Affinity Designer, Photorealism and the Pen Tool

This short document contains some of my thoughts and tips on creating photorealistic illustrations in Affinity Designer with the pen tool however most of it applies to any vector app. I'm not sure I would be considered to be an expert but I don't think that I'm not too terrible either so I hope that there is something in it that is of help.

Realistic vs Photorealistic vs Hyperrealistic

This is my simplistic take on the three styles of realistic.

Realistic

Realistic to me is a decent step down from photorealistic. It's simplifying enough that it's still fairly realistic but in addition to general simplification the little details that you need for photorealistic have also gone. It's the minimum you need to do on the realism scale. On a small thumbnail it might not be obvious if it's a drawing or photo but at lager sizes it is. Of course that's not to say it's a bad thing or something that shouldn't be done and it does have advantages. For a start the reference doesn't need to be that great as you don't you don't care about the small details so you are much more likely to find something suitable. It's also easier and takes far less time so you can do more of them.

Photorealistic

Which is what we are talking about here. To me it's all in the name, it should be self explanatory. Everyone has seen a photo of a certain something or that thing in real life (or something similar). If you open an image and instantly know it's a drawing then it's not photorealistic. But if it's not instantly obvious then the longer it takes to work out that it's a drawing then the better you have done. Whilst you'd think it would be a very simple concept to understand you see illustrations that people claim to be photorealistic when they clearly aren't. Unfortunately for them simply saying it is doesn't make it so.

Photorealism became a thing in the'60's and if you look at many of those works today you see how, although they are impressive and effective, they are quite basic. Compare that to the experts today (and not all professionals, even some "famous" ones, are in my opinion) who add far more detail and you could say that their works are much closer to being truly photorealistic than the earlier artists.

Hyperrealistic Nonsense

Personally I don't think that hyperrealism is really a thing. As soon as there are multiple definitions of what it is it probably isn't any of them. However just for fun there are two main definitions. The first is that it's exactly the same as photorealistic it just depends on the language. Possible I guess but as there's already a word why make up another? The second is, in my opinion, absolute nonsense. It's that the work contains more details than a camera can capture. Yeah right… Now if they really mean that it's not simply based on a photo but say a montage then that's slightly different. However even then there's a problem. In the 60's when photorealism took off artists weren't just painting what they saw in a photo. They replaced background etc for more interesting ones etc. But they were still classed as photorealistic not hyperrealistic artists. So where's the line in that case? Also photographers are doing it all the time and they're not hyper-photographic images. I ignore it as a word, just arty-farty nonsense.

Helper Utilities/Apps

Something To Add Film Grain

Install Nik Plugins Color Efex Pro or similar so that you can add film grain to the exported image. If you look around you can still find download links for the free Google/Nik version rather than the new, but pretty much the same, paid for version. I run it stand alone mode and drag the exported image on to a Color Efex Pro alias/shortcut.

