



*The Viva Mesh System*

Master HUD: Layers Component

Detailed Information & Tutorial

Layer 2 (Lite) & Layer 3 (Full Featured)

Reminder: The *Viva System* sends most of its help and informational messages to the Second Life chat window. In most cases, the messages are accompanied by an audible sound to alert you to their presence. The messages are very helpful and you'll want to keep your chat window open as you use *Viva's* Master HUD.

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## Layers - Information & Tutorial

When it comes to wearing tattoos and underclothing, you have two ways to go. *Bakes on Mesh* (BoM) is one of the two. With BoM, you “wear” various clothing items found in your inventory. BoM clothing items are indicated by small icons depicting tattoos, underwear, shirts, pants, etc. You can find out more in the [BoM chapter](#).

The other method is to use *layers of mesh*. Layers are nearly exact copies of the mesh body, each one slightly larger than the one underneath. Some people refer to the layers as onion skin: starting from the outside, you peel back each of the layers and you end up with the base layer or skin.

This chapter is devoted to layers.

*Note to Level 2 (Lite) users. The information, below, works for you as well. The difference between your version and the Level 3 version is in the number of layers. You have one layer: the Tattoo Layer. The Level 3 version has three layers. Keep that in mind as you read through the documentation below.*



As mentioned above, the *Viva* Level 2 program has one layer, but the fully implemented version of *Viva* (Level 3) has three mesh layers: Tattoo, Underwear and Clothing. Actually, there’s a fourth layer which sits under the three: the base or skin layer. I won’t cover the Skin layer here, rather you’ll find more information in the [Skin Chapter](#).

Let’s quickly review the three layers:

- **Tattoo Layer.** It’s a skin tight layer on which you can apply tattoos – or form fitting underwear. This layer **also includes a sock and glove layer**. Because it includes socks, it’s the layer you’ll want to use for hosiery that covers the legs and feet.
- **Underwear Layer.** It lies above the Tattoo Layer and is close fitting like the Tattoo Layer but slightly loose in a few areas to duplicate real life clothing. It’s used for underwear and some forms of outer clothing such as a t-shirt. It does not have a sock or glove layer. That’s only found on the Tattoo Layer.
- **Clothing Layer.** The third and last layer sits above the proceeding two and is used for either under or outer clothing. You can use it to wear shirt, pants, shorts, etc. on this layer. It is the loosest of the three layers.

## Background on Appliers

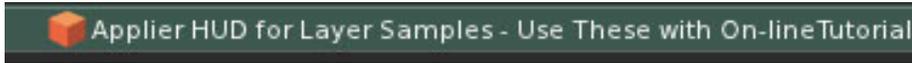
To move clothing textures to mesh layers, you use an “applier.” An applier is a script that sends an unique identifier of a texture (called a UUID) to the receiving script in one of the mesh layers. The receiving script then applies the texture to the layer. ([Bakes on Mesh](#), on the other hand, doesn’t use an applier. Rather, you “wear” clothing found in your inventory by right clicking and selecting “wear.”)

When you use an applier, the applier will ask which layer the texture should be sent to. Once you select a layer, the texture appears on your avatar. Along with the texture, the applier may also send other information. For example, the creator may have included a specular map (which adds shininess) or a normal map (which adds roughness or bumpiness).

The **Viva system accepts textures from two different types of appliers**. One is the standard method used by almost all mesh avatar systems in which the **creator uses a [notecard](#) to input texture information**. The data from the notecard is assembled in an applier object which is then used by the customer to send the texture to their avatar.

The other method utilized by Viva is one in which the creator drags the texture into a HUD. The end user wears the HUD and clicks on the desired texture to send it to the mesh layer. Since it can handle a variety of applier needs, this type of applier is a “**Multi Purpose Applier**” or “MP Applier” for short. It makes the process a bit easier and quicker since you can completely dispense with the notecard stage. The MP Applier not only sends texture to your avatar, it also sends the texture to the Master HUD. If it’s an clothing item that you might use often, you can save it to one of eight slots found in the Layers component.

The best way to understand the workings of the Layer component is to use some real-life examples. To do this, I have prepared a MP Applier that contains everything that you’ll need. You’ll find it in your Viva package. Look for the following: “**Multi Purpose (MP) Applier - Layer Samples - Use with Tutorial.**” (We are using the MP Applier since we want to save textures to the Master HUD. At the current time, it not possible to do that with a Notecard applier.)



The “Layer Samples” applier contains a number of items that a ballet dancer might wear. Typically, the type of clothing that you apply to layers are items that are fairly close fitting - and ballet dancewear certainly falls within this type of clothing. When practicing and working out, dancers constantly keep an eye on themselves in a mirror, and by wearing close fitting clothing, as opposed to baggy clothing, they are better able to be precise in form and movement.

Note that in the following exercises we’ll be replacing some of clothing items that have been pre-loaded and are in the Layers component. But no worries. You won’t lose pre-loaded items. There’s another MP Applier in your package with the pre-loads, and if desired, after running through the following exercises you can re-load the original items.

## Preparing for the Tutorial

Before getting started, there are some preliminary things that you should do to make sure everything is ready to go.

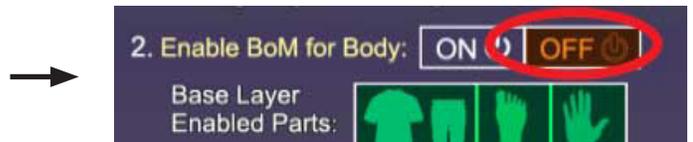
1. To start with, it’s best to wear the “**Completely Assembled**” mesh avatar. Later you’ll probably pick and choose what parts you need (à la Viva’s [Modular System](#)). But this will make things run smoother for the exercises.

2. We’ll be playing with shininess and other features, and it’s helpful to have the Second Life environment lighting set up in advance. The simplest way to do this without downloading something special is to select **World >> Environment Editor >> Environment Settings**. “Click on “Customize my environment” And choose “A-3 PM” from the Fixed Sky settings.



