Use the **Movies** panel in the 3D window to create movies for your publications or for sharing with colleagues.

A movie is defined by a series of clips; a clip is defined by a series of frames.. For each clip, you need to define the first and the last frame; an animation is created by generating frames between the first frame and the last frame.

In this tutorial, you will learn to create and edit a movie, use bookmarks, save the movie for further editing, and export the movie.

1. In the 3D window, click the **Open Image File** button in the toolbar.

2. The Image Open window appears with the application folder already selected. Select the demo file "MBF_NeuronTracing.jpx" from the list.

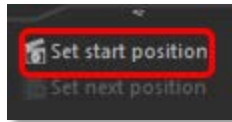3. Click the **Movie** button to display the Movie tools (Timeline, Bookmarks, Save and Export).
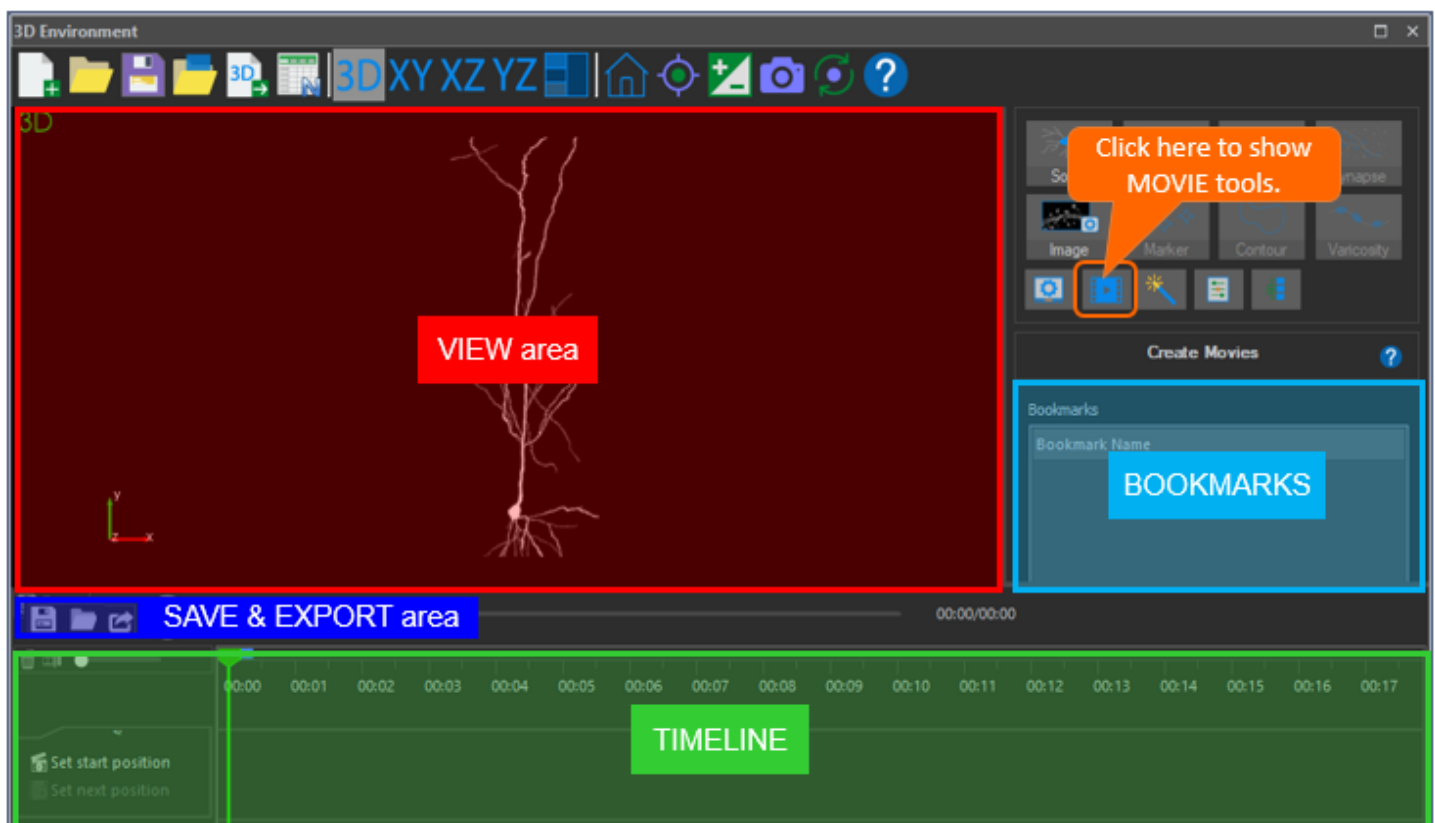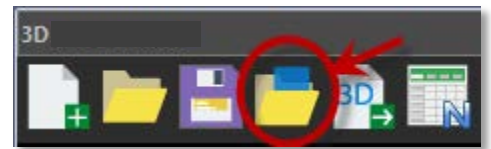
View 1