Adding even a tiny bit of film grain blends the edges of objects and makes a noticeable difference. I think that usually less is more. It's not meant to be a way of hiding missed steps or not so great shapes.
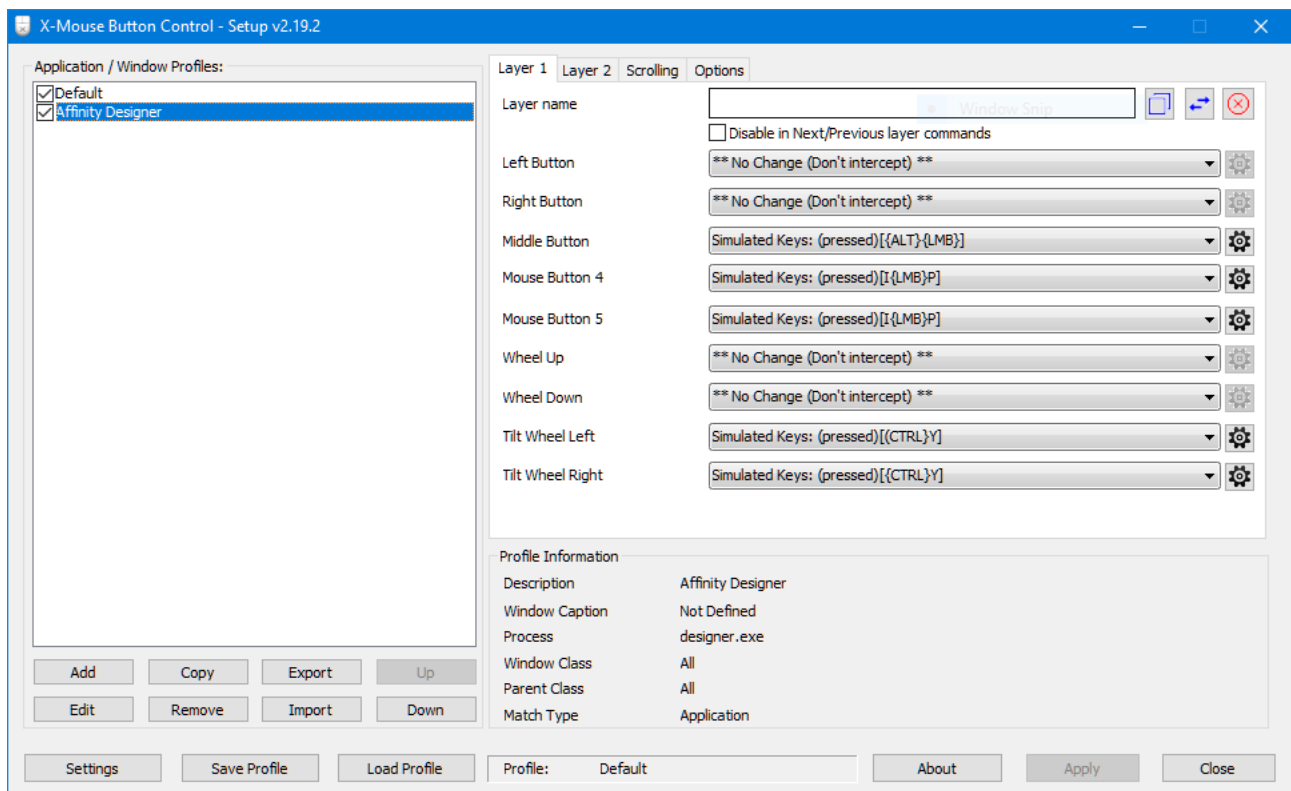
X Mouse Button Control For Windows

If you are running under Windows and using a mouse then X Mouse Button Control (https://www.highrez.co.uk/downloads/XMouseButtonControl.htm) is a very handy free utility.

You will be doing lots and lots of gradient stop colour picking and fewer solid colour picks for things like specs of light. So to speed things up setup the mouse buttons to do those functions. The way I set it up is for the middle button to do a gradient stop colour pick (Alt-Click) as that's what you will be doing the most and the middle button (which on mine is the mouse wheel) is easier than a side buttons. Then I setup both side buttons to select the colour picker click and go back to pen mode (I-Click-P). You can't go back to pen mode the gradient colour picks as it won't know if you're finished but for a single colour then you can as you have.

I've also set my side scroll wheel to toggle outline mode although I don't really use that as it's a bit too sensitive, it really needs to be on a button.

So first add AD to the Application/Window Profiles and then set the buttons for it as I have or to suit.

I've not managed to find a mac utility that has the same functionality and works reliably.

Setting Up AD

A few things I do which you might or might not want to do with AD.

1. I turn off the toolbar, not the context one, and tools, you know what the keyboard shortcuts are for the few tools you use so give yourself more space. You can always temporarily turn them on if need be.
2. The only palettes I have are colour and stroke at the top and then Layers.
3. I sometimes find that I accidentally bring up the Text>Show Character palette and sometimes activate the Transparency tool, so I kill off the shortcuts for both of those in settings.
4. Not an AD thing but if you're using Windows you might want to auto-hide the Taskbar so you have a little more room. That's not a problem on the Mac.

Picking A Reference Photo

When looking at photos think about the amount of work it will be. As with anything the larger the project the more likely it is that you will give up. So you probably don't want to pick something you are sure will take a year plus of work. Also is it interesting enough to warrant spending the number of hours you estimate it will take. If you're like me then you might need to multiply that estimate by 2-10 times!

Look for problem areas. What parts are difficult and are they even doable in a reasonable time frame (or ever). That's dependant on the subject but one example is textures, I include hair in that, it's usually a lot of work when you're creating them with the pen tool. Another is depth of field. Out of focus will often be more difficult (although on occasions it can actually be easier) and especially so if you have parts that go from in focus to out of focus. A third is low contrast, that's more difficult to pick out areas than high contrast.