3. Attach the Master HUD (Level 3). Or if you are using the Lite version, attach the Level 2 Master HUD.

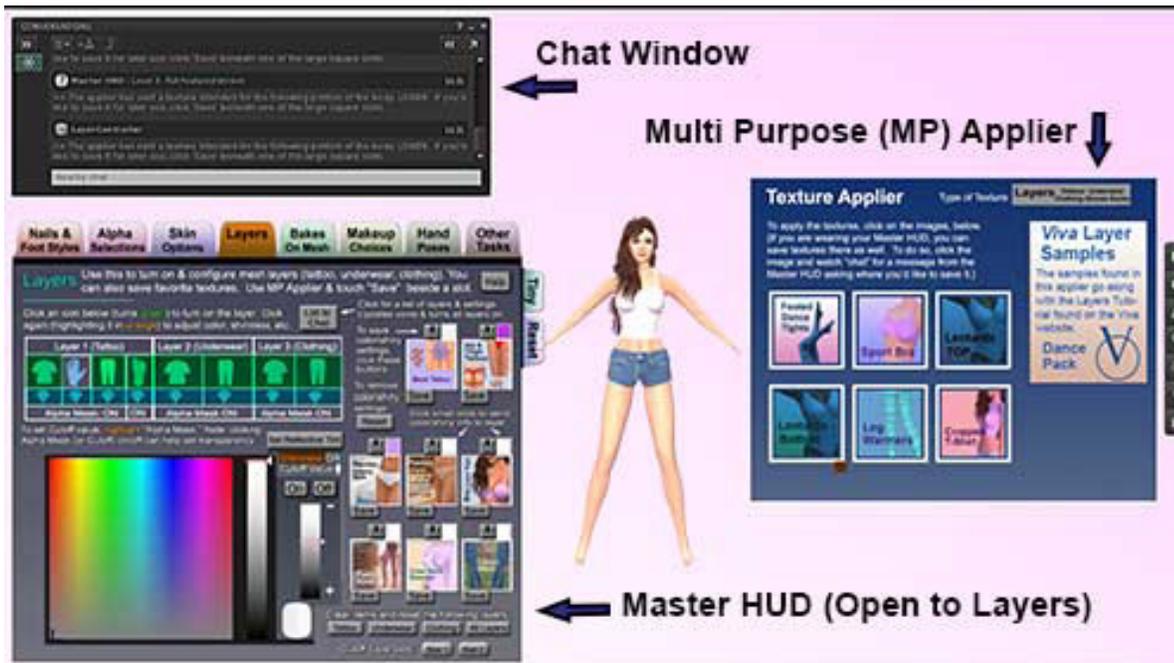
4. Level 3 users: make sure **BoM is not enabled**. Do that by clicking on the “Bakes on Mesh” tab on the Master HUD. “Off” should be highlighted.



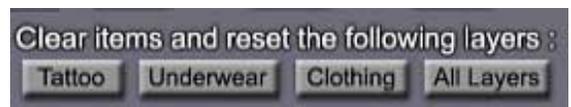
5. Click on the “**Layers**” Tab on your Master HUD.

6. You now have the Master HUD open to the Layers area, but we’ll now add a second HUD: “Multi Purpose (MP) Applier” Look for the following in your Viva package: “**Multi Purpose (MP) Applier - Layer Samples - Use with Tutorial.**” When you find it, right click and attach it as a HUD.

When you right click, be sure to select “Attach to HUD.” Choose a location so you can see both the Master HUD and the MP Applier. **Here’s how I arrange things on my screen.** I can see both HUD’s with my avatar in between. Additionally, I can also see the chat window. That’s important because Viva sends messages to the Chat window. While this works for me, you may come up with a different arrangement that works for you.



- We need to **clear the layers**. Look for the “**All Layers**” button (Level 3 users) near the bottom of the Layers screen. (Level 2 doesn’t have this feature, so instead, you should manually turn off the Tattoo Layer by clicking on the shirt, glove, pants and sock icons so they are not highlighted.)



The clear function in the Level 3 program does three things: a) removes any existing clothing from the layer, b) replaces the layer with a default white texture; and, c) turns the layers off. It is handy feature to use when you are setting up layers with a new set of clothing. You can clear the old clothing off and start with a clean slate.

When you use the clear feature, you’ll see the layers momentarily turn white and then each is turned off. The reason for the default white texture, as opposed to making the layer invisible, is to provide you with a means of seeing the layer when it is turned on.

Let’s take a look and see what the screen looks like with the Level 3 program. You’ll notice that the highlight (either green or orange) has been removed from all of the icons. That means none of the layers are turned on.

You may not be seeing any of the layers, but you can tell if they are attached. That’s indicated by the **attachment icons highlighted in blue**. (The attachment icons come in handy when working the modular system. In the modular system, you choose what layers you want attached to your avatar. After some time, you may forget what layers are attached, but the attachment icons will always keep you apprised of the current situation.



To set Cutoff value, highlight “Alpha Mask.” Note: clicking

Since no layers are turned on, your avatar will not be wearing any clothing. You are seeing only the skin layer of the avatar. So . . . it's time to get some clothes on.

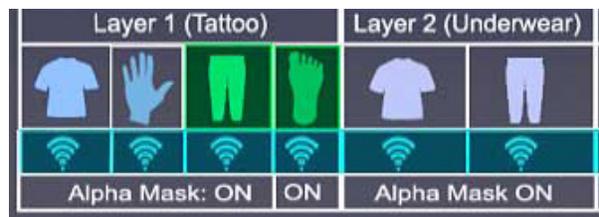
## Using the MP Applier - (Example: Tights)

1. On the MP Applier screen, click on “Footed Dance Tights.” →

Once you click on the tights, three things happen:

**First:** You should see the black tights appear on your avatar. *If the foot area looks darker or lighter than the top, that will be taken care in the future step (“Fixing the Bra”) by use of an Alpha Mask.*

**Second:** Take a look at the Layers dialog screen. You'll noticed that the pants and socks icons are now highlighted in green, indicating that those two layers are turned on. (Whenever the applier sends a texture, it turns on the required layers.)



**Third:** Now take a look at your Chat window. It has a message: “ The applier has sent a texture intended for the following portion of the body: SOCKS . . . “ (The applier actually sent it to socks AND lower body layers, but the message is abbreviated slightly to save memory.)



2. Let's save the tights to the Master HUD. Click the “Save” button beside the top, left texture slot. The icon for the Footed Dance Tights appears in the slot.

*(There's no time limit to save after sending an item from the MP Applier, but if you do something else with the Master HUD or send another texture, then you can no longer save the tights. If you forget to save them, you can just re-send the texture from the applier and then click “Save.”)*

*The Footed Dance Tights consist of two layers: lower body and socks. They were both sent together. The MP Applier allows you to combine two layers as long as the two layers are on the same UV Map. That means that the lower body and socks can be combined. And the upper body and gloves can be combined. You only have to do it one step: click the applier once and both are sent to the body.*



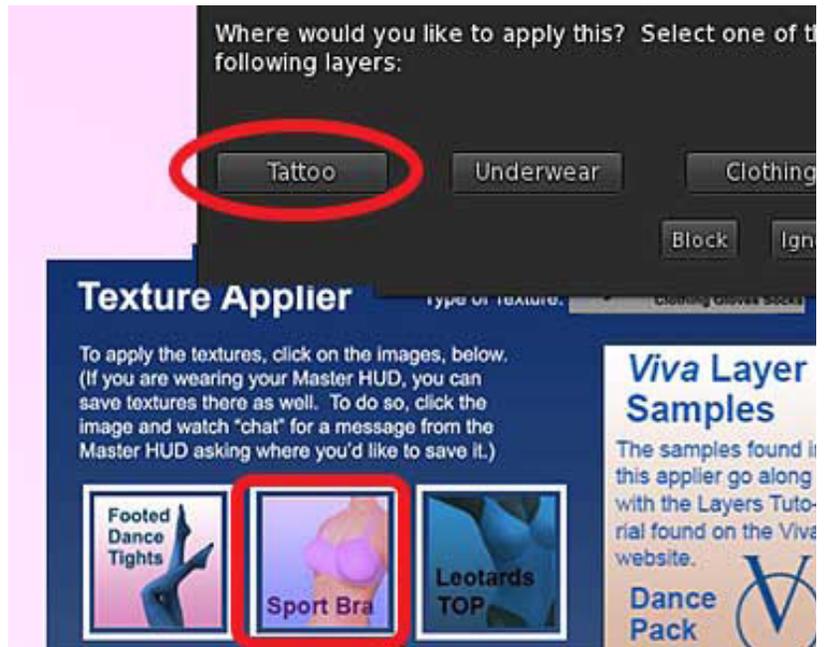
On the other hand, you would not be able to combine the upper and lower body since they are on separate UV Maps. In that case, if you need both upper and lower to complete an outfit, you would need to do it in two steps, clicking each separately on the applicer. We'll see it shortly when the leotards are applied in a two step process: first the upper body is sent and secondly, the lower body is sent.

