

Volume Render: Movie Making

The Volume Render module contains a number of tools for movie generation. This exercise will introduce the Sequence tool. While complicated movies can be created, the goal of this exercise is to demonstrate how to generate a quick, simple movie. For more information, please review the Movie Making with Volume Render Tutorial after you have completed this exercise. The tutorial can be accessed from the Help menu in the main Analyze workspace.



1. Load the **Cubic_CT_Head.awv** data set from the **\$(\BIR\images\TutorialData)** directory.
2. Open the **Volume Render** module (**Display > Volume Render**).
3. Choose **File > Save Renderings** (figure 1).
4. In the Save Renderings window, check the **Save After Each Render** option and change **Name** to **MyTestMovie**. The movie that is generated will automatically be saved to the Analyze workspace as 'MyTestMovie'.
5. Click **Done** to dismiss the Save Renderings window.
6. Open the **Sequence** tool (**Generate > Sequence**).
7. By default, the 'sequence' already has one action, 'Z Rotation'. To modify the action click **Modify**, and then click on the red '**Z Rotation**' action (figure 2). The Action window will automatically be returned.
8. For the first part of this movie, we will threshold the data set to show the structure of interest, in this case the head. If you have completed Volume Render exercises 11 and 12, you will know that in order to view the head in this data set, we need to increase the threshold minimum to 85.
9. In the **Action** window, set the following parameters (figure 3):
 - **Action Name: Threshold**
 - **Number of Frames: 36**, the default frame display is 12 frames per second.
 - **Persistent:** Checking the 'Persistent' option will ensure that the minimum threshold parameter set in this action will be retained for the rest of the movie. If not checked, the threshold minimum will be reset after the action is completed.
 - **Parameter: Threshold**
 - **End Minimum: 85**

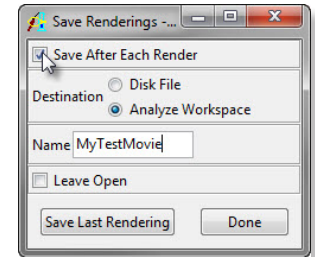


Figure 1

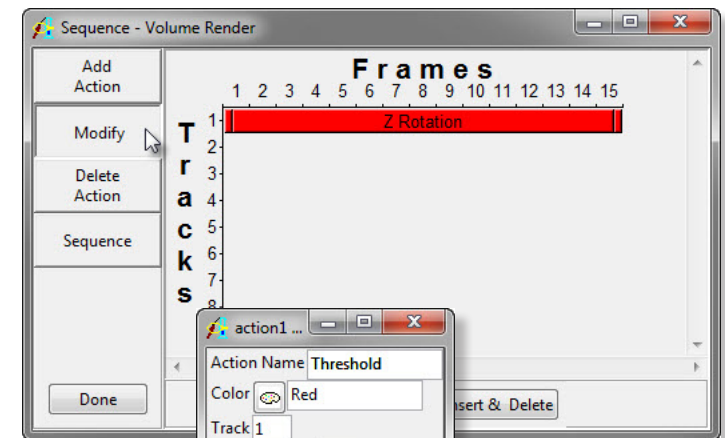


Figure 2

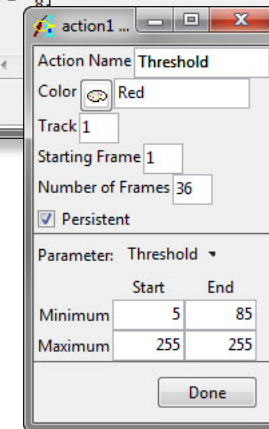


Figure 3

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10. To preview the movie with the new action, first open the **Preview** window (**Generate > Preview**).
11. Now, in the Sequence tool, click **Sequence**. Then, click **Make Sequence** (figure 4).
12. A dialog box will be returned asking if you would like to 'Preview' or 'Make the Sequence', click **Preview the Sequence**. The movie will now be played in the Preview window.

note The 'Preview the Sequence' option is only available when the Preview window is open. If the Preview window is not open, the dialog box will not be returned after clicking 'Make Sequence', instead the sequence will automatically be generated.

13. Add another action to the movie. Click **Add Action** and place the new action on Track 2 in Frame 36; this will be directly under the last frame of the 'Threshold' action (figure 5).
14. Once the new action has been added, click **Modify** and then click on the new action to open the Action window.
15. We will now add a rotation to the movie. Set the following parameters for the new action:
 - **Action Name: Rotation**
 - **Number of Frames: 60**
 - **Parameter: Rotation**
 - **End Z: 720** (2 rotations, $360=1$ rotation)
16. Click **Done** to dismiss the window.
17. Review the movie. Click **Sequence**, and then, with the Preview window open, click **Make Sequence**.
18. In the dialog box returned, click **Preview the Sequence**. The movie playing in the Preview window should show the data set being thresholded to the head, followed by two quick rotations about the Z-axis.

