloth simulations, as well as a variety of materials for both Firefly and Superfly.

Installing the Scripts

You will want to make sure the python scripts included with this product are in the same Runtime as the dynamic clothing items. Included in the props folder are special items that will load and run the scripts as needed as long as you have placed the Python/Poserscripts/GadgetGirl/AoDaiDawn in the same Runtime folder as the other items.

How to use this guide

Unlike other dynamic clothing items, Ao Dai for Dawn comes with some python scripts to make setting up the cloth simulations easier. This creates a slightly different workflow. Whether you are an old hand at Poser's cloth room, or this is your first cloth sim, I recommend following the Tutorial to create a quick test scene to give you a feel of how this works. The tutorial doesn't dwell on what all the settings do, it just gives you a quick step by step for setting up a scene using one of Dawn's Everyday poses.

If you are new to the cloth room, I recommend following the tutorial, and then going to the Understanding the Cloth Room section so you can learn more about how things work.

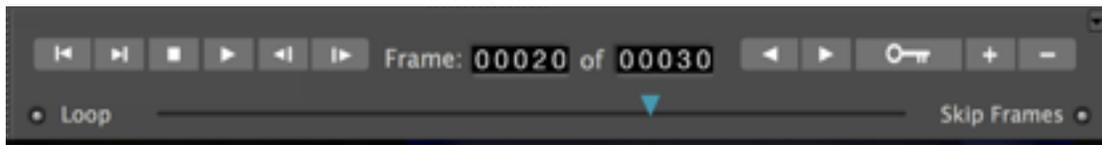
If you are an old hand at the cloth room, I'd recommend running through the tutorial, it won't take you long at all. Then you may want to check out the Additional Notes section for tips relevant to each of the items included, as well as the Using the Built in Morphs sections.

Finally the Materials in Poser 11 section will explain differences and will go over how to choose which materials you want to use if you are rendering in Superfly.

Tutorial

1. Create a new scene and load Dawn into the scene. (Do not pose the figure yet).

- Go to the runtime where you installed the Ao Dai for Dawn, and go to the props folder. Load in the DawnPants, AoDai for Dawn, and Sleeves in any order.
- Select the Dawn Pants and then double click the NewClothSim item that is in the props folder along with the items you have just loaded. You should receive the message “New cloth sim called DawnPants created.” (*It’s important that you follow steps 3-5 in order.*)
- Select the AoDai for Dawn and again double click the NewClothSim prop. This time the message should read “New cloth sim called AoDaiDawn created.”
- Select the Sleeves. The Sleeves have their own special props. In this case we want to use the SleevesOverDress prop so that the sleeves will collide with the long sleeves of the dress.
- Now go to frame 20. If you don’t see this bar (usually under the main document window) you may have hidden it. Go to Window -> Animation Controls to make it show back up.



- Find Dawn’s every day poses in your library, and with Dawn’s body selected, load the Dancing 02 pose. You’ll get something that looks like this:



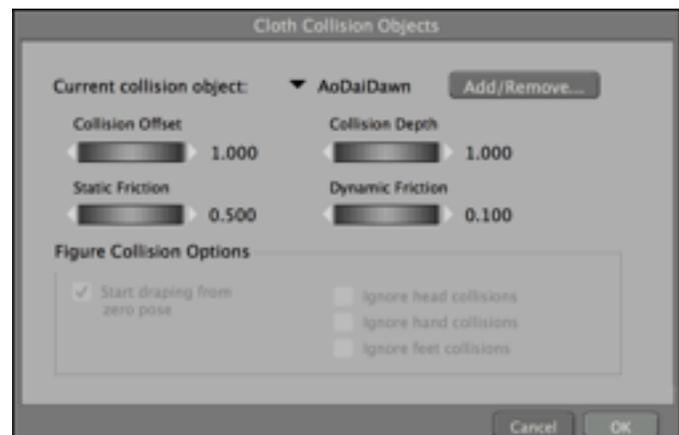
- Go to the cloth room and look for the Cloth Simulations palette. We are going to need to make a few adjustments to each of the three cloth sims we’ve created. It doesn’t matter what order we do this in. You’ll switch between cloth sims by selecting the name of the sim in the drop down in this palette. Each sim will be names for the clothing item it goes to.



