

# PFClean 2.1 Tutorial

## Scratch Removal



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## Introduction

In this tutorial, we'll show you how to use to automatically detect and fix scratches in a clip and how to use the manual scratch repair tools.

## Download Footage

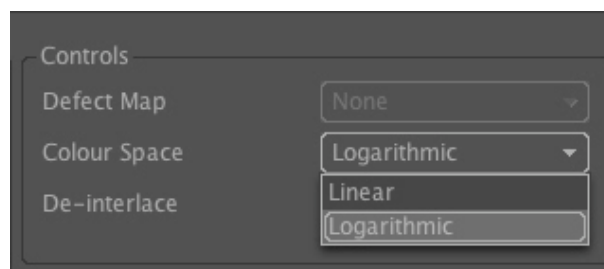
This tutorial requires you to download and uncompress the following footage to an easily accessible storage location: [http://www.thepixelfarm.co.uk/Footage/Scratch\\_Tutorial.zip](http://www.thepixelfarm.co.uk/Footage/Scratch_Tutorial.zip)

## Setting up footage

Load the "Scratch\_Tutorial.####.dpx" clip

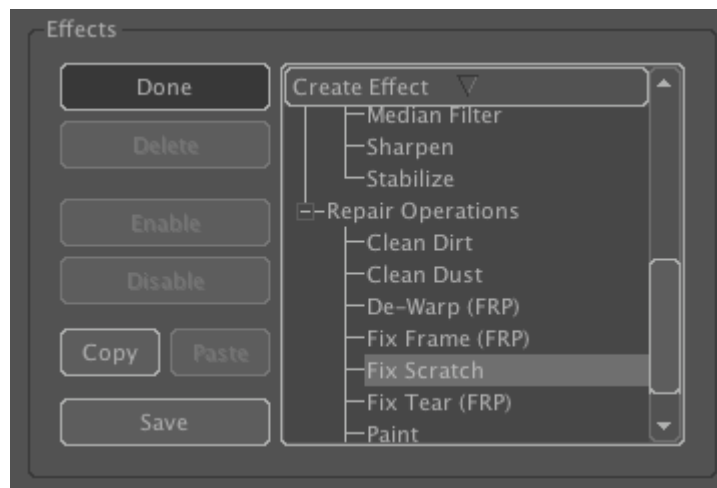
Drag the Scratch\_Tutorial clip into the media bins, click on the clip with the left mouse button and press "Select" (or shift-double-click with the left button) to start editing and switch to the clip panel.

This clip is in log space, so whilst in the clip panel, change the "Colour Space" option to "Logarithmic". This will help PFClean to improve the accuracy of operations applied to the clip. You can also define the colour space settings for all clips in your project in the "New Project" dialogue.



## Create a scratch effect

Still in the clip panel, click "Create" to show the list of available effects. Scroll down to find "Fix Scratch" in the "Repair Operations" section and click it with the left button to create the effect. The "Create" button has changed labels to "Done", so click "Done" to stop effect creation and switch to the scratch tool-set.



