# Zestea’s Live2D Illustration Guidelines

*Currently working on adding example images


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# Preface

I am not by any means a professional in this field. This means that this guide cannot be considered to be “perfect” in any way. I recommend always looking into multiple sources and possibly even downloading and studying example models if possible before you begin illustrating a model for the first time. I also recommend trying the free trial of Live2D to attempt to rig a model at least once, simply so you can get a better idea of how to cut your model from the perspective of a rigger.

This guide is written from the perspective of both a rigger and an illustrator, which means that I will try my best to maintain both efficiency for rigging and overall stylization. However, while it may describe why certain things are done the way that they are, it is a guide meant specifically for illustrators. Some tips I give in this guide may not apply to all cases! This is simply how I cut my own models so I can rig them myself. Always be sure to use your own personal judgment and any guidelines given to you on behalf of the rigger.

That being said, if you see any points made in this document that can be improved upon or are generally incorrect, please let me know and I will make changes as necessary.

Keep in mind that all cases of me saying “L/R” refer to left *or* right, not both at once. Even if both a left and right part is required, I will use this terminology as a way of specifying that whether the left or right layer goes on top is entirely up to the discretion of the artist.

If you have doubts about what is written in this document and what it means, feel free to download my example model PSD and check it out.

## Contact Me

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# General Tips

## Layers

- Always give your layers proper names! This will make things easier for both you and your rigger.
    - **Be as clear as possible**. This means you should avoid abbreviations and the like wherever possible, and definitely avoid layer names along the lines of “Layer 257”.
        - In the case of a left iris split into three layers, consider naming the layers “iris_base_l”, “pupil_l”, and “eye_shine_l”, as opposed to “iris_1_l”, “iris_2_l”, “iris_3_l”.
    - **Use underscores or camelcase instead of spaces**. This ensures that the object names in Live2D match the layer names (for example, a layer named “Iris L” may have a mesh named “ArtMesh1” by default, but a layer named “Iris_L” or “IrisL” will have a mesh named “Iris_L” or “IrisL” by default.
    - **Always differentiate between left and right**. I personally prefer to differentiate left and right from the perspective of a 3D modeler, meaning that what you may perceive as right is given the left label and vice versa. Normally I’d recommend using “>” or “<” as a fool-proof method, but special characters other than underscores tend to generate bad art mesh names (such as “ArtMesh1”).
- A good layer hierarchy to start with (going by group) is as follows:
    - Head_Group
        - Front_Hair_Group
            - Front_Hair_Shadow_Group
        - Side_Hair_Group_L/R
            - Side_Hair_Shadow_Group_L/R
        - Eye_Group_L/R
            - Iris_Group_L/R (clip to the sclera layer)
        - Nose_Group
        - Mouth_Group
        - Middle_Hair_Group_L/R
        - Ear_Group
    - Upper_Body_Group
        - Neck_Group
        - Breast_Group
        - Torso_Group
        - Arm_Group_L/R
    - Lower_Body_Group
        - Hips_Group
        - Leg_Group_L/R
    - Back_Group
        - Hair_Back_Group

- **It is best to only use normal, multiply, and add layers.**
- If you want to have color change expressions, it is generally better to draw the layers with the new colors yourself than to rely on Live2D's multiply/add color options. If you choose to rely on the latter method, you should be prepared to lose some detail in the model when the expression is activated.
- **Rather than turning off layers, set their opacity to 0%**. That way, if the rigger needs to select all layers for any reason in Live2D, all layers, even those that are hidden, will be selected.

## Other

- If possible, **include reference images**! This doesn't refer to a turnaround or character sheet, so much as it refers to images drawn at the same size and position of the model, with the necessary expressions illustrated.
    - At the very least, I would include references for all of the face angles:
        - Look left/right (¾ view rather than a full-on profile)
        - Look up/down
        - Look up and left/right (keep in mind that at these angles, the top of the head will appear to tilt away from the viewer)
        - Look down and left/right (at these angles, the top of the head will appear to tilt towards the viewer)
    - While facial expressions generally have a set look to them, don't be afraid to throw in references of those as well! This especially applies to the mouth.

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# Head

## Base

The base of the face consists of the general shape of the face, as well as the ears. In general, you will want to separate the face base as follows:

- Eye_Group_L/R
- Cheek_Highlight_L/R
- Base_Blush_L/R
- Nose_Group
- Face_Outline
- Chin_Shadow
- Mouth_Group
- Face_Base
- Ears_Group
    - Ear_L/R

The chin shadow layer should extend beyond the edges of the face, but it will be clipped to the base face layer in the final product. The base blush and extra blush layers will also be clipped to the base face layer.