- With the Sleeves simulation selected, click on Simulation Settings. Check the box for Cloth Self-Collision in the window that pops up, then click okay. (You will get better results if you do this for each simulations. You can either go through all of them now and check this box, or wait until you’ve made the other adjustments to the Sleeves simulations).

- Next, with the Sleeves simulation selected, go down to the Cloth Objects palette. Click on Collide Against.

- In the window that pops up make sure the Current collision object is the AoDaiDawn, and not one of Dawn’s hands or thumb. Change the Collision Offset and Collision Depth to be 0.5 each. (This setting keeps the sleeves closer to the dress so that it looks like they are part of the dress. Otherwise they will not look like they are connected).



- Because the sleeves are likely to hit the ground, we now want to click on Add/ Remove so we can set the Sleeves to

collide with the Ground Plane. Check the box next to the Ground Plane in the hierarchy window the pops up.

13. That's it for the Sleeves. If you haven't already, go back to the Cloth Simulations palette and turn on Cloth Self-Collision (step 9.) for the Pants and Ao Dai. You shouldn't have to adjust any other settings for these simulations however.
14. Now go to the Animation menu -> Recalculate Dynamics -> All Cloth. This will run the three simulations in the order they were created.
15. When the three simulations have run, feel free to step through frames 20-30 to find the one you like the best. This is why we gave ourselves 10 extra frames after the pose, so that the cloth could 'settle into place'
16. The cloth sim is done! Want to try adding a bit more flair to it? On frame twenty, select Dawn's body. You'll notice that in the Dance 02 pose the y Rotate is set to 50. Go ahead and try setting it to 128. Then go back to Animation -> Recalculate Dynamics -> All Cloth. You'll notice that by turning Dawns body, you give even more movement to the sleeves and dress.
17. Have fun!

Understanding the Cloth Room

If this is your first dynamic clothing item, or if you feel like you've never really understood how to make the cloth room work for you, this section is for you. I'll be referencing steps of the tutorial to help you understand how the actual settings can change and alter how a cloth sim runs. I'll also be taking about what the script actually does, so that you can set up a manual cloth sim if you want (good if you are trying to use these items with a figure other than Dawn, or if you are using the Sleeves with another dress).

Dynamics vs. Conforming: The first thing to understand is how dynamic clothing is different from conforming clothing. Conforming clothing has a skeleton that mimics the one of the figure you are using it on, and moves along with that figure. In a lot of situations this is great because it's quick and easy, especially with clothing that closely fits the body, and the moment you move the figures arm or leg, the clothing moves with it.

But it can be very difficult to get the right looks on flowing clothing like skirts and dresses this way. Without morphs and handles to alter how they move, conforming clothing can often look like it is made from solid blocks and won't always have natural looking wrinkles and folds in it.

Dynamic clothing is different. Dynamic clothing doesn't just mimic the current pose. It follows the movement of the figure and so it 'knows' where the figures arms and legs were a moment ago. Dynamics uses a basic form of animation to mold itself to the figure. (I say basic, because you don't have to be an animator to use dynamics).

When you posed your figure on Step 7 you'll notice that although the angle on the sleeves and dress is slightly different because of how they are parented to Dawn, the shape of the clothing hasn't changed. Dawn's legs aren't in the pants, and her arms aren't in the sleeves. Also we didn't pose Dawn on frame 01 which is probably what you've always done but posed her on frame 20. This is because we need Dawn to 'move into' the pose so the dynamics can follow along.

Any scene with dynamic clothing will need multiple frames. As you get better with cloth sims you'll develop a feel for how many frames you need for any pose, but a general rule of thumb is to leave an extra 10 frames after your final pose to allow the cloth to settle. This can give you several frame to choose from to find the best looking frame to render.

Also, on frame 01 you will almost always want the character in the default zeroes t-pose. It's fine if you want to move Dawn's body in the x,y, or z, and even if you want to rotate her in any of these directions, in fact you'll often get better results by doing so because it adds another aspect of movement to the cloth sim. However, if you start a simulation with Dawn's elbow bent on frame 1, the sleeve is going to do all sorts of crazy things as it tries to figure how to deal with the fact that her arm is going through the fabric (morphs are handled a little different. See tips and tricks to understand how to deal with morphs other than those that are built into the dynamic items).