## Prepare the scratch parameters

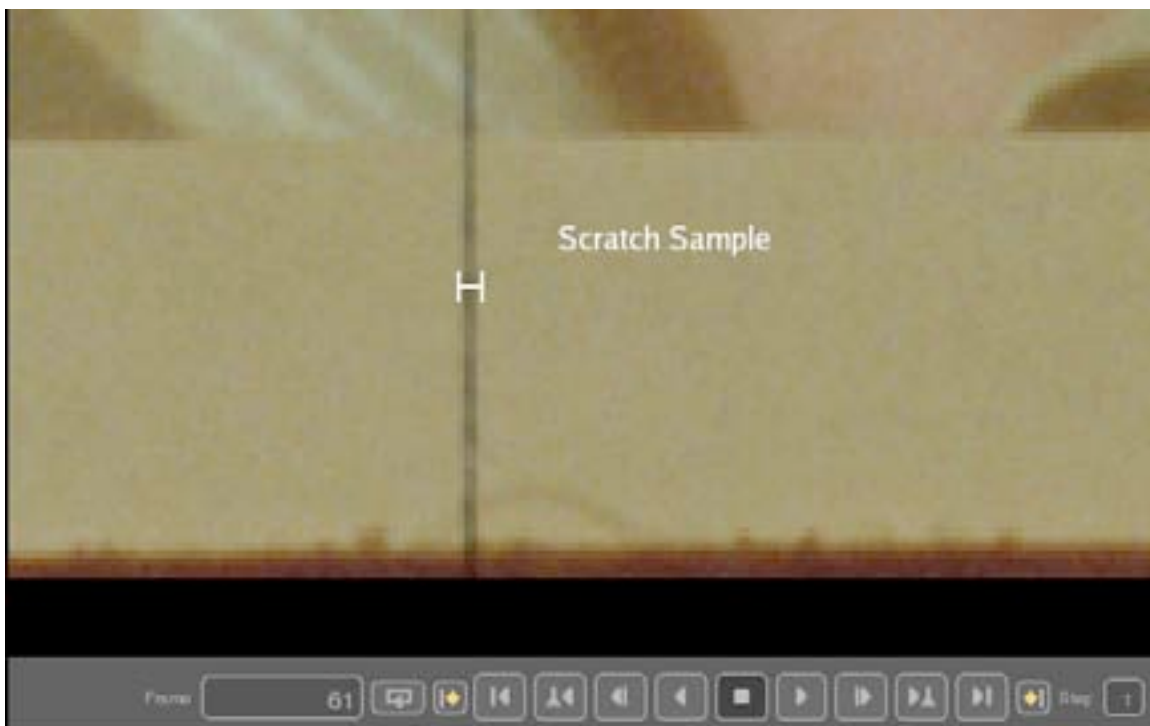
Now we are going to modify the parameters for the automatic scratch detection. Note that this is not necessary for the tutorial footage, but we do it anyway to show you how it works. You can either modify the detection parameters manually or you can sample a scratch in the image. To manually modify the parameters just select one and change it as needed. For example the scratches in this clip are dark compared to the background so you can change the scratch parameter "Scratch Type" to "Dark Only"



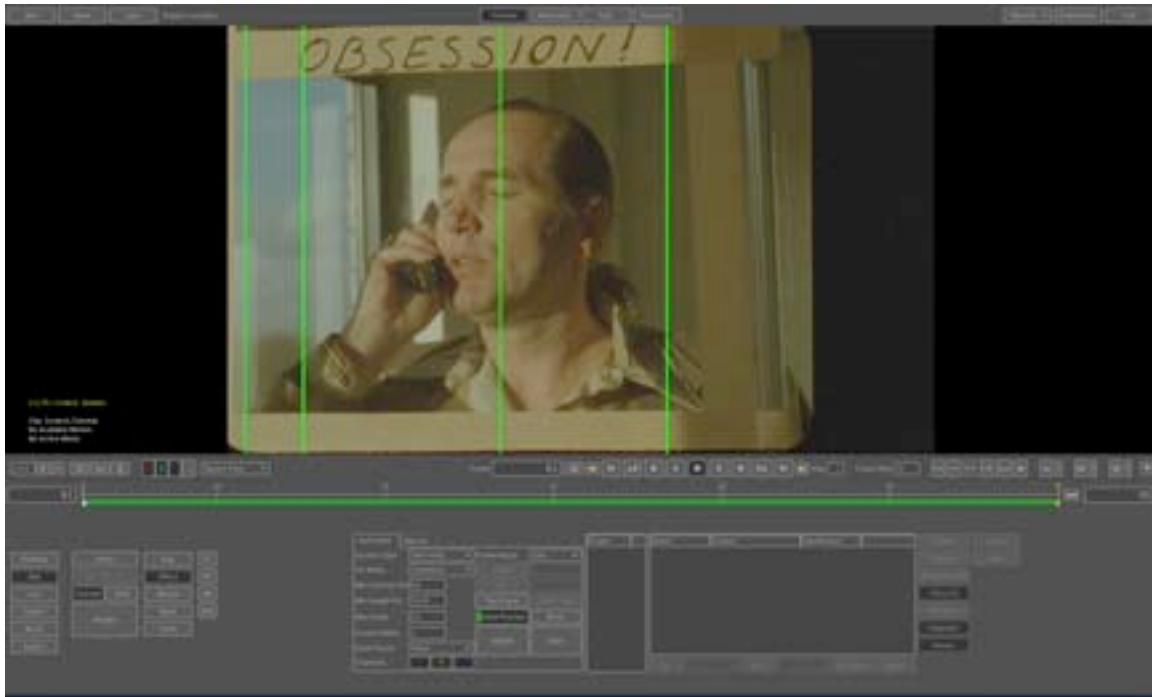
To use the sample tool, press the "Sample" button and zoom the viewer window to show a close-up of the scratch you want to sample (see image below). To sample scratch parameters from the image, click in the centre of the scratch with the left mouse button and drag the sample line outwards so the scratch is just contained within the sample line.