If you want the outline of the chin to disappear at certain angles, add another layer named Chin_Mask, and draw a soft-edged blob of any color that covers the area of the outline you want hidden. Set the opacity to 0%. The same applies if you want the sides of the face outline touching the ears to disappear at certain angles. Create an Ear_Mask_L and Ear_Mask_R layer, and draw soft-edged blobs on both layers that cover the desired layer. Set the opacity to 0% once again for both layers.

For certain extra expressions, order the layers as follows:

- Blush_L/R should go below the eye groups, but above the nose and mouth groups.
- What I call a “dread” expression, which is when the forehead area turns dark blue or even black, should be below the front and side hair groups, but above the eye groups. It should exceed the boundaries of the face, but the final product will have it clipped to the face.
- Tears should be above the eyes, but below the hair.

For all other extra expressions, please use your own judgment.

# Eyes

The eyes consist of the eyebrows, eyelashes, inner eyes, and eyelids. A good layer hierarchy to follow for this group is as follows:

- Eye_Group_L/R
    - Eyebrow_L/R
    - Upper_Eyelashes_L/R
    - Side_Eyelashes_L/R
    - Lower_Eyelashes_L/R
    - Iris_Group_L/R
        - Eye_Highlight_L/R
        - Pupil_L/R
        - Iris_L/R\
    - Sclera_Shadow_L/R
    - Sclera_L/R
    - Upper_Eyelid_L/R
    - Lower_Eyelid_L/R

The more details you have, the more layers you will need. In the case of the above hierarchy, I only mentioned the *base* eyelashes. However, if you have stray eyelashes sticking out, they should each have a layer of their own. If you have multiple eye highlights, they should all have a layer of their own as well.

The amount of layers dedicated to the pupil and iris depends entirely on your style of drawing eyes. For example, I usually have an iris, eye ring, and pupil layer, because I usually have a dark ring around the pupil.

## Nose

The nose is arguably one of the simplest parts of the face to separate, depending on the art style. The hierarchy I tend to use is as follows:

- Nose_Line
- Nostril_Line_L/R
- Nose_Highlight
- Nose_Blush
- Nose_Shadow

"Nose_Line" refers to the line that appears around the edge of the nose when the face is turned to the side. It is drawn as a straight line in the middle of the nose, and the rigger will bend and move the line as necessary to convey a sense of angle. If it is not part of your art style to have a line in the middle of the nose from a head-on angle, create a layer called "Nose_Line_Mask", draw a soft-edged blob over the line in any color, and set the opacity of both the mask layer and the line layer to 0%.

"Nostril_Line_L/R" can be excluded entirely depending on the art style. It is also optional to have a mask layer for each nostril, so that they can disappear at certain angles if necessary. For the most part, however, the head will probably not move far enough for either nostril to do much more than be compressed, rather than disappear entirely.

Optionally, you can split the nose shadows and highlights into a left and right side, so that they can partially disappear or be manipulated more freely whenever necessary.

## Mouth

I prefer to rig mouths to have ARKit facial expressions. When drawing and cutting a mouth, keep in mind that **all ARKit-compatible mouths are compatible with normal mouth expressions, but not all normal expression-compatible mouths are compatible with ARKit expressions**. This means that even if you don't have any plans on actually using VBridger or some other similar software to take advantage of ARKit facial expressions, it is still in your best interest to draw and cut the mouth as if you were. The mouth layer hierarchy I prefer to follow is as follows:

- Upper_Lip_Outline
- Upper_Lip_Color
- Upper_Lip_Base
- Upper_Mouth_Line
- Upper_Teeth
- Tongue_Out
- Lower_Mouth_Line
- Lower_Lip_Line
- Lower_Mouth_Color
- Lower_Mouth_Base
- Lower_Teeth_Front
- Tongue_In
- Molars_L/R

- Esophagus (optional)
- Inner_Mouth

The inner mouth layer should be big enough to not need to be distorted too much to accommodate for the mouth opening as wide as possible. The teeth, inner tongue, and esophagus will be clipped to the inner mouth layer in the final model. The upper and lower mouth base layers should be a solid skin color, and large enough to completely cover the inner mouth layer. They will be clipped to the base face layer. The mouth color layers should only cover the shape of the lips, and should consist of any lip color. Lip highlights can be separate or merged with these layers. Finally, the lip line layers are optional depending on the style and features of the character, but ultimately define the top and bottom of the lips, rather than the middle part.