Collision Basics: If you've ever spent time making sure a characters hand didn't pass through an object they are supposed to be touching, you know that 3d models can easily pass through each other and don't inherently know about the boundaries between objects. So how do we keep Dawn's arm from passing through the fabric when we bend it? That's what collisions are for. Collisions are Poser's way of figuring out when the polygon on one object 'touches' another. This is why in Step 12 we added the Ground plane as a collision object, because we didn't want the Sleeves to pass through the floor, but to collide with the floor and pool or drag the way real fabric would.

However, we don't want the fabric to collide with everything and anything in the scene. You could have it do that, but it would take Poser forever to figure out what was going on, especially in a complex scene. And a lot of the time there are object that the cloth is never going to collide with.

This is one of the reasons that the included scripts don't add the Ground plane as a collision object. Although you almost always want the cloth items to collide with the ground in your scene, (if the fall low enough to hit it) the ground won't always be Poser's Ground plane. Is your scene indoors? The prop set you are using probably has it's own ground prop and that's the one you are going to want the object to collide against.

Simulation Settings: Okay, now that we know a little bit about the basic idea behind cloth sims and collision objects, Let's talk about the actual settings. In Step 8 of the tutorial we started adjusting some of the simulations settings, but not many. And as you start making you're own cloth sims you'll want to start playing with more of these settings.

Also, if you haven't used the included scripts, you'll notice that when you go into the cloth room you'll need to create a new simulation before you can do anything else. Clicking New Simulation. . . will bring up the same window that we got when we clicked Simulation Settings after running the script. Let's take a look at the window as if we were setting up our sim from scratch.



If you are creating a new simulation rather than adjusting one made with the scripts, you'll notice that you have a rather nondescript default name, Sim_1. You can change this or leave it along if you like.

Next you'll notice the Simulation Range settings. By default the start frame is 1, and the end frame is 30. You'll almost never change the start frame, but you will often change the end frame. This is especially true when poses that involve kneeling, sitting, or lying down. You will usually want to set up things like this in stages. For instance, if you want Dawn sitting in the chair, you might spend the first 20 frames letting Dawn get into the sitting pose (with the chair translated well behind her so no collisions happen yet) and then at frame 20 start moving the chair towards Dawn so that by frame 40 it's in its final position (think of this like someone pushing a chair in for a lady, in fact, that's one of the big reasons why traditionally men pull out a chair for a woman, so that the woman can hold her skirt out of the way and make it look nice while the chair is pushed in). After that you would want another 10 frames or so to let the dress settle into place so you can find the best looking frame. So in this case we would want a total of 50 frames.

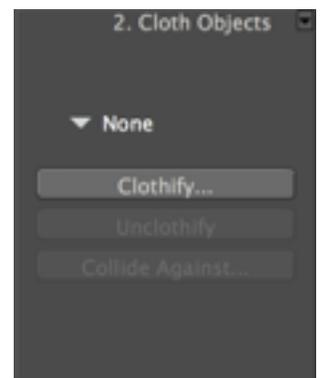
That being said, setting the end frame to 50 doesn't do you much good if you don't have 50 frames in your scene to be going with. You can add more frames to your scene any time you want to. Just change the second number (by default 30) in the Animation Control's at the bottom of the screen.

Now onto the Additional Cloth Collisions Options. Back in Step 9 I told you to check the box for Cloth self-collision for all of the cloth simulations. I pretty much always do this. What it does is allow the fabric to collide against itself, which gives you nice wrinkles and folds. I never worry about the other check boxes.

Finally there is Drape frames. The drape frame box allows you to have some 'fake' frames before the simulation really starts. Most of the time you will not need that with this particular set of dynamic clothing items, however there are a couple times you might want to use them. I find I like to give the DawnPants 10 drape frames if I am using the Sora morph. This is because Sora has some pretty wide hips, and I feel like I get better results if I give the pants a few frames to 'fall' into place before I run the rest of the simulation.