You can't have too much resolution, it's far easier to simplify a reference than to add detail that isn't there. Yes you can sometimes find sharp closeups of those blurred parts but more often than not you can't. Also the smaller it is the more accurate you have to be with objects. If you look at work of photorealistic painters most use huge canvases.

Having said that the largest reference photo you can find isn't automatically the best as it may have been saved with a lot of compression. So when you zoom in you will see the horrible blocky jpg artefacts which not only makes it more difficult to draw the shapes but also to colour pick. So download a few, if you have that option, zoom in, compare them and pick the clearest.

If you can find closeups of parts that can be useful, even if they're taken at a different angle, as sometimes even high res photos can require a little guess work for small parts.

People As Subjects

People are tricky, come to that so are all living things (well that's what I've found so far). For a start faces tend to be low contrast which is difficult. On top of that not only are you programmed to notice anything wrong in a person, so you've got to be very accurate, but skin needs texture. A face without texture isn't photorealistic. Women with makeup are the "easiest" as the pores aren't obvious. Children are probably next and men the most difficult. You see it all too many times where someone creates a "photorealistic" face devoid of texture, that's a plastic doll not a realistic face. There is skin texture even on a lady's face who has makeup unless the makeup is caked on. So unless you want to add that then don't waste you time.

The other common mistake you used to sometimes see when gradient meshes were in vogue was that people put a lot of effort in to the actual face but basically used curved triangles, often without blur, for eyelashes and ruined it. Every detail needs to be right or it will stick out like a sore thumb.

Subjects I Wouldn't Attempt

I think anything with a decent amount of hair is a complete pain if you are using the pen tool. Actually even a small amount is. It's not that you can't do it but it's such a long and boring job that I wouldn't. So unless there's a minimal amount of it or if most is either hidden or in shadow I wouldn't bother. So that rules out a lot of people and furry creatures. If you look at the gradient mesh illustrations of people most seem to use brushes for the hair or simplify it loads which defeats the point.

Another is anything where you would need to draw a huge amount of texture. For the same reason, time and boredom and therefore more likely to give up on it.

But if you want to then no one is stopping you.

Adjustments

It should go without saying but perform any adjustments to the reference photo before starting. It's too late if you have already started! But in the rush to start a new project you can forget.

I will usually adjust levels and curves then perhaps vibrance and saturation. Also check for chromatic aberration, purple, red, blue, green… fringing and remove that if it's bad.

I don't touch sharpening as that can create its own problems due to how it works. If it's so blurred that you really need to sharpen then consider if it's the best reference to work on.

If the photo is grainy it will be more difficult to pick colours so running a de-speckle will help.

You can sometimes enlarge the image but check how good a job it has done.

If you save it as jpg make sure to use the least compression, so choose best quality or the highest number/percentage depending on the app.