One more observation: The applicer didn't ask you where to send the tights. Normally the applicer will ask that question - as you'll see when we apply some of the other dancewear. In this case, though, the tights includes the socks layer, and since the socks layer is only found on the tattoo layer, it didn't need to ask. It knows that it needs to go to the tattoo layer.

We are going to come back to the tights in a minute, but first let's bring in the sports bra.

## Coloring & Color Box (Example: Sports Bra)

1. On MP Applicer, click on the "Sports Bra" slot. Immediately, a dialog box appears asking you where you'd like to apply the bra.
2. From the dialog box, select: "Tattoo Layer."
3. Watch your avatar. You should see the bra appear. (Don't worry if the bra appears garbled on your body, we'll fix that in a minute.)
4. Let's save the bra to the Layers screen. Click the "Save" button beside the second texture slot (just to the right of where you saved the tights).



## Potential Appearance Problems (Fixing the Bra)

Now let's look at what might need to be done if the bra doesn't appear correctly on your avatar. What you might observe is the outline of the bra surrounded by white. If you see something like that or something similar, it can be fixed.

We need to give it a little nudge to shake off the white. To do that, click "Alpha Mask: ON" under Layer 1 (Tattoo). Click it twice. When you click it the first time, it turns green. Click it again, and it will turn orange. Then click it **one more time so it is no longer highlighted**. That should clear up the white.



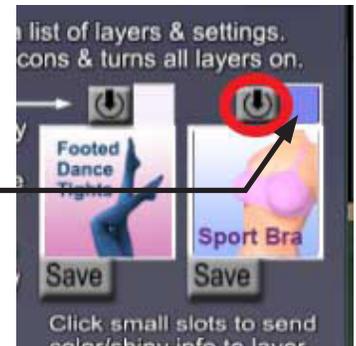
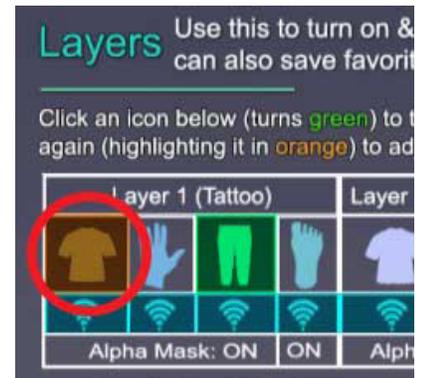
5. Let's change the color of the bra. Click on the **shirt icon in the Tattoo Layer** so it turns **orange**. When a layer is highlighted in orange, any color selections (or other changes) go immediately to that layer on the body.

6. Select a **color from the color palette** by clicking on it. Choose a blue-ish color. In addition to clicking on the color palette, you'll also want to click on the **luminosity scale just the right of the color palette**. (Be aware that if nothing happens when you click the color palette, it's usually because the pointer on the luminosity scale is up at the very top which means a neutral white color. If you click a little lower on the luminosity scale, the selected color from the palette will appear.)

7. Next, we'll save the blue color. That's done by clicking the button with the **save icon** (⏴) beside the bra's texture slot. When you click the save icon, you'll see the blue color appear in the small color box.

8. Let's see how the color box works. To do that we'll give the bra a different color. From the palette, **pick a green color**. The bra will turn green.

9. Now **click on the color box beside the bra**. Be sure to click the color box (not the save symbol.) Presto, the bra turns back to the blue color that you saved. Also note that when you click the color box, the "Plus" marker on the color palette (and the Luminosity pointer) will move to the appropriate positions for that color. That's handy if you later need to make minor adjustments without starting over again.



Texture Color

*There is a concept that is important to understand at this point. When a creator makes a texture for a layer, they use shading, design and other artistic techniques to make it look as realistic as possible. As a part of that process, they also will integrate a color into the texture. For example, a pair of blue jeans will have a texture which makes them look like jeans, but the texture will have blue integrated within it. The blue in the jeans is called the **texture color**.*

*There is another color that can affect what finally appears on the body. That's called the **overlay color**. The blue that we choose from the palette and which turned the bra blue is the overlay color.*



Overlay Color

The *overlay color* blends with the *texture color* to create a final color that appears on the body.

In the case of the bra, the underlying texture color is an off-white. That means that pretty much any overlay color you choose from the color palette, will end up being the bra's final color. But let's say we are dealing the blue jeans. If we choose a red from the color palette, we would end up with a blend of red (overlay color) and blue (texture color), resulting in a darkish purple color on your avatar.

If the texture color is an off-white, you have pretty much have an unlimited choice of colors. If the texture color is a light shade, you'll have less choice of colors, but still plenty to work with. If the texture color is dark, then you are much more limited how much you can change it. For example, the texture color of the footed dance tights is black and there really isn't much you can do with an overlay color.

You're probably wondering about the lilac color the bra when it was first applied. That's something that I did in the MP Applier. The MP applier allows me to send a overlay color along with the texture. In this case, I choose a lilac tint, and the lilac tint came with bra when it was applied to the avatar.

## Adding Shininess & Specular Maps (Example: Tights)

Let's go back to the Foot Dance Tights. Often the material used in dance tights is a nylon/spandex combination, and often dance tights will have something of a shiny appearance. Since we are trying to create realistic clothing for our avatar, let's add some shininess to the black tights.

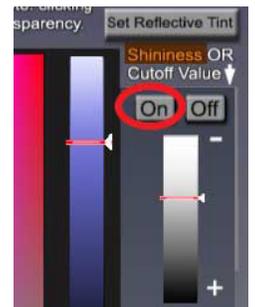
Note that **shininess is also referred to glossiness**, or more technically by the term "**specularity**." To keep things simple, we'll just call it shininess.

1. Click on the **pants icon** so it is highlighted in **orange**. Whenever you want to make a change in some layer be sure to highlight it in orange.



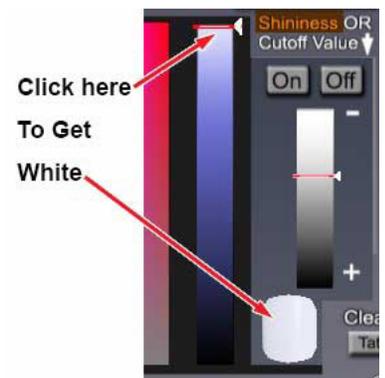
2. Position the body so that you have some daylight shining on it.

