Creating a Motion Stabilizer Effect

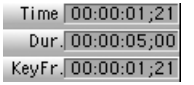
In this exercise, you will use Boris FX's new Motion Stabilizer filter to stabilize some shaky video footage. The Motion Stabilizer uses motion trackers to analyze one or more specified regions of motion and then adjusts the track's position point to compensate. During playback, the motion appears smooth because the track moves incrementally to offset the unwanted motion. You can also stabilize just a portion of a track to correct isolated camera bumps.

This tutorial uses a movie file which you can download if you like. You can also use your own footage to complete this tutorial. This tutorial is written to use the Boris FX KeyFramer. However, you could complete it in your host application if you want.

Applying the Motion Stabilizer Filter

1. Launch the Boris FX KeyFramer application.
2. The project size must be the same as the size of the source clip when using the Motion filters. Choose Edit > Preferences. In the General tab's Project Options section, set the **Project menu** to ***640 x 480 NTSC DV***. set the **Video Aspect menu** to ***4:3 Aspect Ratio***. Click **OK** to exit the Preferences window and apply the changes.
3. Click to select the top (Video 1) track in the Timeline window. The track turns blue when you select it.
4. Press the **Media icon** in the track, and choose ***Movie File*** from the menu.

5. A dialog box lets you navigate to the movie file's location. Open the ***"GreenStation.mov."*** The track is automatically renamed ***"GreenStation.mov."***
6. Select the Video 2 track in the timeline.Choose Edit > Delete Track, or press **Delete** (Macintosh) or **Back Space** (Windows). You don't need a second track for this tutorial.
7. Set the timeline duration to five seconds (00:00:05:00) by selecting the ***1,*** typing ***5*** and pressing Return (Macintosh) or Enter (Windows). The timeline updates to reflect the new duration.



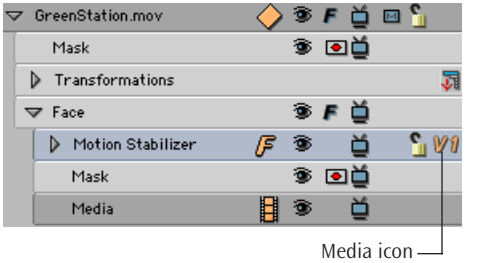
You can only use the Duration field when you work in the KeyFramer. When you use FX in a host application, you set the duration in the host application. In this case, typing in the Duration field has no affect.

8. Select the Video 1 track in the timeline. Choose Filters > Motion > Motion Stabilizer. The Motion Stabilizer filter appears in the Video 1 track.

9. Press the **Media icon** on the Motion Stabilizer track and choose choose ***Movie File*** from the menu. Import the ***"Greenstation.mov."***

   In the Motion filters, motion tracking is always applied to the media in the Source track.

   When you finish, your timeline window should look like the example at right.



10. To view the Motion Stabilizer on-screen controls, you need to open a preview window for the Motion Stabilizer filter track. Click the Motion Stabilizer track's **Preview Monitor icon** to open the preview window.

   The preview window opens, showing the Source movie footage and the Motion Stabilizer's on-screen controls.

   In the Motion filters, a preview window is always used to adjust the position of the trackers.

11. Press the **Play button** in the Preview window. Notice the camera shakes. The Motion Stabilizer will correct this camera movement.

12. Complete the steps in the next section.

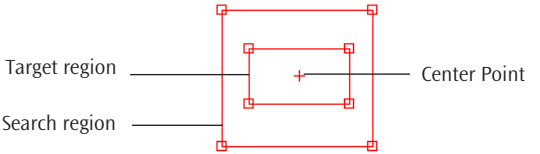
Setting the Search and Target Regions

Once the timeline is set up, you need to specify which point or points in the Source movie you want to track. For each tracker you are using, a Target and Search region can be defined in the source track. The Target region indicates the area in the media to track. The Search region indicates the area in the media that the filter should search for the target. In this section, you will define Search and Target regions for three motion trackers.

1. Press the **Quality button** at the bottom of the Preview window and choose ***High***.

2. Press the **Resolution button** at the bottom of the Preview window and choose ***Full***. Motion tracking and stabilizing should generally be done at the highest possible quality to ensure good results

3. Select the Motion Stabilizer track in the timeline. The Motion Stabilizer tabs appear in the Controls window, and the Search and Target regions for Tracker 1 are visible in the preview.

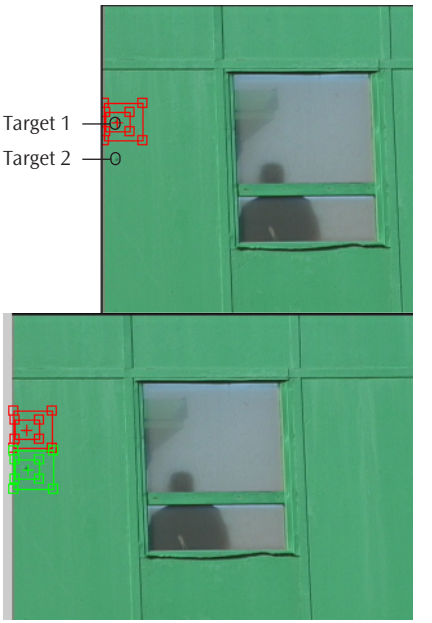


4. You now need to position the first tracker. For best stabilizing results, choose a high-contrast Target region, and a Search region that is large enough to contain the Target in every frame. In the greenstation movie, the two bolts on the left side of the image are good target regions.