Colour Setup

I set the document to Colour format: RGB/16 and Colour Profile: Adobe RGB (1998). It doesn't matter as such if you haven't a monitor that covers the whole Adobe range as when you colour pick you are picking from the image data not what the screen displays. Even if your display is awful and whites look yellow picking what is in reality a white area will still be white not yellow (obviously!).
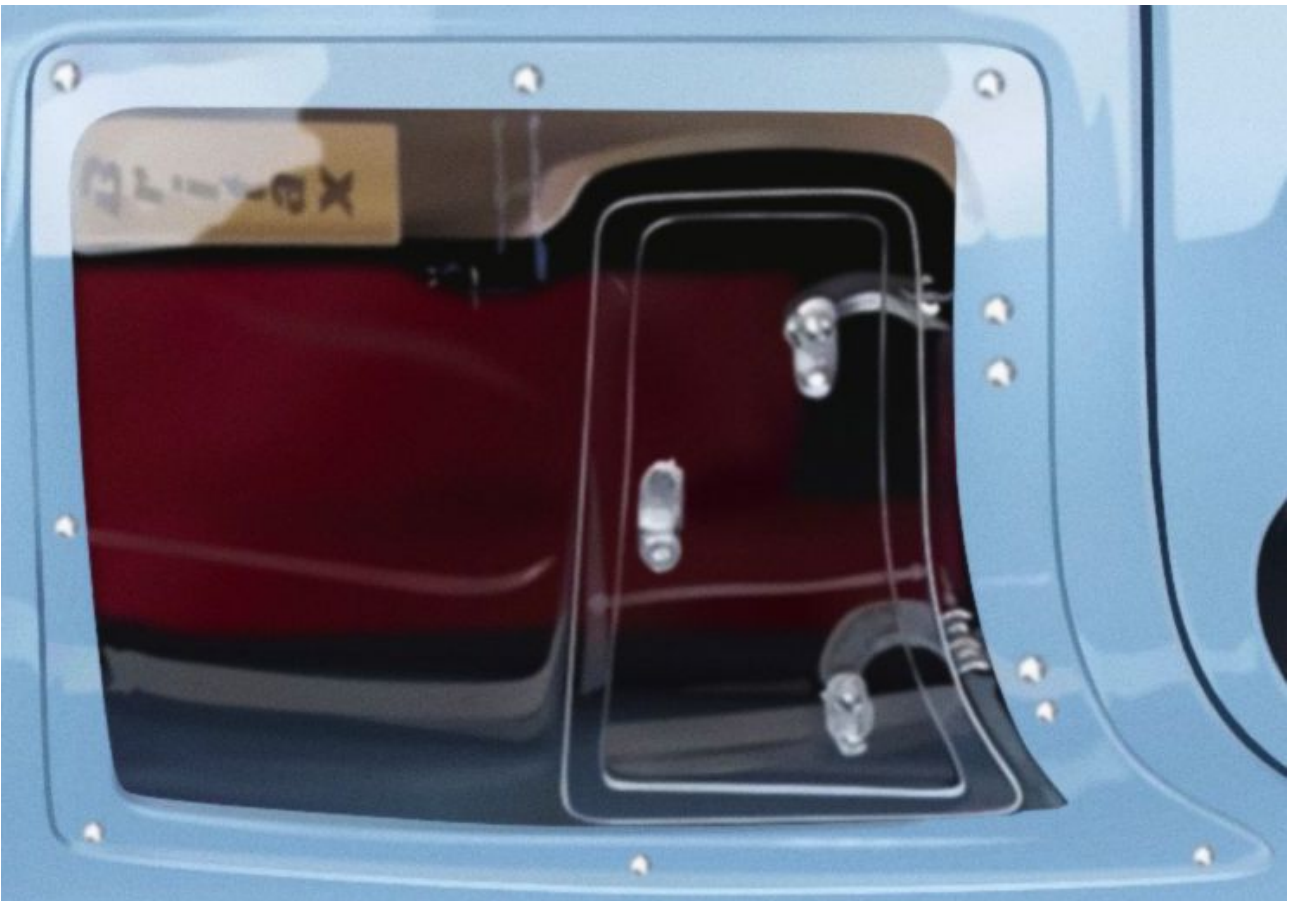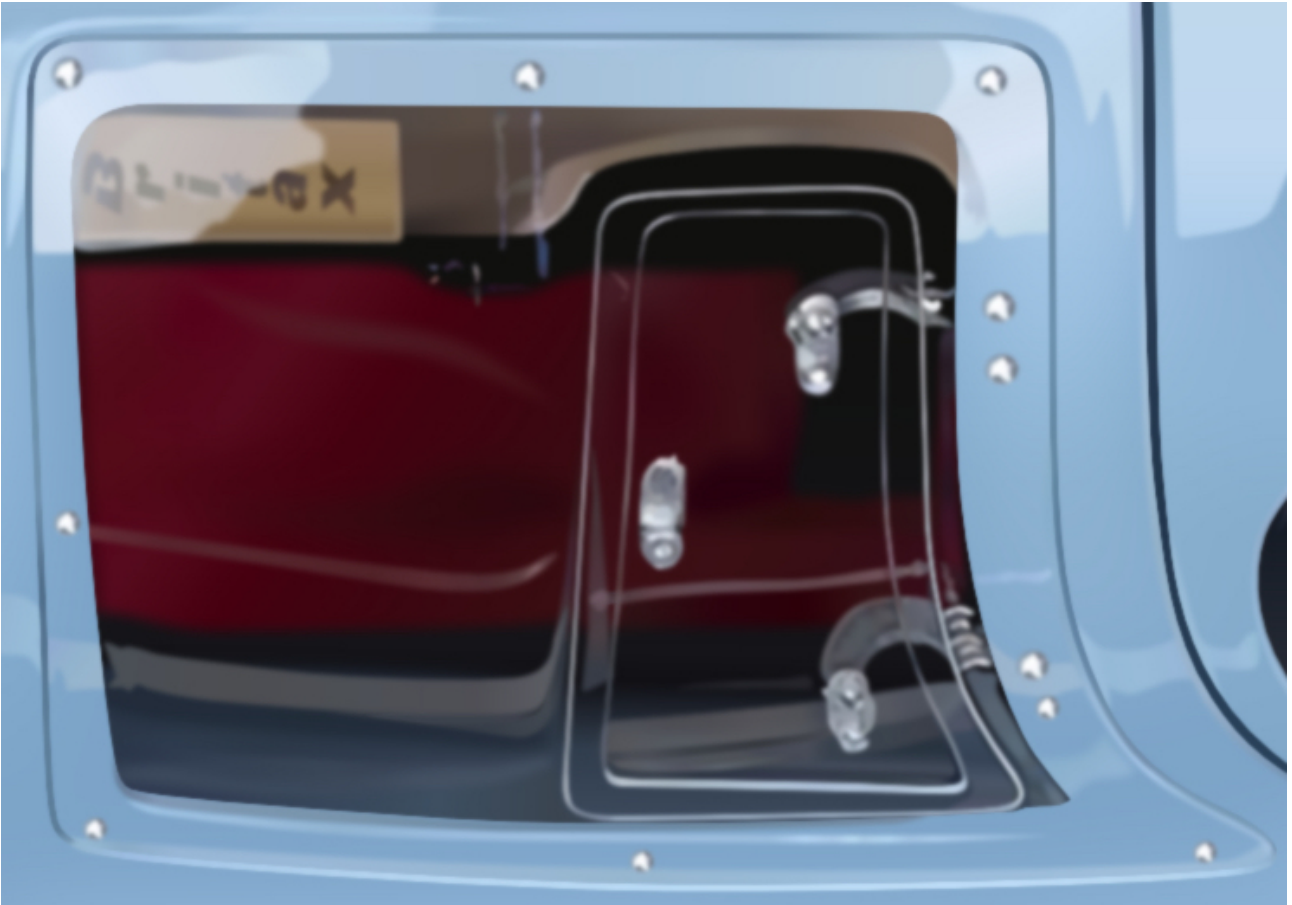
Backups