3. Keeping an eye on your body, click the "On" button below "Shininess." (The pointer on the vertical bar below the "On" button found serves two purposes: to set shininess or to set a cut-off value. Since "Shininess" is highlighted in orange, that's what we'll be changing.



4. Watch the legs as you click on different locations on the vertical bar to move the shininess pointer. If you have the **legs positioned with some daylight shining** on them, you'll see that the **reflection of light** from the legs will change. Moving the shininess pointer lower on the bar increases the shininess value. With an **increase of shininess value**, the reflection gets more **pointed** and stronger. For our case, we really don't want that. The high settings make the tights appear like they are plastic. Rather, we want the **lower setting which spreads out the reflection** and makes them more realistic in appearance. Move the shiny pointer so it is **near the top** of the vertical bar.

5. We have the shininess set, but we need to set a color too. Click on the **very, very top** of the luminosity scale so that color that appears in the previewer is **white**.



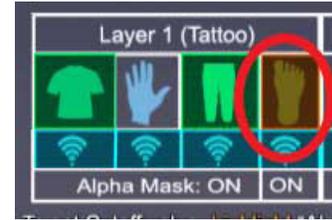
Why are we doing this? In just a moment, we'll be saving the shininess value, but when shininess is saved, an overlay color is also saved with it. In this case, we don't want to change the original texture color. We want to leave that the same. Whenever you don't want to change the original *texture color* of a clothing item, use an *overlay color* of white. For example, if the texture color of the tights were a rose color and you didn't want to change the rose color, you would use white.

6. Now we are ready to save the shininess (along with the overlay color of white). Click on the **save icon beside the color box** located above Footed Dance Tights. The color box will be white, but saved along with the white overlay color will be the shininess.



- To test this, and watch the legs of the tights and then **click the “Off” button**. You should see the shininess disappear from the tights.
- Now **click the color box beside the tights**. (Be sure to click the color box, not the save icon) The shininess comes back.

- We’re not quite finished. We have added shininess to the legs, but we need to do the socks portion of the tights. Start by clicking the **socks icon** on the Layers screen so it turns orange.

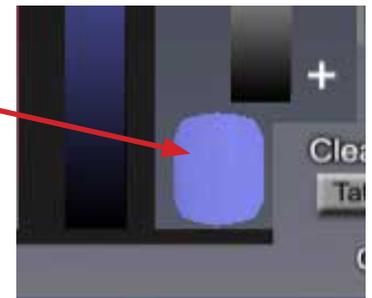


- Click the **color box above the tights** (the one we just used) and watch the socks on your avatar. You should see the socks pick up the same shininess as the legs. Even though you are clicking the color box beside the tights, the color and shiny information will be sent to whatever icon is highlighted in orange. Since the socks icon is orange, the shininess information from the tights color box goes to the foot area.

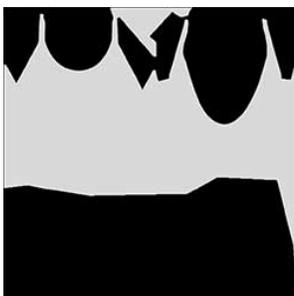


*When you have two or more clothing items that you want to be the same color and shininess, using a color box is a good way to do it. Get one item set up to your liking, save it to color box, and then click on the color box to send the same settings to the other items.*

There’s also another way of doing it. You can use the previewer. **The previewer can be clicked and whatever color is in the previewer is sent to the layer.** For example, let’s say you have a different set of tights with a white texture color, and you add an overlay color of blue to the legs of the tights. Blue will appear in the previewer. Once the legs are colored, click on the socks icon so it turns orange. Then click the previewer. The socks part of the tights on your avatar will turn blue.



There’s a similar method for duplicating shininess from one layer to another. Whenever you click the “On” button, the **value from the previous shininess choice is picked up**. For example, let’s say you set the shininess for the upper part of the tights with a mid range shiny value. Once the legs have been taken care of, click on the socks icon so it turns orange. Then click “On” The shininess value from the legs will be duplicated to the socks layer.



Specular Map of Leotards

Here is an important bit of information on shininess. Shininess requires something called a **specular map**. A specular map is constructed by the creator to go along with the main texture. When you use an applier, the applier sends the main texture to the avatar body, but if the creator has provided it, the applier will also send the specular map to the body.

Not all creators include specular maps. That's the situation with the Footed Dance Tights. I didn't include a specular map. I did that on purpose to demonstrate a feature built into Viva. Whenever the creator doesn't supply a customized specular map, and you turn on shininess, Viva uses an internal **default specular map**.

The default specular map covers the entire layer. For example, the default specular map for the upper body covers everything from the waist up to the neck, including the arms. The lower specular map covers the entire lower part of the body. The socks specular map covers the socks area. In the case of the tights, we were able to use the default specular map since the tights cover the entire lower part of the body.

There's a problem, however, if the clothing item doesn't cover the entire layer. For example, a pair shorts only covers the upper part of the legs leaving the lower part of the legs bare. If a customized specular map was not provided by the creator, and you turn on shininess, Viva will use the default specular map. The shorts would be shiny. That works, but so would skin on the bare legs - and you probably don't want that.

If the creator wanted the shorts to have some shininess, then she would have provided a customized specular map. A specular map can be constructed so the shorts picks up shininess but not the bare part of the legs.

**The gist of this is that if a specular map doesn't come with a clothing item, then you can add shininess if the clothing covers the entire layer. On the other hand, you won't be able to add shininess if the clothing doesn't cover the layer.**



**The default specular map for the upper body covers everything from the waist up. If the default map was used for the bra, the bra picks up shininess . . . but, so does the upper body skin. To leave out the skin, the creator needs to provide a customized specular map.**

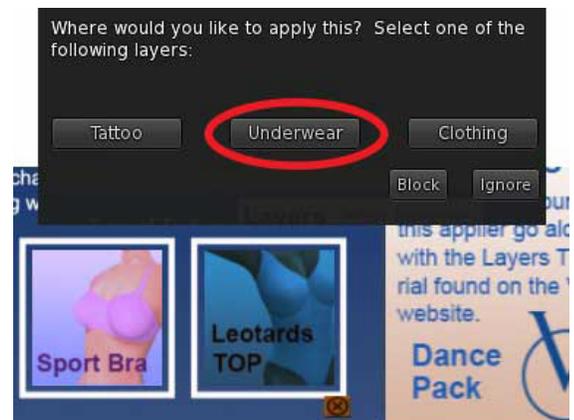
## Applying to the Underwear Layer (Example: Leotards)

*Note to Level 2 Users: You can continue to work through the next exercises. Instead of applying textures to the underwear or clothing layers (as the directions suggest), just apply them to the tattoo layer. Although you won't get the layers effect of one layer on top the other, you'll still be able to learn about each of features available in the Layers component*

1. Start at the MP Applier, and click on the **Leotards TOP** icon.



2. A dialog box appear with the message: "Where would you like to apply this?" Respond by clicking "**Underwear**." Watch your body as you do this. You'll see the leotards appear over the top of the bra. The bra, however, is still there. You can check by looking at the back of your avatar and you'll see the bar's back strap.



