

BCC Time Displacement Filter

The Time Displacement filter is a displacement map that operates in time instead of in space. Pixels are displaced by mixing pixels from the source at the current frame with source pixels from previous or future frames. Basic frame blending is used to compute intermediate pixels and to produce anti-aliased result.



You can apply the Time Displacement filter directly to the clip that you want to filter; however, the duration of the effect is then limited to the duration of the filtered clip. To create an effect that is longer than the duration of the source media, follow the steps described in the BCC Velocity Remap filter.

The **Source Layer** menu determines which layer in the timeline is used to create the distortions in the filtered image.



If the Source Layer is partly transparent, the displacement amount scales by its alpha values. Pixels whose map alpha is 0 are not displaced.

Map Parameter Group

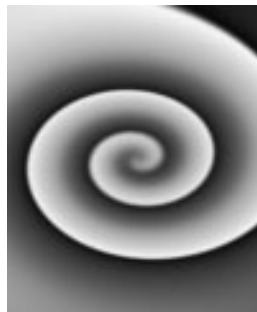
The Map parameters control the appearance of the displacement map used to distort the source image.



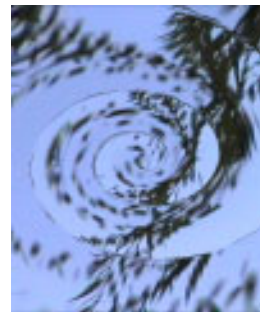
The parameters in this section are identical to the corresponding controls in the Displacement Map filter. See the BCC Displacement Map filter for more information.



Source image



Source Layer



Filtered image

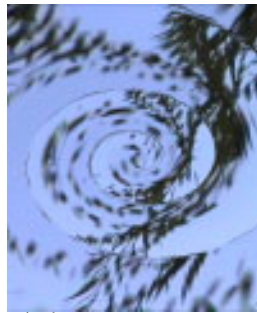
The **View Map** checkbox allows you to view the Source Layer as you make adjustments to it. Deselect this option before rendering.

The **Displacement Channel** menu sets the channel in the Source Layer used to compute displacement. The choices are *Red*, *Green*, *Blue*, *Luma*, *White*, *Gray*, and *Black*. White treats all of the pixels as if they were white (i. e. fully displaces each pixel Displacement Amount value). Gray treats all of the pixels as if they were 50% gray (resulting in no displacement). Black treats all of the pixels as if they were black, thereby displacing all pixels to the negative of the Displacement Amount value.

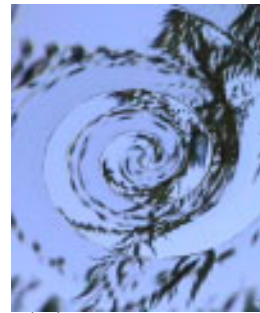
Displacement Amount sets the number of frames between the most forward-displaced pixel and the most backward-displaced. For example, if Displacement Amount is 2 and Map Reference Level is 127.5, pixels whose value in the selected Displacement Channel is 255 are displaced forward 1 frame, and those whose value is 0 are displaced backward 1 frame.



Displacement Amount=5



Displacement Amount=12



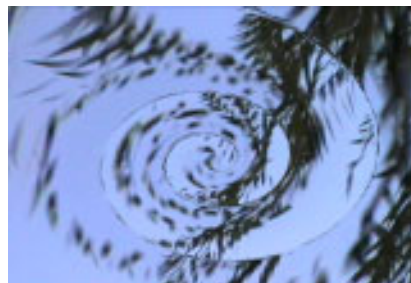
Displacement Amount=20

Map Reference Level determines the channel value for which pixels are not displaced. For example, if Map Reference Level is 0, pixels whose values in the selected Displacement Channel are 0 are not displaced. Pixels whose value is 255 are displaced 2 frames forward. If Map Reference Level is 255, pixels whose value is 0 are displaced backwards 2 frames, and pixels whose value is 255 are not displaced.

Select the **Frame Blending** checkbox to enable frame blending. It is recommended that you leave this option selected, as Frame Blending prevents an aliased appearance in the render.



Frame Blending off



Frame Blending on

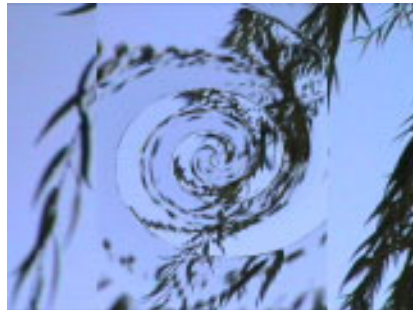
If the **Deinterlace** checkbox is selected, the program creates an in-between frame to use for the field opposite to the one being rendered, and use the new frames in the displacement render. This produces a smoother render, but it can be somewhat softer because the in-between fields are averaged to make a frame. The filter renders more slowly when Deinterlace is selected. This option is only used when the effect is field rendered; you cannot see the effect of Deinterlace in a preview.

End Behavior determines the behavior of the displacement map when the frame being rendered is the close to the first or last frame in the source media and the previous or future frame does not exist. For example, at the default settings in frame 0 the filter tries to mix the current frame with a previous frame (frame -1) which does not exist.

- *Squeeze Map in Time* uses the specified Displacement Amount where possible and squeezes the displacement map so that all pixels are displaced.
- *Expand Map in Time* expands the map in the direction which has enough pixels (in the example above, this would be in the future frames direction) to keep the distance in time between the maximum and minimum displacement equal to the Displacement Amount.
- *Clip Map* does not alter the map. The filter substitutes the closest existing frame for every frame that does not exist. This choice produces a render in which the displacement does not start for some pixels until after the start of the effect.

The **Map Behavior** setting determines how the map is applied when the source image is a different size than the image in the Source Layer. If your map is the same size as the image to which you are applying the filter, the Map Behavior settings all produce the same result.

- *Center Map* centers the map on the source and does not displace the source image outside the boundaries of the centered Source Layer.
- *Stretch Map to Fit* resizes the Source Layer to the size of the source.



Map Behavior=Center Map



Map Behavior=Stretch Map to Fit

The PixelChooser Parameter Group

The PixelChooser is included in many Boris filters and provides several methods to selectively filter an image.



For information on the PixelChooser parameter group controls, see see Chapter 10, “The PixelChooser” in the User Guide, or open the help file for the standalone PixelChooser filter. .