I don't use the snapshot feature. Something that is saved as a part of the document isn't a backup (which is why it isn't called one) and it's also not as flexible. While it isn't common if the document somehow becomes corrupted then your snapshots are gone too. So just make copies of the file in finder/file explorer. Do that when you've finished a section or at the end of a session. It's better to have too many than too few. I clear out older ones that I know I won't ever need to re-open only because it's a bit faster backing up to external storage if I get rid of them.

Exporting

For web etc I just export to JPG as usual but if you're planning on getting it printed then export to TIFF RGB 16-bit. Depending on the subject you will get horrible banding with jpg.

Post Processing

The only post processing I really do is to add some film grain. Here's the near side window from the Porsche 917K I did. The first is the raw export and the second is after film grain.

It's only a little bit but it blend the edges nicely. It makes more difference to some subjects than others.

The other thing some do especially in 3D renderings is to add chromatic aberration. I did play with but it didn't really make much difference. Lenses pretty much always create some aberration which people often want to remove from photos but by adding you might consider it to be more photographic. If you want to have a go then have a look for tutorials on it.

Layer Locking Or Lack Of

This can be anything from annoying to a huge pain. Normally locking a layer means nothing can happen to it, hence it's called locked. In AD it's only sort of locked. You can accidentally delete things, which you normally spot, however you can also accidentally recolour things you didn't mean to. When zoomed in working on an area you often don't notice until you zoom out. You can sometimes copy the new objects, undo until it sorts itself out then paste those objects back in. However if you don't notice and quit you'll need to get the messed up part from a backup, but that assumes it contains that section. So get in to the habit of zooming out once in a while and especially before quitting with save.

You'd think that toggling off the "work on all layers" option in the layers palette would prevent any possibility of this but it doesn't.

Overall Blur

The image needs to have an overall blur as nothing has absolutely sharp edges. Well they obviously do physically but when you look at things they don't look like they have, have a look around. You see people who haven't done this and it looks the same as if you cut a photo from a magazine and pasted it on to a background. It's only a tiny bit, for example on a 4000px'ish wide document I might add an overall 0.2-0.3px blur. I usually have a group that contains everything and add the blur to that although on occasions you may want to do it by section.

