A short introduction to regions

(version 2.0)

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NOTE 1: *I am not an employee or otherwise contractually associated with Lightcrafts. All information here is only my personal opinions and findings, and is not supported or certified by this company. I created this paper for my own purposes and made it public for other Lightzone users without any intention to violate any copyrights. Please do not use this material against me or Lightcrafts. Keep in mind that the information here may turn out to be incomplete or inaccurate.*

NOTE 2: *I created this paper only because there seems to be a great demand for information about Lightzone, and a notable lack of official tutorials. Keep in mind that the quality of the information here may be low (still I did what I could).*

NOTE 3: *Tex Andrew (another Lightzone user) helped me a lot correcting my English and discussing some parts of this work.*

Regions in Lightzone:

Regions are similar to masks in Photoshop or the GIMP. They allow the tool to work on a specific part of an image. Just select region type and set control points to create a region. A tool can have many regions at the same time and a user can copy a region and paste it on to other tools in the tool stack.

One of basic feature of a region is that it can be re-edited every time it is necessary. Simply double-click on a region and all the control points will be active again. The user can move the region and change its shape and feathering area.

The feather area needs some explanation. The inner line of a region does not show where the feather area starts – it is just a marker while the line created by the user (outer line) limits the region precisely. See example image. The blue starts to change right before the inner line.
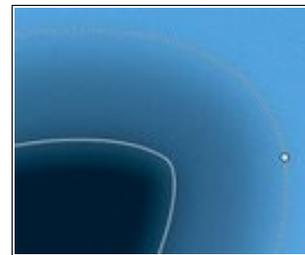
Another strange behaviour is that the area inside the inner line also doesn't have to be the same all the time – the effect of the tool depends on the size of the region (or to be more precise, of the size of the inner region), next two images give an example of this behaviour as they show the same region. The only difference is that inner area was decreased. See that effect is much lighter while most of the users think that it should be the same. This can be used to get really subtle retouch, user just need to remember it.
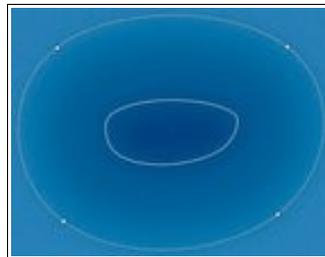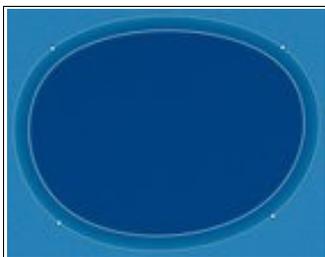
Polygon selection

Polygons are good to select well defined, straight edges but I would strongly suggest using other types for general usage. That's because the other two methods create more organic shapes that look less artificial.

Spline selection

This selection may seem strange to some users as it is not as intuitive. First of all – the size of the region expands to the control points only when there are enough of them, otherwise the region stays smaller. Therefore use it only if you are willing to use a lot of control points (for example when you mask a complex shape). See the difference between 3 (on the right) and 14 control points.
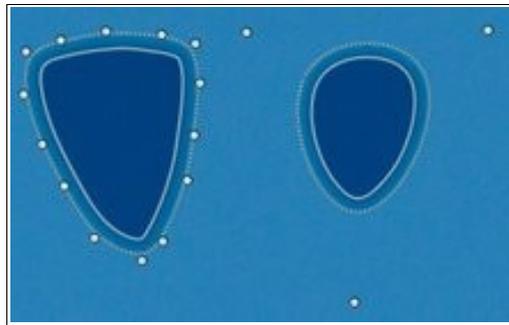
Bezier selection
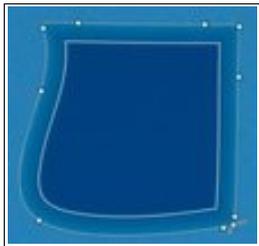
My favourite. Select the control points and the region boundary lines will always cross through them. Easy to handle and accurate, it does not need many control points to give the desired shape, yet it is still possible to get nearly straight lines and nearly 90 degree corners.

Important: *Don't mix the order of control points. Always end a region and then add extra control points where needed. Otherwise the algorithm will go crazy and create something like the spline on the right.*
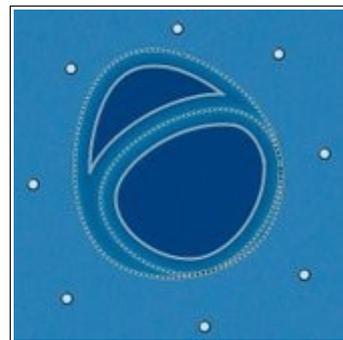
Overlapping regions

Not all users know that regions can overlap which opens up a lot of additional possibilities for complex region creation. Users need to remember that creating a ring-like region is impossible (see image below: lower region on the left hand side). The region selection tools do not allow 'holes' to be punched in them to create ring-like shapes. A ring-like shape can be created, however, by overlapping two regions (a ring in the upper, right corner). Overlapping parts of the inner regions does not double the effect of a tool (specifically for regions that were set for one tool; overlapping regions that are assigned to different tools on the tool stack will influence each other). All of this seems to be not true if feathering areas are overlapping (see the upper, left corner). My simple and visual test shows that the effect is overlapping but this may be an effect of using a non-linear blending function. This is a question for the designers.