Cloth Objects: When you start setting up your own cloth simulations you're going to spend a lot of time here, in cloth objects. This is where you actually tell Poser what items to treat like cloth and what items the cloth will be interacting with. When running the scripts a lot of this will already be set up for you, but let's look at creating a simulation from scratch.

The first thing we have to do is to Clothify something. In this case let's use the DawnPants. Clicking on the Clothify button will let us choose a prop, in this case the DawnPants. You can actually have more than one prop Clothified in the same simulation, however, they will then have all the same settings. This can be good or bad depending on what you are doing.



Next we'll want to click on Collide Against like we did in Step 10. This time however since we didn't run the script, we don't have any objects selected. Clicking on the Add/Remove button will let us add items that the cloth is going to collide with. Although you'll notice a Select All button at the bottom, you will probably never want to use that. Why? Well imagine you have loaded a bedroom prop set into Poser that has a ceiling, floor, walls, and a bed. You want to have a blanket prop draped on the bed. If you set the blanket prop to Collide Against everything, then for every frame in your scene Poser is going to check every polygon in the blanket against every polygon in the ceiling, floor, and walls as well as against the bed. That's because the only way

Poser can figure out if two objects are 'touching' is to check every polygon against every other polygon. That can take a while.

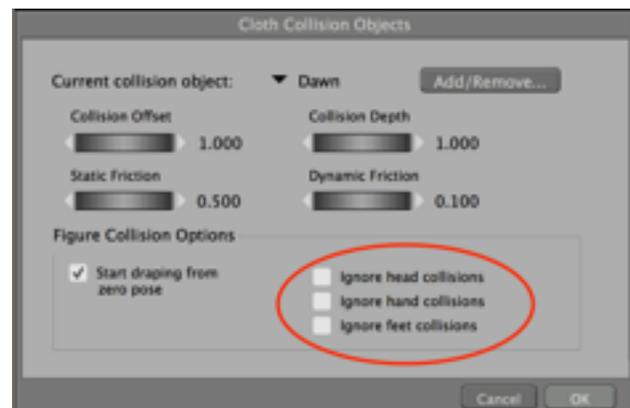
Basically you want to try and add everything you think the cloth might hit, but nothing it won't. When it comes to human figures, Poser gives you a couple short cuts here. Go ahead and click on Add/Remove and then click the box next to Dawn's name. That will select every part of her.

No go ahead and click okay to close the window.



At this point we have a lot more of Dawn selected than we need to. We don't need all the parts of her head like her eyes and tongue to be collision objects, and we also probably don't need her fingers and toes. Luckily back on the main Cloth Collision Objects window we have some options to quickly help us out with this. If we check Ignore head, hand, and feet collisions Poser will automatically removed these parts of Dawn as collisions objects. Sometimes you will find that you want to add back in part of a hand or a foot. You can always go back in and tweak your collision objects, as well as add others in by clicking Add/Remove. Don't worry if you do add in Dawn's left foot for instance, and the Ignore feet collisions box becomes unchecked. Her right foot will still be ignored.

Some other things to keep in mind is that by default, any item parented to Dawn will also be set as a collision object when you check the box by her name. So for instance if you have hair parented to Dawn, you'll want to make sure to uncheck it (or wait until you've created the simulation to add it to the scene). This is even more important if the hair might actually touch any of the cloth. If the cloth is 'trapped' between say Dawn and her hair, the simulation can often go a little berserk while it get's 'pushed' back and forth between the two collision objects.



You also want to think about this if you have more than one clothing item. I usually find it best to Clothify in layers. So we want the pants to collide against Dawn, but the dress should collide against both Dawn and the pants.

Now in Step 11 we altered the Collision Offset and Collision Depth. These two settings together determine how close the fabric is allowed to get to the collision item before they are considered to be touching. This can be used to give fabric more thickness, but it can also make things look like they are floating away from the figure.