Blur Isn't A Magic Wand

Some people seem to have this strange belief that blur is some sort of magic wand. They don't think that they need to create all the objects or that they can be crudely drawn and all they have to do is slap a silly amount of blur on it and it's magically transformed in to a photorealistic illustration. I know it will come as a shock to them but it isn't and it doesn't. You add blur to match what you see and that's all. Often when they do that they're making it look worse not better.
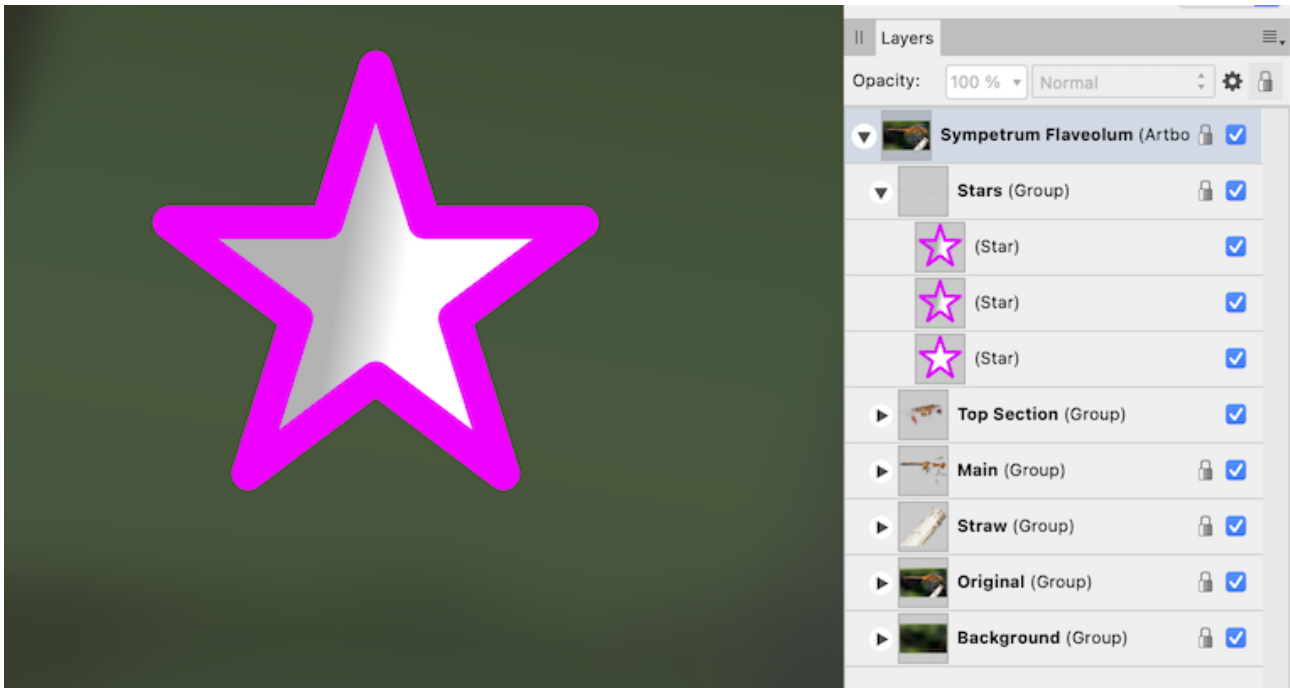
Blur Values

I rarely use the slider for blur values, it's quicker typing So I usually have a set of values I use for the vast majority of the objects. Normally something like 0.5px, 1px, 2px 4px, 8px, 11px, 16px and 22px.

Gradients For Almost Everything

With the exception of specs of light or dark I pretty much always use gradients. Depending on the surrounding colours you can be fooled in to seeing an area as a flat colour when it isn't or it's simply a subtle gradient that isn't obvious. So I just got in to the habit of using gradient fills.

Sticker Areas You Are Working On

You might be the sort of person who works on an area until it's finished then move on to the next. But I'm not like that so, unless the area is obvious, I put "stickers" over the areas I'm working on so that I don't forget to finish them. I just have a group right at the top where I add magenta stars to them. Magenta usually stands out against most things but can be any contrasting colour.

When Tiny Details Are A Waste Of Time

Adding the tiny details is one of the differences between realistic and photorealistic. You can't simply ignore them as being too much effort. However sometimes you can get carried away and make more work for yourself for no real benefit.

