Building a City Tour: Part One - Getting the image mosaic..

Mosaics: everyone likes them, everyone wants them. But most people stop, at least in public, at the odd three, or four image assembly, usually vertically in a row. And some have produced really excellent results. What we are about to attempt here is a tad more ambitious: the background image for a city tour to be produced in Flash, consisting of sixty individual images!

My largest effort to date is the 2nd Brideshead Tour: it took 65 image slices to finalize, culled from 95 collected screenshots. Surprisingly, it is no more difficult to create a gigantic image than it is to create a "small" five image column. You just need a bit more patience.

Like everything else, the results will only be as good as your preparation. The tools are simple enough: a photo-editing software, and a screen-grabber (forget the in-game snapshots). In this tutorial I am using *Photoshop CS3*, and a screen capture software called *SnagIt*. Admittedly, SnagIt is a professional tool, but any half-decent image grabber will do, and there are plenty of free ones on the WWW. The screen-grabber I use allows me to save all shots of the active window (never the screen) to a given folder, and names the images consecutively. If your screen capture software does not do so, get one that does - otherwise the process is painful. Photoshop I consider essential, but you should be able to translate these instructions to any other tool as well.

Before you start, consider the image you want to create. Take a look at your city - in paused mode and from different angles at the lowest magnification. Then zoom in and take another look around, just to see if everything is in place the way you want it. Switch Zones on and off, and go underground with the pipeline tool, to avoid any occurrence of the Water Bug.

To start, switch to *God Mode* and set the day/night cycle to either day or night, depending on the mosaic you want to create - but never at cyclic. The resulting changes in colour would mess up your mosaic big time if you were to keep the day and night cycle going. Because the only way to create an easy mosaic is to record "live" – un-paused! Press *Num-Lock* next, to get rid of the in-game menus, after you made sure the game is not paused. The game speed should be at the slowest level, especially if you take a lot of shots involving flora and fauna, or have a high volume of traffic.

Now find the right (or left) bottom corner of your proposed tour as your starting point and set the magnification to maximum minus 1: just until the pixilation is gone. At this level you get the necessary detail to be able to align your screenshots with precision. And the resulting mosaic will look perfect.

Next, put the mouse away: from here on everything is done with the cursor keys. Whether you do like I do, starting from the bottom right, going left, then up, then right, then up, and so forth, or whether you use your own method makes really no difference. My method involves the same amount of "hits" on a cursor key throughout the capture, so that each screenshot has an overlap of at least 30% on two sides (for example, left and top if you're going right to left) over the next shot. Keep doing this until you have collected all your shots.

Personally, after I collected all my shots, I pause the game, and then exit without saving changes. This way, if I missed a shot I need, or need to plug a hole in the assembly, I can easily return to the game and won't have to fiddle with anything such as magnification or daylight or what not. And the game will not suddenly upgrade a building or grow the trees too tall.

Now we come to the first essential photo-shopping step: setting up *Photoshop* so that you only need a few simple steps to modify each image. I use recorded *Actions* for this, and for our mosaic I only use one set arbitrarily called "Corrections", containing three sub-actions. In order to achieve the look you want, you need to experiment a bit. Open one image with lots of details and varying colours. Don't crop or otherwise change it. Magnification in PS does not matter at this point.
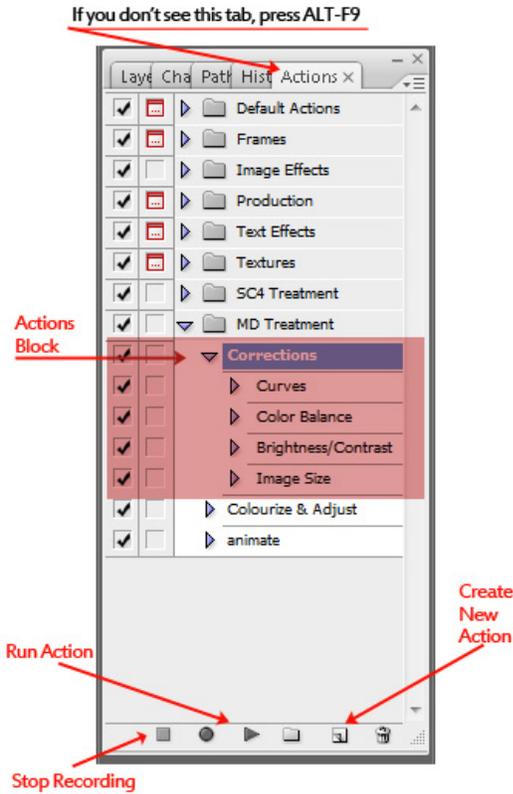
Before you start recording, you'll need to take care of one annoying SC4 feature: the little white square left in the bottom left corner of every shot that lets you return the in-game menus with a mouse-click. I usually magnify that corner to 300% and then use the Clone brush or a bit of copy & paste to cover it up. Doing it immediately, before anything else is done, saves you from having to hunt these flaws later.