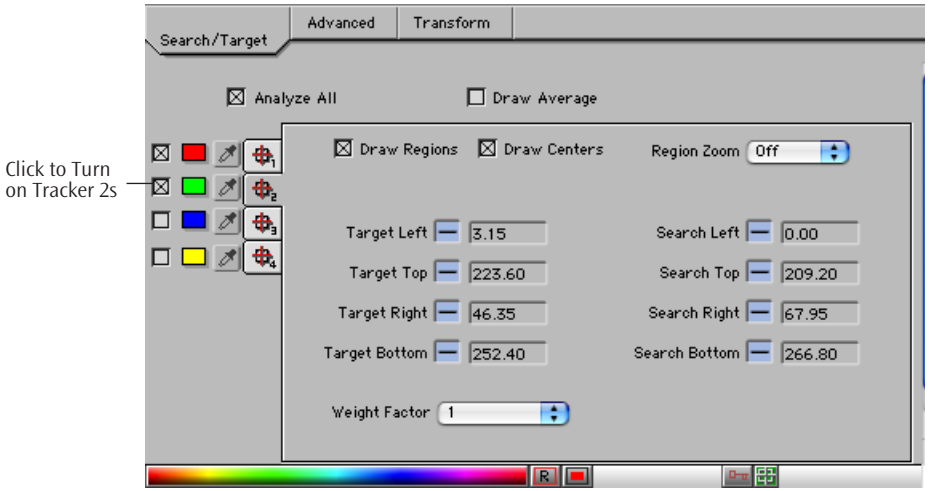
5. Make sure that the first keyframe in the Motion Stabilizer track is selected. Selected keyframes are red.

6. Click inside the Search region, then drag Tracker 1 so that its center point is positioned over the top bolt. Use the handles on the Search and Target regions to reduce the size of both regions. Keeping the regions small speeds the workflow.

   When you finish, your preview should look similar to the example to the right.



7. In the Controls window, click the Tracker 2 tab. The Tracker 2 Search and Target regions appear in the preview window, and the first tracker disappears. The Preview window reflects the tab selection in the Controls window.

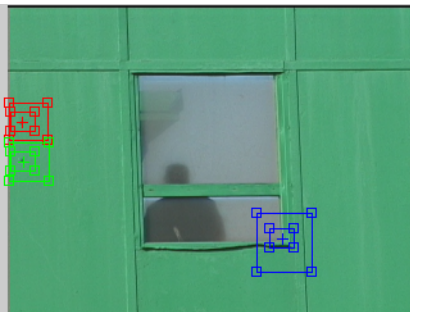


8. Select the **Tracker 2 checkbox** next to the Tracker 2 tab to turn on the second tracker.

9. Position the second tracker over the bottom bolt and adjust the size of its Search and Target regions as you did for Tracker 1. When you finish, your preview should look similar to the example to the right.

10. Click the Tracker 3 tab. Select the **Tracker 3 checkbox** next to to turn on the third tracker.

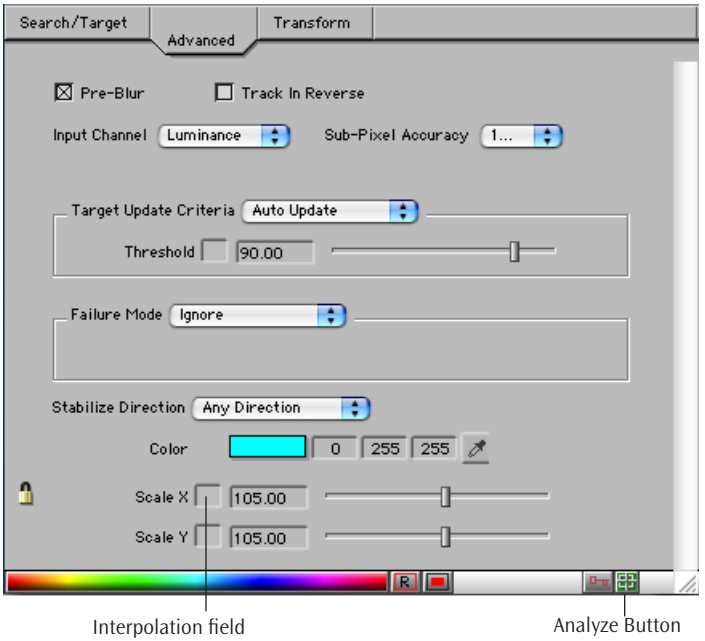
11. Position the third tracker over the lower right corner of the window, right on the line between the sill and its shadow. Since this is a larger and more complex target, use a larger Search and Target region. When you finish, your preview should look similar to the example to the right.



Analyzing Motion

Once the Search and Target regions are defined, you are ready to generate tracker data. In this section, you will analyze the three motion trackers to stabilize the footage.

1. In the Controls window in the Search/Target tab, make sure that Trackers 1, 2, and 3 are on. If it is not already selected, select the **Analyze All checkbox** so that all three trackers are analyzed. If this option is deselected, only the current Tracker tab is analyzed.
2. Click the Advanced tab in the Controls window. The Advanced tab provides more options for fine-tuning the trackers. Select the **Pre-Blurcheckbox** if it is not already selected. Pre-Blur helps smooth the image to produce better results.
3. Set **Scale X** to ***110***. Because they are locked together by default, Scale Y also updates. You need to adjust the scale so that you will not see edges when the image is stabilized. During playback, the motion appears smooth because the track moves incrementally to offset the unwanted motion.
4. Press the **Interpolation Field** for **Scale X** and choose ***Constant***. Constant interpolation creates parameter adjustments that remain static and do not create keyframes.
5. Click the **Analyze button** in the lower-right corner of the Controls window to start analyzing tracker data.



6. Once tracking is complete, close the Preview window and play the clip to view the stabilization.