3. Take a look at your chat window. You'll find a message asking if you'd would like to save the texture. On the Layers screen, click the **"Save" button under the 3rd texture box.**



4. We'll still missing the bottom part of the leotards. Let's get that sent to the body. On the MP Applier, click on the **"Leotards Bottom" icon.**



5. The dialog box will appear with the same message asking where it should be sent. Respond by clicking **"Underwear."**

6. Again, take a look at your chat window. It will ask if you'd like to save this texture. On the Layers screen and click the **"Save" button under the 4th texture box.**



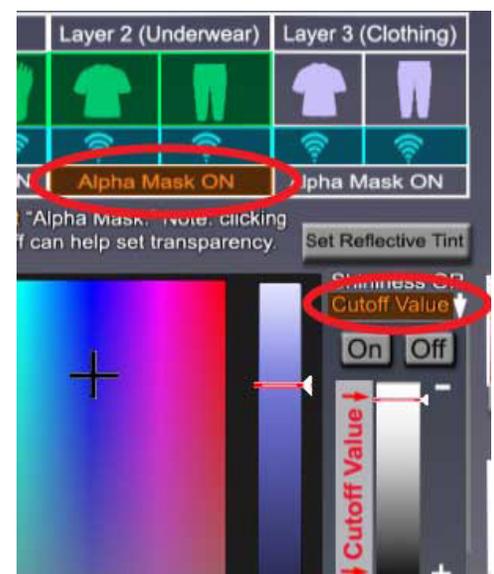
## Problems That Can Arise & Use of Cutoff to Fix Them (Example: Leotards)

Be prepared for the **tights disappearing**. Upon sending the Leotards to the body, the tights or the bra might suddenly disappear. This is caused by something called **alpha glitching**. All 3D graphic systems have difficulties when layers with full or partial transparencies are combined.

That's what we have here. The tights and leotards both have transparencies. You've probably have noticed that the black tights are partially transparent. You can see a little bit of skin through them. The leotards, themselves are mostly opaque, but they have a small amount of transparency along the seam edges.

1. Even if you haven't had a problem with the tights disappearing, go ahead click on **"Alpha Mask ON"** in the Underwear layer. It will turn green.
2. Click on **"Alpha Mask ON" one more time** so it turns orange. Now that it is orange, you can make an adjustment in something called the cut-off value. This changes how much of the transparent edge is removed.

You'll notice that **"Cutoff Value"** is now highlighted above the vertical bar. When "Alpha Mask" is orange, the vertical bar is used for cutoff adjustment. Thus, when you click on the bar, you will be changing the cutoff value.



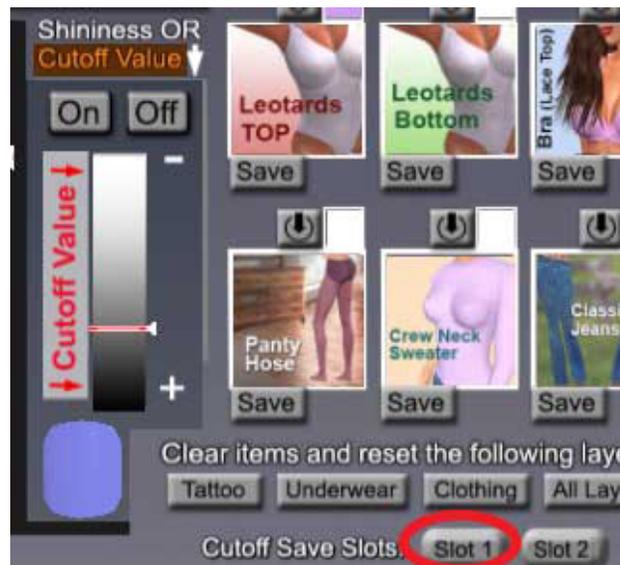
Try clicking on the bar near the top. This is a low cutoff value. **When the cutoff value is low, you'll see that trim around the edge of the leotards become dark and pronounced.** That's because, nearly all the transparent areas are now opaque.

Now try clicking farther down the bar. This will be a higher cutoff value. **When the cutoff value is high, the trim of the leotards becomes less pronounced.** That is because less of the transparent area becomes opaque.

3. **Find a cutoff setting that looks good to you** and leave it there. (The higher cutoff settings will probably look the best.)

Saving Cutoff. If you have a cut-off range that seems to work well with a number of clothing items, you can save it. In fact, the setting that you have chosen for the leotards will probably be one that you use again.

4. To save the cutoff setting, make sure you have "Alpha Mask On" highlighted in orange. Then click on the first slots under "Cutoff Save Slots." You'll be asked whether you want to save it. Click on "Save Value."



Now that you have the cutoff value saved, you can use it in the future by clicking the slot again. A dialog box will ask if you want to send the cutoff value to the layer (or overwrite the existing one with a new one.) The value of saving a cutoff value? It just helps make the process of layer preparation go a bit quicker, particularly if you use cutoff frequently.

5. We are all finished with cutoff. We want to keep the Alpha turned on, but we don't want it highlighted in orange any more. To keep it turned on, it needs to be green. To do that click "Alpha Mask ON" once. That will turn it off. Then **click it one more time to turn it green.**



## More About Adding Shininess (Example: Leotards)

If you look closely at the leotard top, you see that it is shiny. You didn't have to turn on shininess. It was automatically there. Let's figure out where that came from . . .

1. Click the **shirt icon to turn it orange**. Notice that "Shininess" is highlighted in orange. That means that we are working with shininess (and not cutoff like we were above).
2. Now click the **OFF button**. As you click the OFF button, watch the leotard (preferably it should have some daylight on it). You should see the **shininess disappear**.
3. Turn **shininess back on** by clicking the **ON button**.



4. **Adjust the shininess value** by clicking on the vertical shininess bar. You'll want a low level (**near the top of the shininess bar**) so that shininess is spread out. The lower you click, the higher the level of shininess, and the more plastic it appears. In some cases, you might want that but not with leotards, so choose a lower value by clicking near the top of the bar.

*So where did the shininess come from? Remember that shininess will only appear if there is a specular map. If the creator doesn't provide a specular map, Viva will use the default specular map. That was the case with the Footed Dance Tights.*

With the leotard top, however, I have created a **specular map**. When the leotards were sent to the body, the specular map came along with them. That's why when you first look at the leotards, you noticed the shininess.