The location that you sample from will affect the contrast value that is chosen. Don't pick somewhere that has very low contrast because too small a contrast value will mean that other scratches are incorrectly identified.

The screen-grab below shows the scratch parameters sampled from the bottom of the frame.



Once you're done, switch the "Sample" button off. Press the "Show Preview" button to check that all the scratches have been identified.



Sampling the scratch in the image centre in this way should give a contrast of about 9, and a scratch width of 3. If you don't get these values, and the scratch preview shows that other scratches have been missed, try sampling again or adjust the values by hand until the preview shows all 4 dark scratches. In this case, you can either reduce "Min Contrast", reduce "Min Length" or set "Scratch Width" to 3.

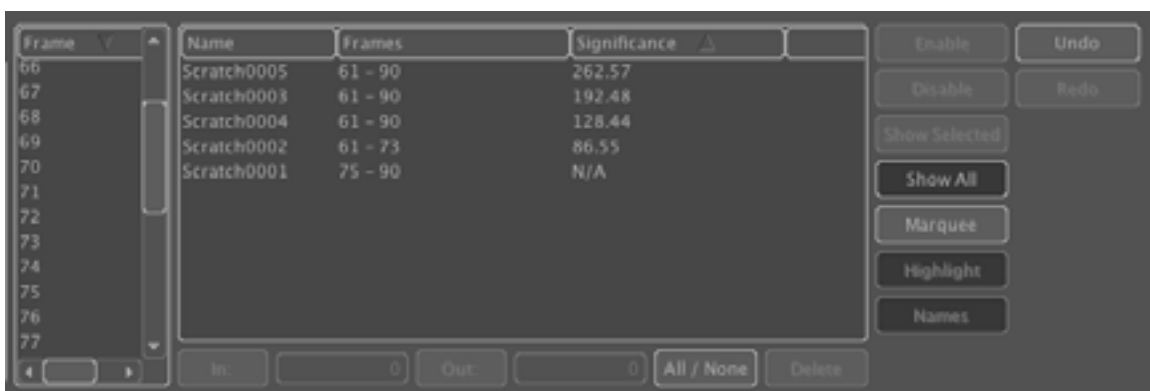
#### Check the scratch preview in other frames

Now that we've identified the scratches in the first frame, try changing frames and see if the scratches are picked up. Each time the frame changes, the scratch preview will update.

#### Fix the scratches

To fix the scratches, first switch off the Scratch Preview, and make sure the cleanup "Frame Range" is set to "Clip" to fix the entire clip. Pressing "Start" will begin the cleanup process, and afterwards you will see a list of frames and a list of scratches that have been fixed.

To show the location of the fixes, press the "All/None" button to select all the scratches, and make sure "Highlight" and "Names" are pressed.



To inspect the cleanup, zoom in the right-hand scratch in the first frame and press "Highlight" again to switch the highlights off.