4. Create a clip.

    a. Set the first frame in the View by zooming and panning as needed. Here, the first frame (that we'll call View 1) is the entire neuron in its original orientation. This is the first thing you see when playing the movie.
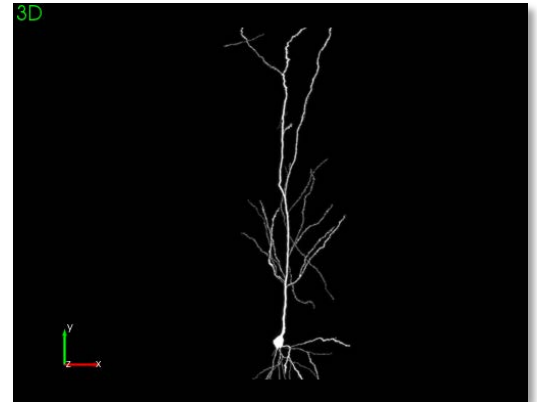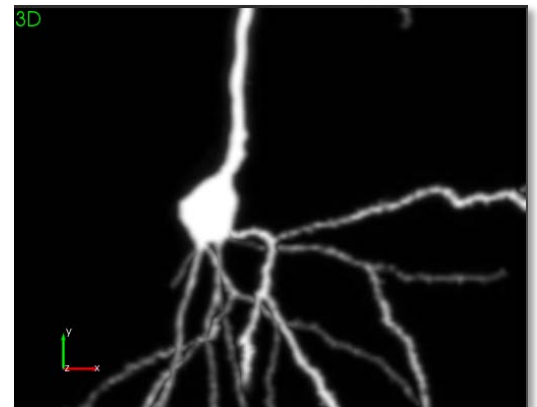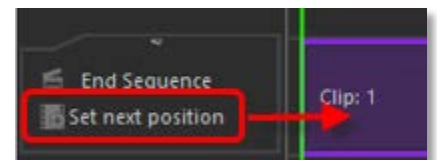
    b. Click **Set start position**.

    c. Set the last frame (View 2) in the View area: Zoom in and pan to display the soma and the basal dendrites.
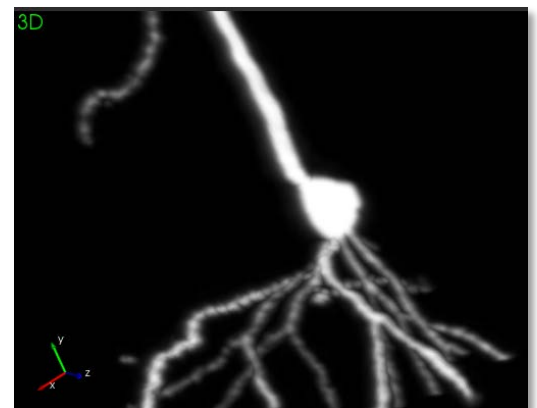

