



=== HOW TO USE + EXTRA TIPS

*

* Radius is the radius as known from standard USM

* Because here a fast infinite impulse response-filter is used, very high radius

is possible without slowdown.

- * This comes in handy, when USM is used to enhance local contrast.
- * I do this often, and this was very very slow with gimp's original USM.
- *
- * I use a sony dsc f717 that is known for "flat" images (low contrast) and also

for high dynamic

- * range. Using USM, rather than curves, I can enhance contrast without

loosing shadows or highlights,

- * its just contrary: shadows and highlights get more (local) contrast, and no

detail is lost.

- * (For real strong fill-flash effect a contrast mask must be used in gimp and

afterwards local contrast

- * can be enhanced using USM)

*
*

- * Amount+ and Amount- are the amount factors, as known from USM,

however, "+" means amount of

- * brightening and "-" means amount of darkening
- * Threshold is the treshold as known from gimps USM
- *
*

- * Gamma changes the gamma factor for internal processing. High gamma

values can reduce sharpening halos.

- * The gamma of the resulting image is not changed.
- * (Try gamma of 5.0 and +/- amount upto 5.0. This sounds unreasonable, but

it works very good)

- *
- * Why?
- *
- * Most digital cameras have a gamma value from 1.5 to 2.0.
- * When the image is in computer memory then the function between

intensity i in nature and intensity

- * value m in computer memory is : $m = \text{pow}(i, 1/g)$. (Where g ranges from 1.5

to 2.0)

- * Thats similar to a squareroot-curve.
- * When we apply USM to this unmodified image, then we get more bright

halo than dark halo.

- * This looks very un-natural.
- * When we linearize data before doing USM, then we get equal amounts for

dark and bright halos.

- * When we overcompensate g then we get dark halos, and in most cases

these are invisible or

- * look natural.

*

*

*

* Highlight-,Light-,Midtone-,Shadow Amount

*

* This can be used, to constrain the filter amount to darker or lighter areas of

the image.

- * Especially when USM is used to enhance local contrast it is useful.
- * For normal sharpening these sliders can be left at 1.0
- *
- * Preserve currently does nothing in sharpening mode.
- * In a later version this will protect color, that means it will prevent color

artifacts

*

* Special feature, Blur and denoise

.....

*

* When both, Amount+ and Amount- are set to zero, then USM2 goes into

blur mode.

- * The image is blurred with given radius.
- * The blurred image is copied into the Output image, where the given

Threshold is used as

- * criteria. As long Threshold is 0.0 no blur happens. When Threshold is

larger, then we get an effect

- * similar to selective gaussian blur. When Threshold is 1.0, then we get pure

gaussian blur.

- * Gamma value can improve denoising results, it works with best selectivity

at gamma values ≤ 0.5

- * Highlight Amount ... Shadow Amount can be used to constrain the

filtereffect to brightness ranges.

*

*** Because the same threshold can be used for sharpening and for denoising,**

this comes in handy when

*** USM has amplified some noise in sharpening mode, or when denoised**

pictures should be sharpened.

*** Preserve protects original luminance while denoising/ blurring.**

*** This comes in handy when we want to remove color noise in shadows**

before or after sharpening.

*** I have also written another denoising tool (dcamnoise). However,**

sometimes, when I see the results

*** which I get with this modified USM version here, then I am astonished what**

it can do, when the parameters are

*** carefully adjusted. Especially with low frequency noise (that is already**

filtered by camera firmware) it

*** is often better.**

Credit

this plugin was created by Peter Heckert , the windows binary by courtesy of

Michael Schumacher.

Source Code is included