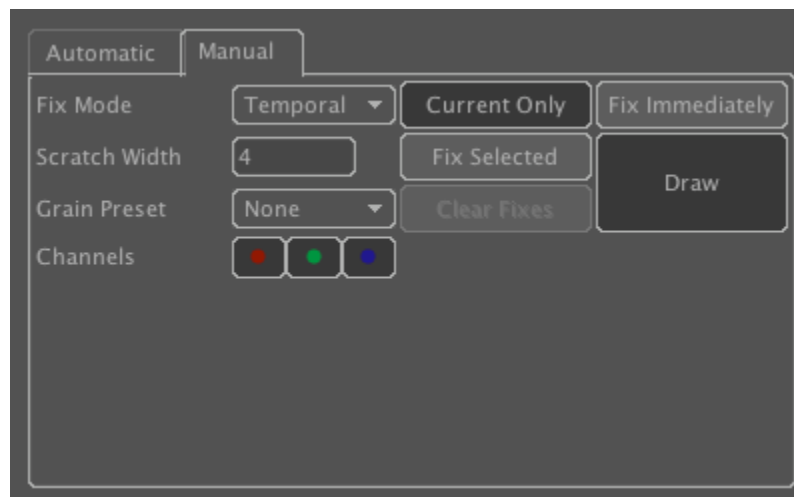
## Checking the results

You should see a list of all frames that have scratch corrections. Try playing the clip through, or rendering the current effect by pressing the "Render" button to see the result. Note that as the clip plays through for the first time, playback speed will be reduced because as the scratches are rendered and stored on disk.

If you have used the same parameters as in this tutorial, you may notice that a scratch has been missed in frame 74. Furthermore a part of another scratch is still visible in that frame.



First we are going to fix the remaining scratch in the center of this frame manually. Switch to the "Manual" tab and click "Draw". This lets you draw a scratch by hand. Increase the "Scratch Width" to "4" before drawing the scratch.

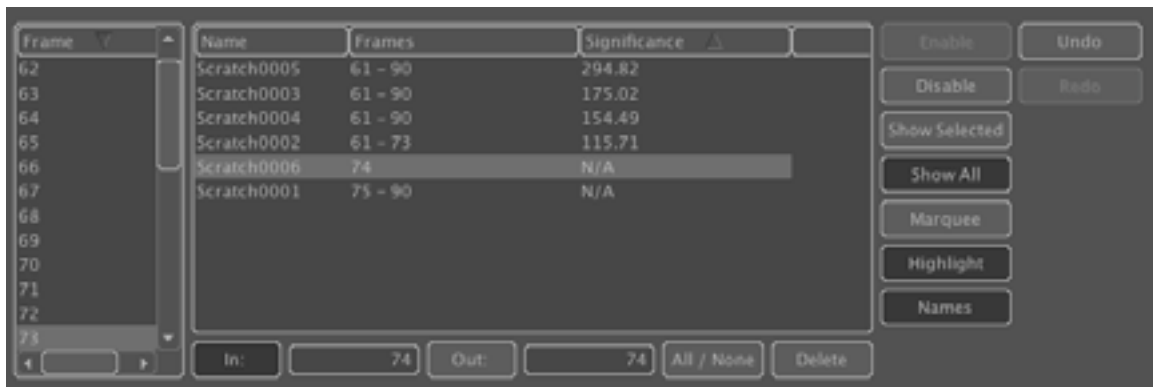


Draw a scratch by clicking at one end point and then again at the other. With "Current Only" selected, the scratch is only present in this frame.



If you want to edit the end points of any scratch, de-select "Draw". Move the mouse over the end point you want to edit until it gets highlighted. Then drag the end point to the desired position.

With your drawn scratch still selected, got frame 73. You will see that the center scratch is also visible in this frame. We will now make the scratch you've drawn valid in this frame also. Make sure that it is still selected, then press the "In" button below the scratch list. This will set the in point for the frame range where the scratch is valid to the current frame (that is frame 73). You may want to adjust the position of the scratch in this frame, too.



When you are happy with the position in both frames, check that the scratch is still selected, then click "Fix Selected" to fix the scratch. In case the scratch wasn't removed properly, edit the end points of the scratch and click "Fix Selected" again. This way you can tweak any fixed scratches, even the ones detected automatically. Try it with the scratch to the right that hasn't been fixed properly in frame 73.