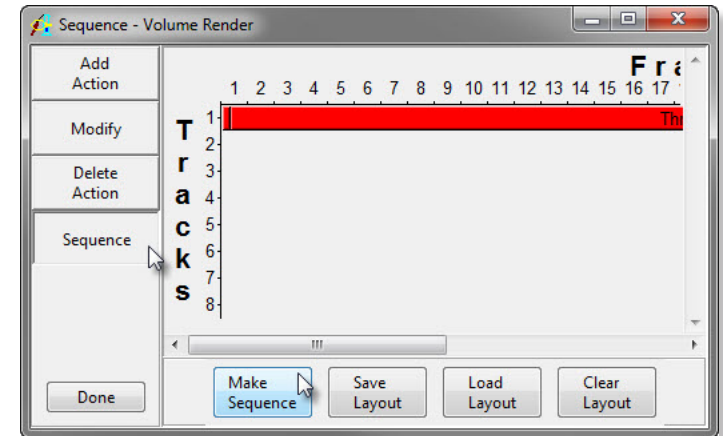


Figure 4

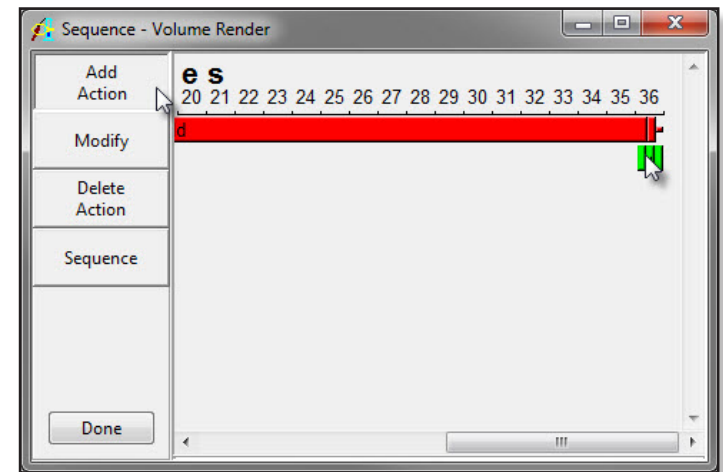


Figure 5

note To slow the rotation of the data set, simply add more frames in the Action window (e.g. Change Number of Frames from 60 to 120), or only show one rotation by changing the End Z value to 360 from 720.

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19. To generate the movie, click **Sequence** again. This time, after clicking **Make Sequence**, choose **Make the Sequence** from the dialog box returned.
20. As the sequence is generated, each frame will be displayed in the main Volume Render window. Each frame is also being written to a movie file called 'MyTestMovie' in the Analyze workspace (specified earlier in the Save Renderings window).
21. Once sequence generation is complete, close the Volume Render module.
22. In the Analyze workspace, select the MyTestMovie file and review it using the **Movie** module (**Display > Movie**). (figure 6)
23. To save the movie out of Analyze, choose **File > Save** in the Analyze window. Choose a movie file format (AVI, QuickTime, or AnimatedGIF) from the **Format** dropdown menu before clicking Save.
24. Close the Movie module before proceeding to the next exercise.

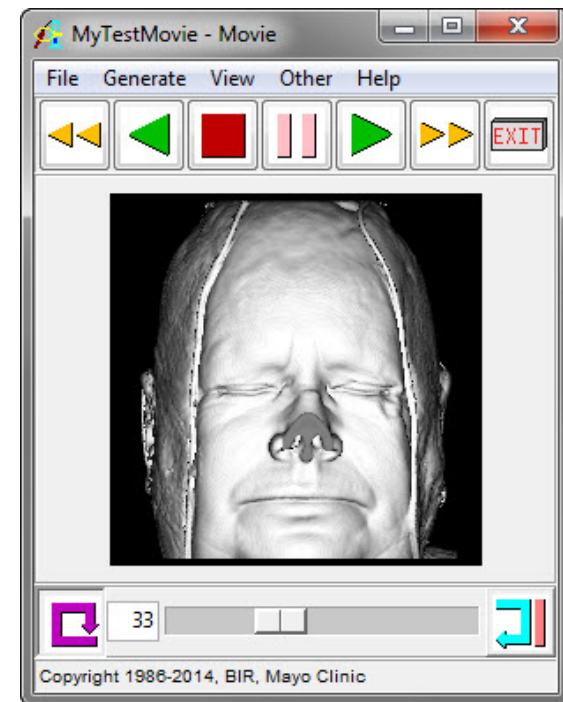


Figure 7