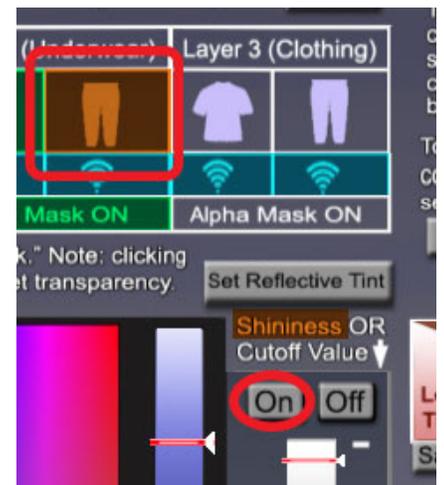
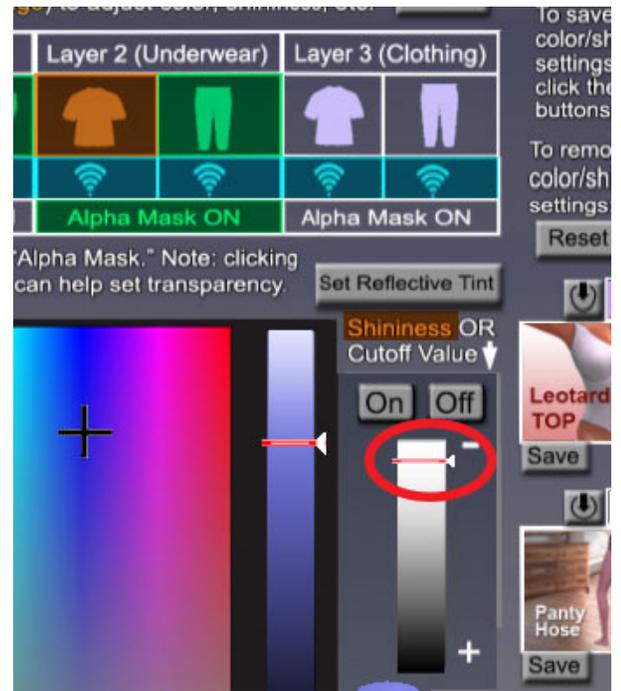
The leotards specular map was constructed so it only permits shininess on the leotard itself and not on your bare arms and shoulders. If I hadn't prepared a specular map, and you turned on shininess, Viva would have used the internal default specular map. As discussed previously, the problem with the default map is that covers the entire upper body. The leotard would have been shiny but so would the shoulders and arms.

*How do you know when a layer has a customized specular map? There is a tool built into the Layers component that you will tell you. But let's just delay that a bit. We'll talk about it shortly.*

When the applier sends the specular map to the body, it also sends along a shininess value. The value can be high or low depending on what the creator is trying to achieve.

Since we are dealing with two different layers: upper and lower, the shininess value must be the same between the two. But, yikes, we just changed the shininess value for the upper part of the leotards. That means lower part probably has a different value. No worries. We can sort that out.

5. We need to **duplicate the top value to the bottom**, and there's a quick way to do that. First, **highlight pants icon** (in the underwear section) in **orange**, so any changes we make will be directed to the leotard's legs.
6. Then click "ON" below shininess. When ON is clicked, **the last used shininess value is sent to the layer**. Now the bottom of the leotards has the same shininess value as the top. Easy!



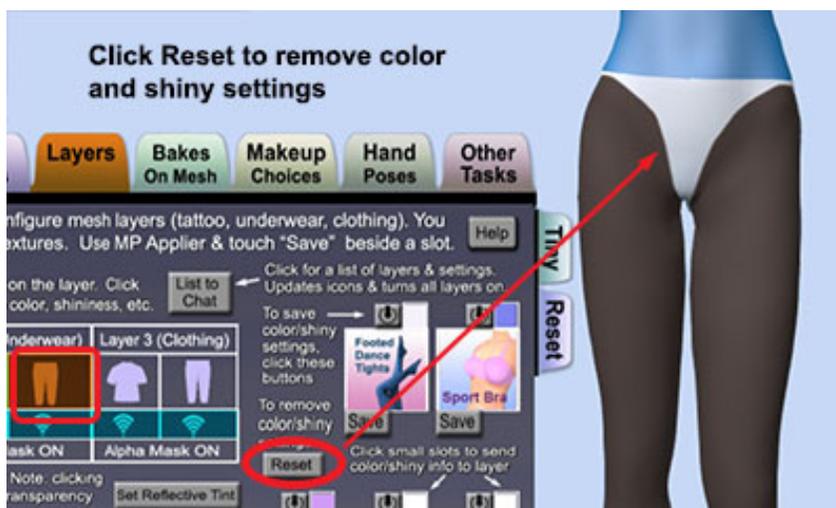
### Color, Use of Reset, Saving Color & Shininess (Example: Leotards)

Earlier, we discussed the two types of colors when dealing with layers. First, there is the color that is built into the texture called the *texture color*. For example, the *texture color* of the Foot Dance Tights is black. The other type of color is a *overlay color* that is sent to the body by clicking on the color palette in the Layers component. The two colors - texture and overlay - combined together, resulting in the final color which appears on the body.

An overlay color can also be sent by the applier. (Both the [MP Applier](#) and [notecard appliers](#) can do this.) In the case of the leotards, I configured the applier to send a teal color (an overlay color) to the leotards.

You can easily see if the applier has sent overlay color. Here's how . . .

1. In the Layers component, make sure the **pants icon** (in the underwear section) is still orange. Then click **“Reset.”** Look at your body. The leotard bottom will turn white. (We will talk about this in a minute, but go to the next step.)
2. In the Layer component, highlight the underwear **shirt icon** so it is orange. Click **“Reset.”** The leotard top on your body will turn white (illustrated below).



What you have done with the leotard bottom and top is to remove the overlay color of teal that had been sent by the applier. What you end up with is the texture color. In the case of the leotards, the texture color is an off-white.

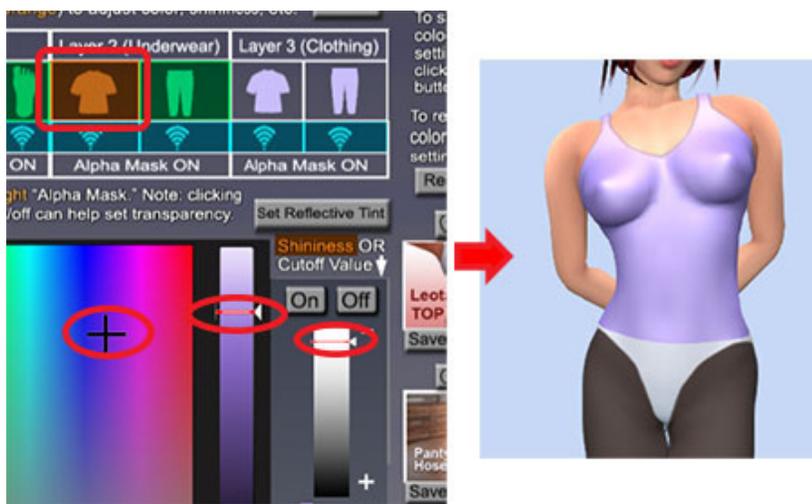
### **Reset does something else. It also removes the shininess.**

The reset button can be handy when you are working with layers. You may have some resident color or shininess left over from a previous setting. By using reset, you get back to the basics and you see only the original texture color on your body. All shininess is also removed. From that basic starting point, you can add color or shininess as needed.

*This brings up another point that you should be aware of. The Layers dialog doesn't remember the original overlay color or amount of shininess sent to it by an applier. (It does, however, remember the specular map if one has been sent.) If you make changes to the color or shininess - and you later decide you'd rather have the creator's originals - you'll need to use the applier and re-send them.*

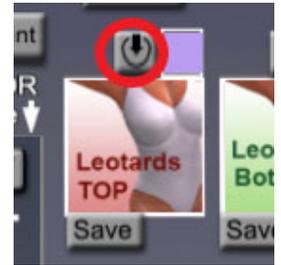
Let's move on. Right now when you look at the leotards on the body they will be white, and the shininess will be gone. Let's give it some color and bring back the shininess.