According to the Poser manual, "The Collision Offset parameter determines the distance between a cloth object and a collision object at which the collision detection calculations begin",

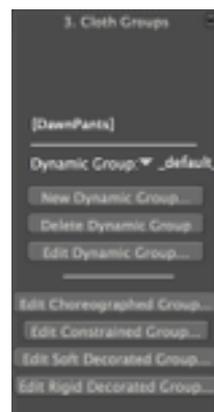
and the Collision Depth parameter “specifies how close the cloth object must be to a collision object in order for a collision to take place”. Wait! What? Isn’t that basically the same thing? Yeah, pretty close. So, here’s how I think about them – which may not be official, but at least helps me figure out what settings to use.

First off, you want some space between the figure and the cloth, so that the cloth doesn’t look painted on. This is the Collision Offset. Set this from the default 1.0 and 2.0 and on the first frame you’ll notice the pants suddenly ‘inflate’ as they are pushed away from the figure. That being said, setting them to a smaller number doesn’t cause them to deflate, they will just hang closer to the figure.

So what about Collision Depth? I think of this as a detail setting, meaning how much detail you want the simulation to have. Let’s imagine we are draping a piece of cloth over Dawn’s foot. With a Collision Depth setting of 1.0, the fabric has to get as close as 1 cm. for a collision to happen. This means it will never get close to some of the polygons on the side of her toes, because the tops of her toes will keep the fabric from ever getting close enough. With this setting, it will end up looking like Dawn is wearing a shoe under the cloth. However, if we set it down to 0.5, some of the cloth will be able to fall between her toes, and we will see more detail and get more interesting folds.

Feel free to play with these settings. Most of the time the defaults are fine, but I do think the sleeves look better with them turned down.

Cloth Groups: We didn’t do anything with Cloth Groups in the Tutorial, but that doesn’t mean they weren’t being used. I’m only going to go over a couple of the groups that you might use with this dynamic set. There actually are a couple cloth groups already set up and saved too the DawnPants. The main one is the Dynamic Group. The dynamic group is any polygons that behave as regular cloth. You probably won’t directly change this one.



The main one we care about is the Constrained Group. Polygons in the constrained group ‘stick’ to the collision objects, and this is used to keep items from falling off the figure. If you click on Edit Constrained Group you’ll notice that the pants suddenly



have a waistband and straps you may not have seen before.

That’s because to keep the pants in place there is an invisible waistband and straps and they have already been set to be constrained. This keeps the pants from slipping down if you have Dawn sitting and makes them fit more like they have an elastic waistband.

I’ve found I basically always want the pants set up this way. You may find you want to set up other constrained groups for some of the other clothing items in this set deepening on the pose you are using. For more details see the tips section for each item.

Dynamic Controls: There’s a lot of settings in the section. This is basically where you change how the cloth behaves so that it behaves a lot more like silk, or wool, or leather. There are a lot of great resources out there on how to adjust these settings. That being said, I’ve already adjusted them to what I think works well for these items. That doesn’t mean you shouldn’t change them, it just means you don’t have to. However, if you want to run just one simulation on

it's own, it's good to know that the Calculate Simulation button here will do that (as opposed to going to the Animation menu as we did in step 16).

Using the Built in Morphs

Morphs work a little differently with dynamic clothing than with conforming clothing. Many conforming items come with tons of morphs so that they will easily adjust when you alter that figure and so that you won't have to worry about pokethrough. Dynamics work a little differently. Running a cloth simulation will actually end up trying to 'fit' a dynamic cloth item to the figure. This tends to work really well for larger morphs, but not so well if the morph has made the figure significantly smaller or thinner.

To make life easier, I've built in morphs for the Diva, Alexis, and Sora characters for Dawn.

(I actually have a free guide on how to refit dynamic clothing items that goes into a lot of detail about this, and you can find it here: <https://community.hivewire3d.com/resources/cloth-room-refits.32/>)

Using these morphs is fairly easy, but there are a couple things to keep in mind. Unlike the morphs in conforming clothing, they won't apply automatically. You'll have to manually spin the dials. Also as a general rule make sure you apply the morph on the first frame, and not on any of the later frames.

The Kombat dress is a little different. It was built specially for Sora, so its default state is to fit her. However, when you load it into the scene, it will come in with the Dawn morph dial set to 1.0. So if you are using it with Sora, set the Dawn morph to 0. If you are using it with Alexis, you would set the Alexis morph to 1.0 and the Dawn morph to 0.