An example is a hair. If the canvas is about 5000px wide and a hair is only about 3 or 4 pixels wide at its widest then you can usually simplify. While this example does have those specs of highlights, rather than creating the underlying gradient and then adding those you can include them in the gradient itself. The image shows the actual hair vs object outline and the gradient stops. It's so small you really aren't going to notice the difference.
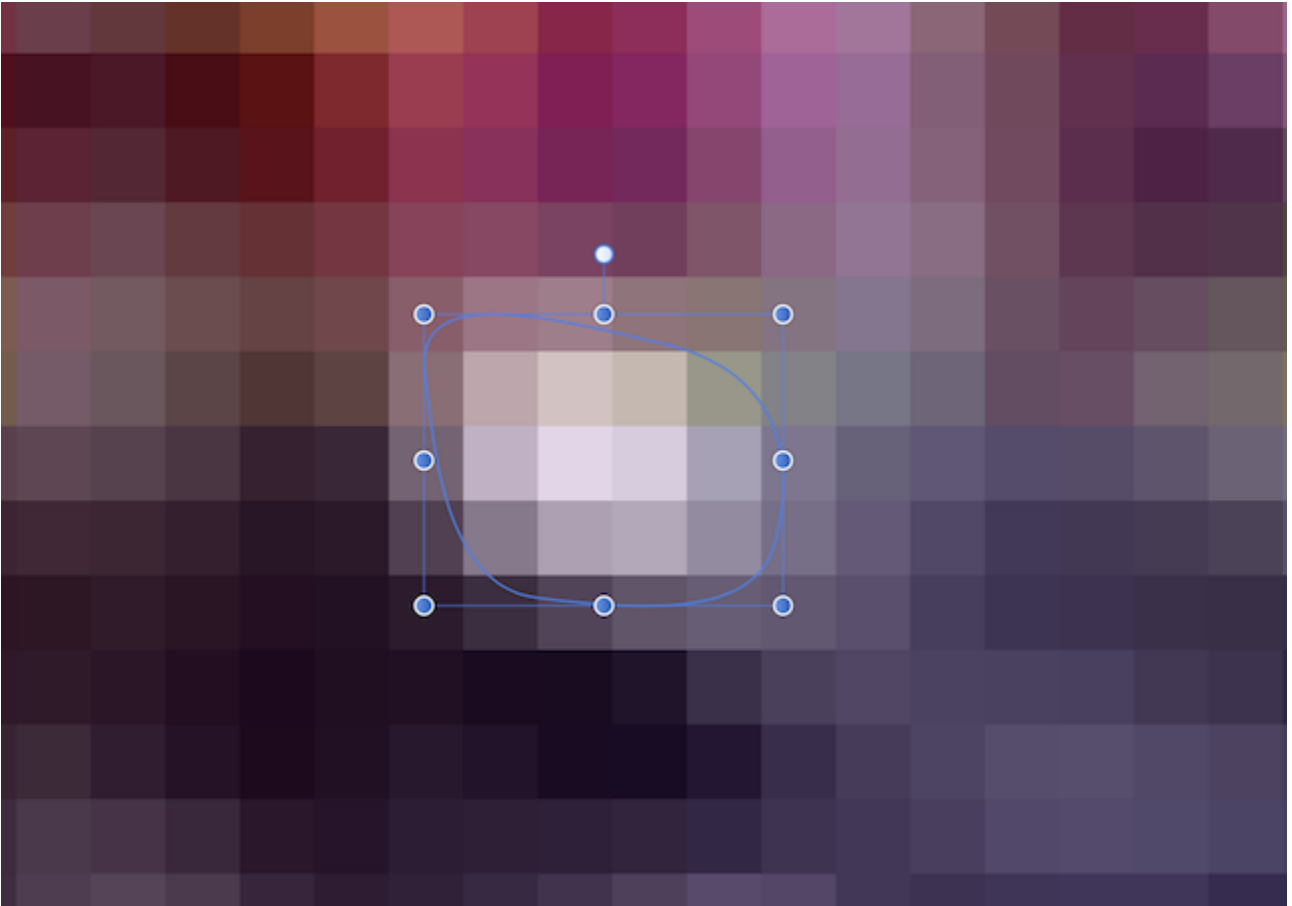
The same goes for tiny highlights or dark bits. Even if you look at it carefully and you could do a gradient but if it's only a few pixels wide a flat colour is normally going to be fine.

So when working on an area think about and remind yourself how zoomed in you are and the size of an object you are working on compared to the canvas size. I forget that all the time and have to remind myself!