3. In the Layers component, the **shirt icon (in the underwear section) should be highlighted in orange.** If not, click on it until it appears orange.
4. Select a **purple color** from the color Palette. Along with the clicking the Palette, click and move the **luminosity pointer** so you get a light purple. The leotards top will pick up the color.
5. Click **“ON”** below shininess. **Adjust the shininess by clicking and moving the pointer.** Select a **lower shininess value** (near the top of the shininess bar) so it looks natural.



Note that even though shininess was turned off. Viva remembers the specular map. When you turn shininess back on, it will reactivate the specular map. The map will always be there unless you bring in a new texture. When you bring in a new texture, the map is deleted and replaced with a new map. If no specular map exists with the new texture, then the internal default map will be used if shininess is turned on.

- Now that we have both color and shininess set, let's save them. **Click the save icon just above Leotards Top.** This saves the **color and shininess.**



We have the leotards top taken care of. Now duplicate the color and shininess to the bottom.

- Highlight the **pants icon** (in the Underwear section) in orange. Any color settings will now go to the leotard bottoms.

- Click the **color box above leotards top.** Remember click on the box, not the save icon. Bingo. Watch your body. The leotard bottoms will pick up the same settings as used by the top.

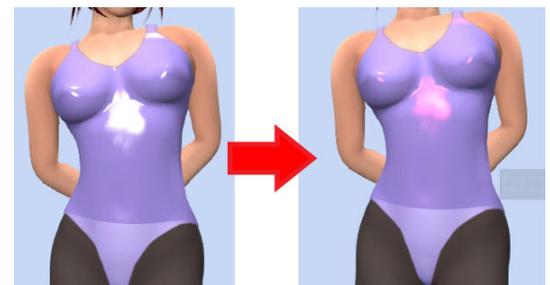
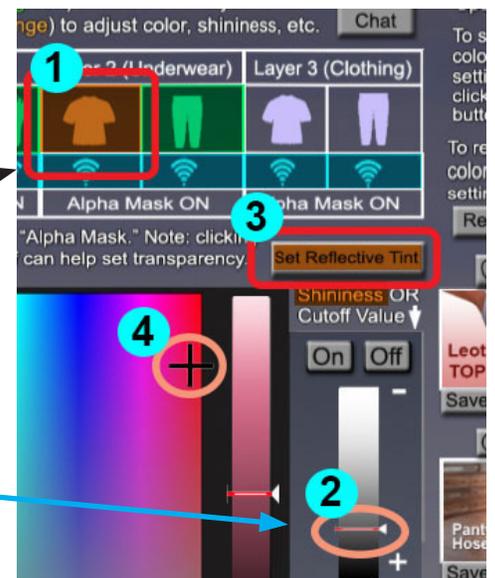


## Reflective Tint / Specular Color (Example: Leotards)

Let's do one last thing with the leotards.

There's one more embellishment that we can add to shininess. For the sake of simplification in Viva, it's called "**Reflective Tint.**" The more technical term for reflective time it is **Specular Color.** Reflective tint, in essence, is the color of light when reflected off a shiny surface.

- Highlight the **shirt icon** (Underwear section) in orange. Any changes will be directed to the leotard top.
- It is much easier to see the effect of reflective tint if you increase the shininess level. Click on the **shininess scale 2/3's the way down.** Now the leotards will appear very plastic looking.
- Click on "**Set Reflective Tint**" It will turn orange. Now any selection that you make on the color palette will add a color to the shininess. In other words, the color palette is no longer sending a color overlaying the texture. It's strictly dealing with shininess.
- Click on **red area of the color palette.** Also click on **luminosity pointer** so it is lower on the vertical bar. As you do this, watch the leotard, you should see a reddish tint to the shininess. Try some other colors, and watch the subtle changes that can occur to shininess as you use reflective tint.



You can **save reflective tint along with color and shininess to a color box**. When you later, click the color box, it will send all three: color, shininess level and reflective tint to the body layer highlighted in orange.

*When using Reflective Tint be sure to keep track of when it is off or on. Since reflective tint is not used frequently, Viva will switch it off when you move to different layers or take other actions in the Layers component. If you are not paying attention, you can end up accidentally sending reflective color as a overlay color - or visa versa. But if that happens, of course, you can get back to the original by clicking on the color box.*

You may not use reflective tint very much, but it is a feature that has some interesting effects. For example if you have clothing item that is a bit too shiny, try turning on reflective tint and selecting a very dark color from the palette. A dark reflective tint, will change the clothing's appearance, accenting it but in a subdued lightness. This is actually quite an effective technique with skin. It can give skin a captivating sheen to it.

5. Before moving on, let's go back to the original color and shininess for the leotards. That's easy to do. **Just re-apply both the top and bottom by clicking on the MP applicier and select "Underwear" as the target layer.** You should now be looking the leotards with teal color and a bit of shininess.



### Applying to Clothing Layer (Example: Leg Warmers)

1. On the MP Applier click on the **Leg Warmers** icon. When asked where to send it, choose **"Clothing."**

2. On the Layers screen, click on **"Save"** below the 5th texture slot.



3. Once again, you may have the **alpha glitching** problem. That is due to some partial transparent areas on the outside seams of the Leg Warmers. The glitch problem may cause the tights to disappear or a white area may appear around the leg warmer. Even if everything looks fine, go ahead and highlight “Alpha Mask ON” in the **clothing section** so it is orange.



4. Since Alpha Mask is highlighted in orange, you can now **adjust the cutoff value**. Try different values. You'll see the top and bottom edges of leg warmers change a little, but not as much as the leotards. The setting here is not particularly critical. Pick a cutoff setting about 1/4 of the way down the vertical bar.

It's good to **remove orange highlight** after finishing a process. You can do that by clicking twice (once to turn it off and then once again so it's green). When it is green, the Cutoff is being applied to the Clothing Layer and that's what we want.



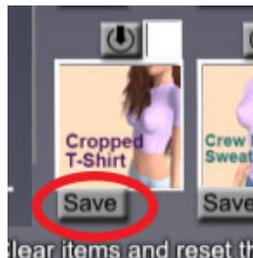
We're good with the leg warmers. Let's move on to the Cropped Top.

### Normal Maps & List to Chat (Example: Cropped Shirt Top)

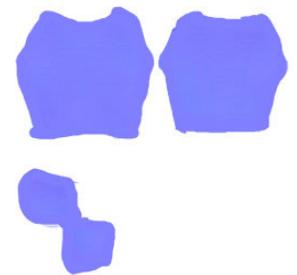
1. On the MP Applier click on the **Cropped T-shirt icon**. When asked where to send it, choose “**Clothing**.”



2. On the Layers screen, click on “**Save**” below the 6th texture slot.



We have something new here. When the Applier sent the cropped t-shirt texture, it sent along a **Normal Map**. Here's what the normal map looks like. You can also tell a normal map by its blue color range.