The Sleeves have a morph called BareArms that also comes in dialed to 1.0 by default. I've found that even when using the Ao Dai that it's best to leave this morph on, because the dynamics will take care of fitting the sleeves for you. However, if you do want to add more space between Dawn's arms and the sleeves, you can dial this to 0, to allow for a bigger fit.

It's also good to know that dynamics and morphs don't always play nice. Or rather, when you run a cloth sim on an item the simulation takes the morph into account on the first frame. But it has a tendency to 'double' the morph if it finds it again on a later frame. If you find that suddenly at the end of your simulation the cloth item has crumpled or seems to be in the wrong place, this is probably why. Luckily I've included an easy fix for you. Choose the offending cloth item in the frame you want to render and then double click the Fix Morphs item that you'll find in Props/GadgetGirl/Ao Dai For Dawn. It should adjust all the morphs on that item so they look normal when the cloth sim is run.

As you look through the material files you may notice that there is a folder called Superfly for some of items, but that they only contain a few of the texture options. Why is that? Well all of the included textures will render just fine in Superfly. So how are the Superfly ones different? They have different options for back-facing polygons.

Back-facing polygons are basically the other side of a 3d model, that usually you don't see. Think of them as the part of the cloth that would normally be against the skin. But because of the possibilities with the dynamics on the dresses and sleeves, you often will see both sides of the polygons.

In Firefly when back-facing polygons are seen, the render simply applies the same texture as on the front. In Superfly we have some fun possibilities however. The Superfly materials are set up, so that a different texture shows on the back-facing polygons to simulate the wrong-side of the fabric. (When fabric is woven to have a pattern on it, the back side is known as the wrong-side. Depending on how the fabric was woven, the wrong side is sometimes just a subdued version of the front side, but sometimes is an almost inverted version of it). To give you the option of fabric with a wrong-side the Superfly materials are different for the front and the back. Some of these differences are subtle and some are a very sharp contrast.

When you load any of the Superfly materials into the scene, the item will look solid white until you render it. Remember, you can always use the non-Superfly materials even if you are rendering in Superfly so you can set up your scene using the regular version of the materials so you can check the colors, and then shift to the Superfly material for your final render.

Additional Notes

DawnPants: The Dawn pants have two material zones. The main fabric called Pants, and another called Straps. The straps are actually a set of straps and a waistband that are set to be invisible. These help hold the pants in place and are also set up as a constrained group in the Cloth Room. Because of this, if you are manually creating a cloth sim, be sure to keep Dawn's Abdomen, Chest, and Collars selected as Collision Objects.

Kombat: The Kombat dress was modeled specifically for Sora and then fitted to Dawn's default figure as well as Alexis and Diva. When loaded into a scene it will come in with the Dawn morph set to 1.0. If you are using any of the other morphs set this to 0.

By default the Kombat dress has the Collar set as a constrained group in the Cloth Room. This is actually not so much to hold the dress in place as to keep the shape of the collar. Depending on the poser you are using, you may want to add other constrained groups. Adding the Sleeves Trim material group to the Constrained group can hold the top in place better and may avoid unwanted wrinkles there. Similarly if you are using the transparent center diamond, you may want to set the Center material group to constrained. This also tends to avoid unwanted wrinkles at the edge of the fabric.

Sleeves: The Sleeves load with the BareArms morph set to 1.0. I tend to prefer using them this way, even when using the dress, but you can adjust this as you need to to make a tighter or looser fit.

By default the Sleeves have no constrained groups. When using them with the Ao Dai friction will tend to keep them in place. However, you may find that you need constraints when using them with the Kombat dress or with another outfit. There is a material group called Band on the Sleeves that can be used to contain the Sleeves to Dawn's arms.

New Cloth Sim: The included New Cloth Sim script is designed specifically for use with these dynamic clothing items. Because the idea was to avoid a lot of checkboxes, the script specifically looks for these items and for them to be parented to the Dawn figure. As long as you load Dawn, then the clothing item you should not run into any problems. However they won't work with other dynamic clothing items, or with these items on another figure.