Even in cases of a character having a specific mouth shape (such as a cat mouth :3), it is best to have the mouth drawn in as neutral/flat of a position as possible, and simply tell me about the shape of the mouth and give reference images. This will allow for me to more easily shape the mouth into various expressions without being confined to one shape or another.

If you choose to have a tongue dripping expression, it should be placed above the “Tongue_Out” layer and have a mask layer as well.

## Hair

For hair, the cutting situation depends almost entirely on the hairstyle of the model and the artstyle of the artist. **Keep in mind that more strands = more layers**, particularly when applied to the front and side hair. Since the back hair tends to move as a whole, you can be a little bit more lenient with cutting layers there, within reason. Absolutely do not make the entirety of the front hair one layer if you want it to have any semblance of smooth movement, for example.

For a more 3D effect, if the hair curls on itself and there is a visible front and back part of a single strand, you should separate the front and back part of the curl. This also applies to hair that has a “drill” shape to it, but it might not be practical to always apply this method to hair that is very curly as a whole.

Hair shadow layers are generally kept below the hair layers themselves. There should be as many hair shadow layers as there are hair layers coming into contact with the face, at the very least. Keep in mind that in cases of several overlapping hair shadow layers set to multiply, the colors will mix and can potentially look unflattering. In these cases, create a single solid Hair_Shadow layer that exceeds the boundaries of the face and is the hair shadow color, set to multiply. This layer will be reverse-clipped to the hair shadow layers, which will be normally clipped to the face layer, and will eliminate the unsavory color mixing. For drawing purposes, this layer can be set to 0 opacity and the original hair shadow layers can remain visible, but for the final model, this will be reversed and the clipping will be applied.

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# Body

## Neck and Chest

This part is generally pretty easy, but whether the chest is placed on top of or below the neck depends on what kind of clothes are being worn. In any case, the neck group and chest group are typically placed above the torso group.

The neck group consists of a base neck layer, a neck shadow layer, and any clothes worn on the neck. The neck should be long enough on the top to reach the nose (this area will not be visible most of the time due to the layer placement), and long enough on the bottom to intersect with the upper body layers and hide any seams. Gluing it to the upper body is entirely optional.

The chest group consists of the breasts and any clothes or accessories worn on top of them that will move with them. An open jacket, for example, will have layers in front of the breasts, layers in the arm groups, and a layer behind the torso (this layer may be placed behind the legs instead if it is long enough).

## Torso

The torso group is split into two basic parts– the upper body and the hips. The split between these two parts happens where a person will typically bend at the waist, and since they will be glued together, there is often no need to extend the drawing of one part well behind the other, so long as there are no visible seams.

The upper body portion is fairly self-explanatory. It consists of whatever is between the hips and the neck, but is behind the breasts. It extends up into the shoulders, but stops before the joint. It is also a good practice to extend it behind the neck. When drawing it, keep in mind that it will not just be glued to the hips, but will also be glued to the shoulders/upper arms.

The hips portion is also self-explanatory. It consists of everything below the waist, but stops right where the upper part of the legs bend at the hip. When drawing it, keep in mind that it will be glued to the upper body and both legs. It is often a good practice to draw it in a shape similar to underwear.

When dealing with skirts, you will often have the front part of the skirt be in front of the hips, a skirt shadow layer beneath it and clipped to the legs (and possibly the hips if necessary), and the back of the skirt behind the legs.

## Arms, Hands, and Shoulders

The arms are typically separated into three parts. These parts are the upper arm, forearm, and hand. The separation is typically above the joints in the case of this part of the body. Oftentimes, it is a good idea to place the arms above the legs and torso but below the breasts, but where exactly they should go differs from model to model. In some cases, you may even have to separate everything from the elbows down into a separate group that goes above the chest.

Special cases, such as a mouse-tracked hand meant for drawing, a button-tracked pair of hands holding a game controller, or even motion-tracked hands will be covered later.

How the hands are separated depends entirely on the pose of the hands. For example, I often have separate layers for the thumb, forefinger, the next two fingers, and the little finger. Hower, a model making a fist or with its fingers perfectly aligned will require a different method of cutting. Essentially, this part will require your own judgment.

## Hands With Tracking

Hands with hand and finger tracking are a bit of a special case, and generally very complicated and tedious to do. I only recommend that people with intermediate to advanced rigging knowledge attempt to rig hands with tracking. Any artist with enough patience should, however, be able to pull it off.