A **normal map gives clothing a textured feel**. It tends to remove the smoothness of clothing, giving it more of a fabric look. If you look at the shirt from different angles, you should be able to detect a little bumpiness or roughness to it. It appears soft and cozy, just as a favorite t-shirt should feel.

How can you tell if a layer has a normal map? The “**List to Chat**” gives you that information. Among other things, it will also tell you if a layer has a specular map.

3. Click the “**List to Chat**” button in the Layers component.



4. **“List to Chat” turns on all layers.** In fact, you’ll notice that it has turned on the gloves layer. That’s why your hands have appeared to turned white. Since we’re not doing anything with the gloves at the present, we don’t need them. **Turn them off, by clicking the gloves icon on the Layers screen. Click it once to turn it orange. Then click it one more time to turn it off.**



*Firestorm Users: Depending on your settings, each of lines may have the time beside it which makes trying to read the list difficult. But you can turn it off. To do so, select Avatar >> Preferences and click on the “Chat Windows” tab. Remove the checkmark from “Use V1 chat style headers.” Now things will look much better when you use “List to Chat.”*

Take a look at your chat window. All of the layers that you are wearing are list along with information on each layer:

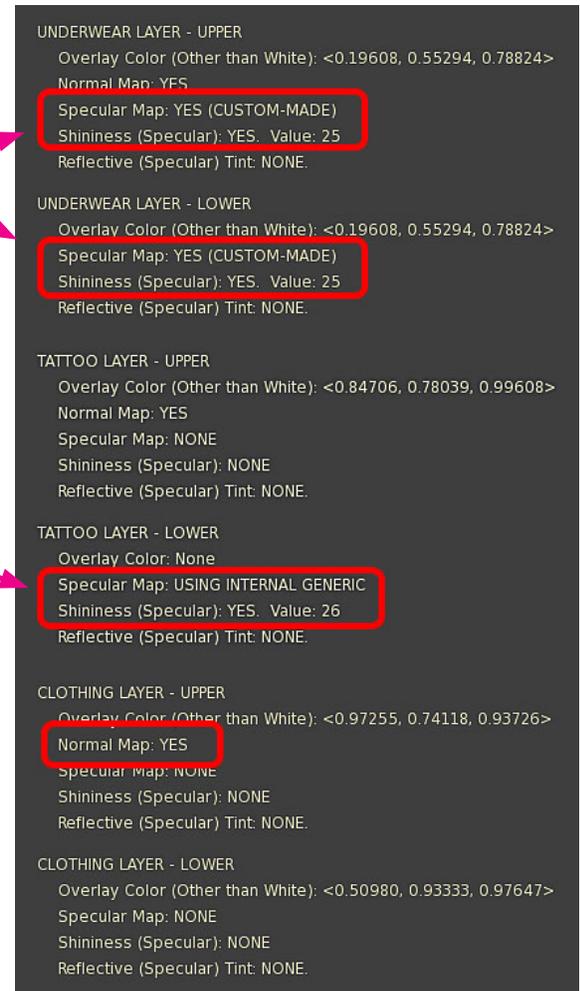
You can find out which layers have *customized specular maps*. On your chat window, you’ll see that listed under the Underwear Layers, Upper and Lower. The Underwear layers contains the leotards.

You can find out if a layer has a *normal map*. You’ll see that list under the Clothing Layer - Upper. This layer contain the cropped t-shirt.

*Note that Viva only tells you if certain types of textures or specular or normal maps exist. It does not provide the identifying UUID’s. UUID can be used by unscrupulous individuals to steal a creator’s hard work, and Viva never provides that information.*

*On the list, you’ll also see the exact amount of shininess (specular) value is provided. This number might be helpful to you if you doing creative work, but even if you are a creator, you are probably more interested in the range of shininess, rather than an exact number. For the great majority of users and individuals using Viva for creative work, it’s far more useful to think in terms of what range of shininess makes my clothing item look the best. Shininess figures go from 0 (no shininess) to 255 (the highest amount). So if you see a value which is roughly 125, you are in the mid range area. Or if you have a value around 63, you are in the lower mid range, etc.*

The other thing that you’ll see on the list is there is overlay color present. It’s shown as a Second Life color code, looking something like : <0.19608, 0.55294, 0.78824>. Like shininess, the color code might be helpful if you’re a creator and need the exact code for technical reasons, but from a general user standpoint, it’s just helpful to know whether or not an overlay color has been applied.



## Icons: Showing What Layers Are On

Viva keeps track of what layers are on and off, but on occasion it can lose track. There are a number of reasons why this might happen such as changing out the Master HUD or switching Modular layers around. If you notice Viva losing track of which layers are on, you can re-set things by using “List to Chat” button. This refreshes the variables that hold the on and off settings.

## Entering Vectors and Numeric Amounts

A few HUDs that come with mesh avatars allow you to input vectors and numeric values: color code vectors, shininess levels, cut-off values etc. I can add that feature if users request it, but I’ve found that most people approach colors and shininess more as an aesthetic than as a numbers game. When deciding what color to use, most people don’t look up the color code and enter it. Rather, they adjust the color by clicking on the color palette until it looks right to them.

It’s all done visually. The same sort of aesthetic goes with the amount of shininess. It’s much easier to click and move the shininess pointer and watch the effect on the clothing item rather than to enter a series of numbers. The MP applicator that is integrated into the Viva system works in a similar manner, and doesn’t require entering UUID’s or color codes. Ultimately, what’s important to a creator or end user is how it looks in Second Life.

To keep from complicating things, I don’t currently have a numbers input system. There’s already a lot of complexity involved with mesh avatars without introducing even more. Overall, I think the great majority of people will be happy with the visual way in which Viva works, but, again, I’ll certainly look at adding the feature if a number of people ask for it.

## Combining Layers

When you are combining two or more layers, it’s best to **start with the inside layer** and get that sorted out before moving on to an outer layer.

For example, let’s say you plan to wear nylons, bra and a camisole. If the nylons have feet, then we know that they will need to go to the Tattoo (lower body) layer. (The Tattoo layer is the only layer that includes socks.) If you have high waisted nylons, then you may need to also use the upper body of the Tattoo layer. We’ll say in this case, the nylons are all on the lower part of the body. That means the bra can go to Tattoo Layer (upper body). Finally, the camisole will go to the Underwear (upper body) layer.

Start with the Tattoo layer. Get the nylons and bra loaded on your body first. Make sure they look as they should. If necessary toggle Alpha Mode on and off to assure that any transparency is showing.

Then, move on to the Underwear layer by loading in the camisole. Re-check the nylons and bra. You may need to toggle Alpha Mode on and off for the Underwear layer to re-set the transparency of the nylons or bra. You may even need to turn on Alpha Mode and set a cut-off value for the Underwear layer.

Quick review: Start in the Tattoo layer. Get the clothing items there looking good. Then move to Underwear. Add the Underwear items and check to see if things in the Tattoo layer have changed. Make the necessary adjustments so both the Tattoo layer and Underwear layer look good. Then move to Clothing.

**You’ll find that going from Tattoo to Underwear to Clothing, will take less time and hassle than trying to do it in reverse order.**