Working With Blur And Small Objects

Especially when working on small objects all with the same blur you should workout how big you need to draw the objects. Everything covers part pixels, work out if you need to go to the outer edges of that, in a bit or even a bit bigger. This varies depending on the amount of blur applied. Often you don't think about it, you just do it and it's fine however sometimes it helps to do a couple and check the output. It takes practically no time but means you don't risk creating them too small than having to add 2nd objects later. It's not usually so critical over a large area.
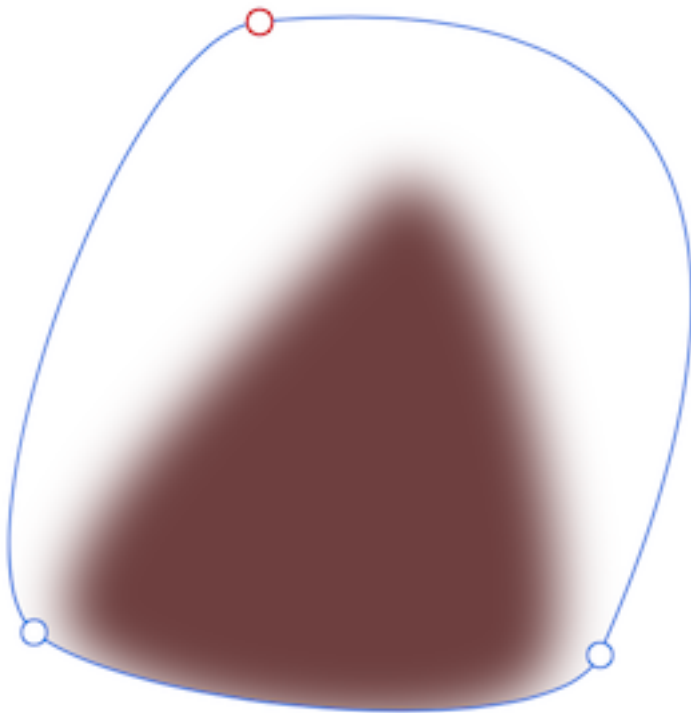
Which Ones Have I Done?

Sometimes when adding objects with blur, again especially in things like textures where they are simple, small and you have many of them, you may have a problem easily seeing which ones you have done. They end up blending in too well (which is good) so that you need to keep toggling to outline mode to check what's to be done. That takes a little bit of time, multiply that by a lot. So instead you might end up only checking occasionally and end up repeating some. Not a big deal either way but it wastes time.

What I do is rather than create them in their proper place within the layers, I instead create them right at the top. They then won't even have the overall blur and it's easy to see which you have done. I first tag the layer/group where they live with a colour then I create the objects in a group and set what would be the real blur for when I do exports, then toggle it off whilst adding new objects and when I move the group to it's proper place.

Obvious Tip Of The Day #1

Probably obvious although perhaps not to everyone. Sometimes you want an object to have a sharp edge going to a bur. Just draw the object, duplicate it (this will be the container) set the container fill and stroke to nothing. Nest the actual object inside the container. Then drag out the container to any size larger than the blur you are going to apply as shown. Finally set the blur in the actual object. Where you haven't altered the container it will still have a sharp edge but where you have it allows the bur to fully show. Of course if you want a small amount of blur to a lot then you can set the small amount to the container.

Obvious Tip Of The Day #2

Usually you have a basic background that you then refine. However there are times where you might simply create an area with overlapping objects. You don't want to leave any gaps but they can be tricky to spot. You can turn off the reference layer but the background can still hide them. So I use a temporary object below the area and set it to magenta. When you toggle that on any gaps are obvious. If you do have purples and magentas then bright yellow would be a good alternative, something that really sticks out.

Obvious Tip Of The Day #3

Often you end up drawing an object out of place, AD loves putting them at the very top just to be annoying. Sometimes it's tricky working out where to put that object to place it under others or it's a difficult to see if it is actually below rather than on top of an object. To check just set it to magenta (my favourite in case you hadn't noticed) or other bright contrasting colour then undo.

Big Projects

You sometimes just need a rest from big projects. When you do then do something small that takes your fancy, it doesn't matter what style it as. Or just do something other than drawing. A change is as good as a rest.

I like to keep a history of exports too. Depending on the project that my be per day or per week. It lets you see how things are progressing. As long as it is progressing then that can be motivating. However there are times when it's like spot the difference! I normally do that for all projects not just bigger ones.

That's Enough For Now

If you find yourself taking shortcuts for example using a flat colour when it should be a gradient or not splitting an object down as much as you should then that's the sign you've done enough for that session or day. Have a break.