On the right-hand side of the *Photoshop* window are the "Palettes". The ones you need - minimum - are Layer and Actions. You can load them from the Photoshop "Windows" sub-menu, or press ALT-F9 for Actions, and F7 for Layers if you don't see them. Once they are loaded, click on the "Action" tab (see picture below).

Before you modify your image, click on the "Create new action" icon at the bottom of the tab. Name it, then click OK. Now go through all the motions, using the menus of Photoshop, that you want to use for each image adjustment. When you are finished and the image looks like you prefer, click on the "Stop recording" icon at the bottom of the Action tab.

Don't save the changes just yet! Open another image and try the recorded action to see if everything works as planned first! You may find that you need to do a certain action over again. Photoshop allows you to move sub-actions among higher level action folders, and you can switch parts of an Action set on or off.

Everyone has a different style; my personal preferences are very simple: I adjust the "Curves" as shown below - to darken the original first. Then I step up Brightness & Contrast. And finally I resize the width to 800, making sure it is a relative adjustment and not a distortion. That is all I do. No further editing happens until the mosaic has been assembled.

Once you are happy with the recorded actions, it is time to begin assembling the mosaic.

The number of images you plan to use define the size of the new *Photoshop* file you are going to create. In my case I knew I'd be using somewhere around sixty shots, going 8 wide and 8 high: thus the size for the new file had to be at least 8x800 by 8x600. Giving
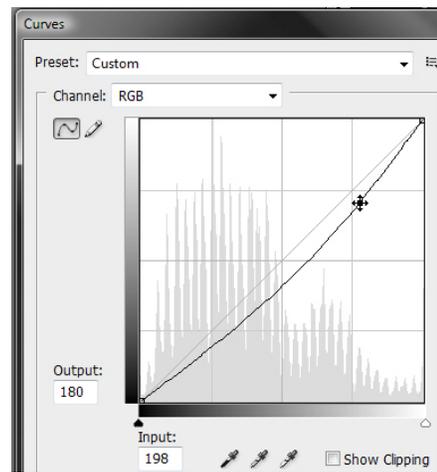
myself a good margin, I opened the new image at 7000 by 5500 pixels in windowed mode. It comes in at 16% magnification.
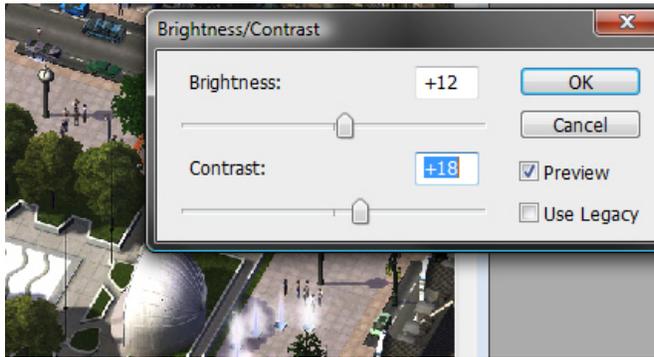
ext, open the first image to be placed and apply the *Action Set* you created, then press *CTRL-A* to select the entire image, and *CTRL-C* to copy it into the clipboard. The save and close it. You want an uncluttered working window, and you want the file saved in case something goes wrong.

Select the new image, press *CTRL-V* to paste it, and drag it to your starting point. On the right, the Layers tab will show your first entry.

Open the next image and repeat these steps. Before you paste it, click on the white background to ensure the new addition becomes the topmost layer. Now magnify your assembly window to at least 200% by using the Magnify cursor in an area where the two images overlap.

You can drag the image in place, and Photoshop will actually try and match it to whatever is already there. That helps, but is never good enough. You will need the arrow keys to nudge the newly pasted shot into place, paying particular attention to roads, building lines, rails, etc. It takes a bit of practice but after a few times you will find it easy enough.

Continue with the next few shots. After the first ten are placed, step in at maximum magnification (around 300-400%) and survey what you have done. If you omit this step now, you will find that by the time image 20 rolls around, your misalignments will start to become noticeable.

Some images will never align perfectly because the game display is not perfect. And because the screen grabber will make pixel adjustments. The way to get around this lies in the layers: say you've built up 20 images, but #21 is either well-aligned at the bottom, or well-aligned at the right, but never both. Click on the highlighted layer and drag it a layers down: you will find that suddenly things match up.

This also works where a newly placed screenshot cuts of a train or traffic or other moving objects. Mostly you want to place one image on top of the other – in layers – but at times this rule needs to be broken using manual adjustments.

Save your assembly often – as a PSD (Photoshop) file, with all layers still intact. A large image, with thirty or more layers can consume quite bit of memory. You would not want a crashed application five minutes away from the finish.

Once you've assembled all shots in the mosaic, go through the image with a fine comb: at 100% or 200% magnification look for flaws. Especially noticeable are trains and busses cut of half-way because of overlapping images. Change the layer order to fix it. Once you are happy with the results, save the file one last time, then select *Flatten Image* from the *Layers menu*; crop the result, and save it as a *JPEG* at no less than 75% (10) quality. You now have a city view ready for Flash Animation.