First of all, while you should, in fact, have the arms in their default pose drawn on their own layers, you will need a second set of arms and hands. You can duplicate the upper arm layers, rename them, and then edit them slightly to look more coherent (outlines completely encasing the elbow area, ensuring that they're the right shape, etc.). However, the forearms and hands should be drawn held up and facing the viewer, with the fingers held completely straight but not spread out. Unlike the upper arms, the forearms, hands, and fingers should be placed above the body, face, hair, etc., and preferably be in their own folder. I also recommend making subfolders for the arm and palm, as well as for each finger including the thumb.

The layering is arguably the most tedious part of this type of hand. The forearm and main part of the hand should be the easiest part. First, have a layer for the forearm that ends at the top of the wrist/bottom of the hand. If you plan on putting a bump on the side of the wrist, have that on its own layer. Likewise, if you plan on putting any detailing on the front of the wrist to indicate tendons and the like, that should also be on a separate layer. Sleeves, bracelets, and any other decorations should be on layers of their own as well. Please note that gloves that do not cover all fingers will likely be very difficult to pull off. Finally, this is the one case where I *do not* recommend having the forearm layer intersect too far into the palm layer, considering how much movement will be taking place. Instead, have them intersect just enough to hide any seams. Glue and manual adjustment of the hand's outlines will be used to keep them together.

The actual base of the hand should, at the minimum, include layers for the main shape (without an outline) and the outer side of the palm (again, without an outline). The outlines should all be solid lines on their own layers, including a layer for the outline for the inner part, the outline for the upper part, and the outline for the outer part (with a duplicate that has been appropriately renamed to indicate that it will be deformed to outline the outer palm. Any extra creases or shading on the hand base should be on their own layers.

Next is the fingers, with the preferred subfolder order (from bottom to top) being thumb, fore, middle, third, and little. While drawing order will be taken advantage of in all parts of the hand, this particular order makes things a bit easier on the rigger when they animate the hands turning inwards to face the other way. For each finger, you will need to separate the layers by knuckle, and then separate each segment of the finger into a solid base color, an outline that is actually a solid color placed below the base color, and a layer for any shading you might choose to add (although it is generally easier to omit shading). Rings and fingernails should be on their own layers, with the front and back details of the rings being on separate layers as well. If you

add fingernails, you will need to draw the nails in full, duplicate the third knuckle outline layers, then rename them properly to indicate that they will be used as masks. The thumb will also be divided into three knuckles, with the first knuckle including the fleshy inner palm. Glue will likely be used on the thumb, but not on the other fingers, so please ensure that the outline layers completely encase the base color layers at first, then overdraw the base color layers as needed to hide any seams.

Overall, the layer order hierarchy that I use is as follows (bold text indicates a folder):

- **Hand_Group_L/R**
    - **Little_Group_L/R**
        - Little_Nail_Mask_L/R
        - Little_Nail_L/R
            - (Optionally, you can also separate the nail outline, shading, and highlights from the nail base color for a potentially more dynamic look)
        - Little_3_Shading_L/R
        - Little_3_Base_L/R
        - Little_3_Line_L/R
        - Little_2_Shading_L/R
        - Little_2_Base_L/R
        - Little_2_Line_L/R
        - Little_1_Shading_L/R
        - Little_1_Base_L/R
        - Little_1_Line_L/R
    - **Third_Group_L/R**
        - Same as above, but renamed to indicate it is for the third finger.
    - **Middle_Group_L/R**
        - Same as above, but renamed to indicate it is for the middle finger.
    - **Fore_Group_L/R**
        - Same as above, but renamed to indicate it is for the fore finger.
    - Palm_Out_Line_L/R
    - Palm_Out_L/R
    - **Thumb_Group_L/R**
        - Same as the finger groups above, but renamed to indicate it is for the thumb.
    - **Palm_Group_L/R**
        - Palm_Top_Line_L/R
        - Palm_Out_Line_L/R
        - Palm_In_Line_L/R
        - Palm_Shading_Out_L/R
        - Palm_Shading_In_L/R
        - Palm_Crease_Shading_L/R
        - Palm_Crease_L/R
        - Palm_L/R
    - **Forearm_Group_L/R**

        - Sleeves, bracelets, tattoos, etc. go here. Use your own judgment for the proper layer order.
        - Wrist_Line_L/R
        - Wrist_Bump_L/R
        - Forearm_L/R
        - If you have a baggy sleeve that slips down the arm, something similar, or anything that is generally on the back of the arm when the palms face the viewer, those would go here. Again, use your own judgment for the layer order.
- (Below are any layers between the forearms and the upper arms, then finally the upper arms themselves, which should be in the same group as the default arms.)