Important: *Users can create many regions assigned to one tool on the tool stack, and the regions DO NOT have to be the same types. This allows for additional possibilities (lower, right corner).*
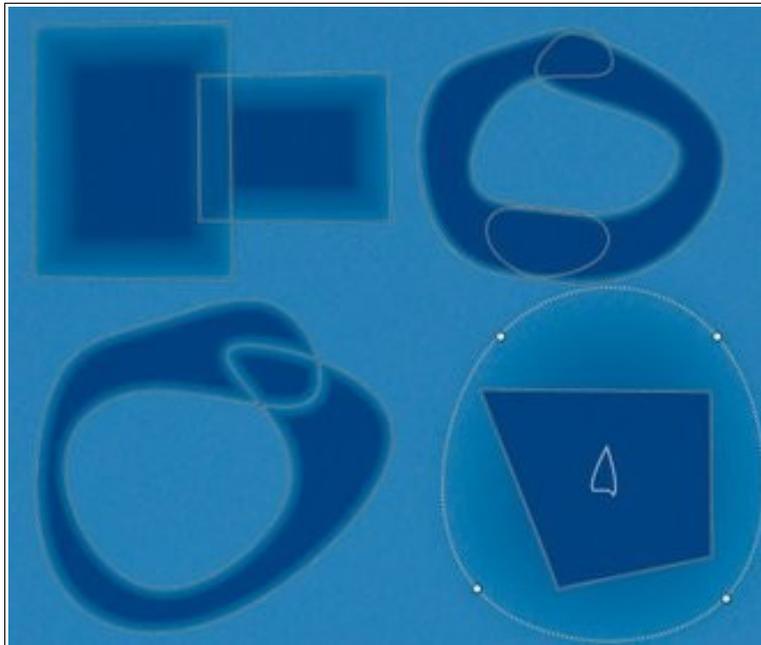
> **Important:** *Inverting a region is very useful but remember that only all or none of the regions (assigned to one tool) can be inverted.*

> **Important:** *Don't expect to get smooth transitions between two tools if their region is the same, and one of them is inverted. It seems not to be true that the feathering area is linear and the sum of it, and its inverted companion gives the same result as in inner region. Below I show two identical triangles (I used copy and paste) assigned to two identical zone mappers (one of them was 'inverted'). See that the result is different in feathering area.*
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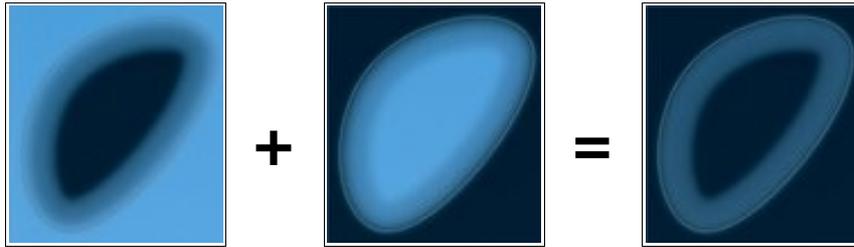
Final word
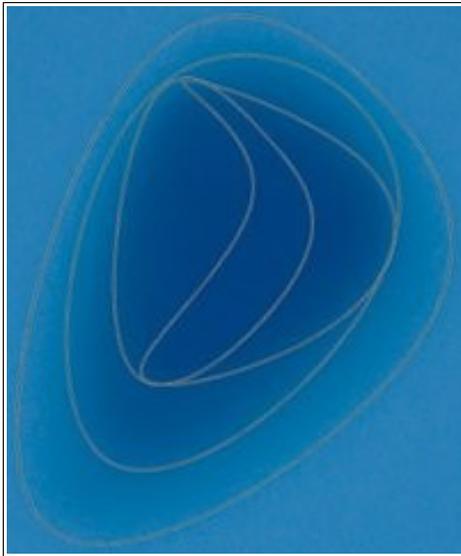
Regions could probably be improved. There should be a way to make the feathering function linear and get smooth transition between two tools using 'copy and invert region' technique, as well as ensuring that the inner region should precisely show the edge of the feathering area. It would be also nice to have some more selection options (automated region selection, by shape, color, luminosity etc.).

Still some things can be done with the current technology. A region does not have to fit inside of an image. It can be larger and that allows the user to create a huge feathering area that will cover most of the image and simulate a gradient filter. It is also possible to form the feathering area into a different shape than the inner region, but the user will need to blend quite a few regions (see example) and the final effect is not always good.