## Legs and Hips

Depending on how much you want them to move, this part of the body can be kept as one whole part, or separated into a minimum of three parts. I recommend going with the three part or more method regardless of the desired range of motion, simply to allow the rigger to have a bit more leeway. The three main parts in question are the upper leg, lower leg, and feet. Unlike the arms, the separation in the case should occur below the joints.

For an even wider range of motion that allows for turning more to the side, please refer to the last section of this document that links to an example on how to achieve such a thing.

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# Other Parts, Extra Resources

## Drawing Arms

Much like a regular arm hanging down at the side of the body, an arm like this consists of the upper arm, forearm, and hand. However, the forearm and hand will have to be placed in layers above the chest group, as it is possible for them to intersect that area. How this part will be rigged typically consists of very simplified meshes and a lot of glue, and it will ultimately be set up to follow mouse movement.

I recommend creating a separate tablet asset that is large enough that the hand will not appear to draw off of it. Optionally, if you are planning on using Spud Tablet to show the drawing hand on screen, you will have to create a separate hand asset positioned a certain way. Even if the person drawing is left-handed, you will have to draw as if they are right handed in the case of this specific asset. This is because, as far as I am aware, switching it to left-handed mode simply mirrors the image.

## Button-Tracked Game Controller

This method applies to NyaruPad, the VTube Studio plugin, rather than Spud Controller. In this case, you will once again need the typical arm layers, however, the hands must be separated in a different way. The layers for a basic setup will be as follows:

- Controller_Light (set to add blending mode)
- Hand_Front_L/R (includes middle, third, and little fingers alongside the back of the hand)
- Index_L/R
- Controller
- Thumb_L/R
- The rest of the arm layers

Should you decide to tilt the controller downward to make the buttons and analog sticks visible, the controller will be a bit more complex, but the rest of the hand should remain largely the same cutting-wise.

## Bat Wings

The way to cut bat wings is actually very visible in the shape of the wings themselves. Simply create layers for each visible tendon/thick piece (making sure that the part connected to the back and the part connected to the outside of the wing are separate). Then, create layers for the thin parts in between those tendons. With a bit of glue and a lot of rotation deformers, you'll have a simple wing set up. Keep in mind that it is best to draw the wings at least partially extended.

## Hand-Drawn Animation

Occasionally, to achieve the best possible look for fire or something similar, you may need to draw an idle animation for it and use that instead of using typical Live2D techniques. For these cases, include a layer for each frame, then include a number in each layer name indicating when each frame should fall in the animation. To do this, make note of when each frame appears on your timeline and how many frames long the animation is. Then, take each frame value and divide it by the amount of frames long the animation is. Finally, multiply that value by 100 to get a percentage. That percentage will be the number you use in the layer name, and since the animator will be putting the animation on a scale of 0 to 1, they can simply divide the values by 100 again to get a value between 0 and 1 (which sounds like extra steps, but including decimal points will break the layer and mesh names in Live2D). As an example of this, let's say I have a 30-frame-long animation, and a frame that appears at frame 15. In this case, that frame would appear 50% of the way into the animation, meaning that the rigger will have it appear at keyframe 0.5 in the actual parameter.

It sucks to have to use a bit of math (even if it is simple) when you're the artist, but it will definitely save you and the rigger extra time and headaches!

# More Resources

- ひものちゃんねる
    - A particularly in-depth tutorial on cutting models can be watched here, although it is in Japanese, and the planned English version will supposedly be considerably shorter.
    - In general, her channel is full of useful tutorials for both cutting and rigging models, so I highly recommend giving it a look.
- Witch hat/large hat tutorial (thread)
- Cutting shoes to have a wider range of motion
- Cutting headphones
    - I recommend scrolling through hamsterCrumbs' page in general, because there are a lot of useful tutorials and examples there about how to set up your model to have a better look and range of motion
- Setting up glasses to shine
- Hand tracking tutorial and example model
    - This tutorial goes over the cutting part fairly quickly, and doesn't mention things like how to handle fingernails and differing front and back sides of the hands, but is still pretty good over all
    - In general, YoshinoArt is another person I recommend looking into, as she also makes lots of useful resources and tutorials.
- Doing your own research
    - I've found that using jisho.org to find the Japanese word for the part I'm having trouble with and searching it alongside the term Live2D on Twitter gives me a lot more results than searching for it in English. While the results in question may not always be outright tutorials, and certainly aren't in English, there are still plenty of examples and demonstrations that will give you an idea of what to do.