View 2

    d. Click **Set next position**. An animation is created and added to the timeline (Clip: 1). The animation starts with View 1 and ends with View 2; the program generates the frames between View 1 and View 2.
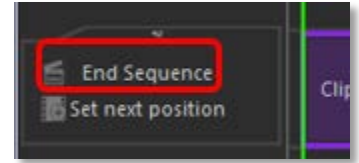

5. Create another clip.

    a. The first frame for the second clip will be View 2.

    b. Set the last frame for the second clip: Rotate around the soma until you see approximately View 3.

    c. Click the icon or **Set next position**.

An animation is created and added to the timeline (Clip: 2). The animation starts with View 2 and ends with View 3.
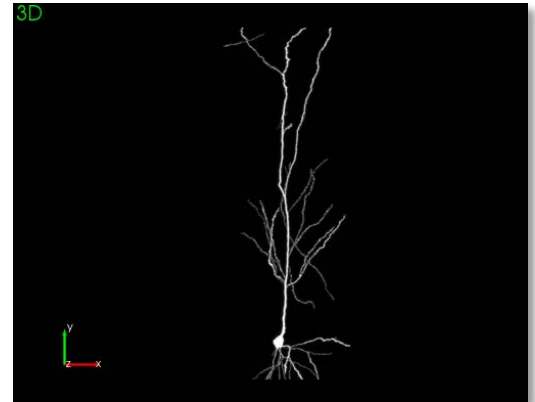

View 3

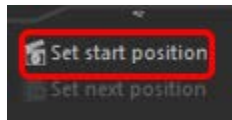6. Click **End sequence** to finish the first animated sequence that consists of clip 1 and clip 2.

7. Now start another animated sequence by creating another clip.

   a. Set the first frame in the View area. Here, the first frame (that we'll call View 4) is again the entire neuron in its original orientation.
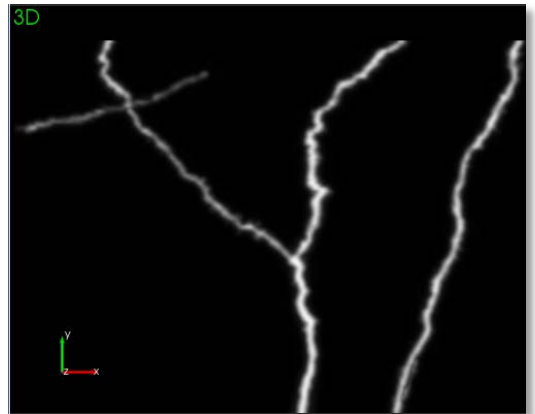
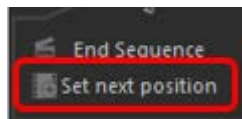   *View 4*

   b. Click **Set start position**.

   c. Set the last frame (View 5) in the View area: Zoom in and pan to display the "top" of the neuron.
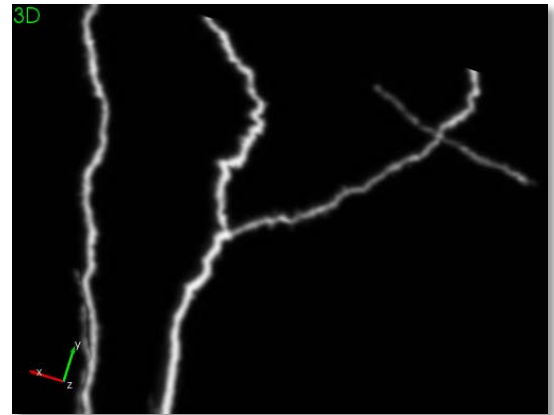
   View 5

   d. Click **Set next position**.

   An animation is created and added to the timeline (Clip: 3). The animation starts with View 4 and ends with View 5.

8. Create another clip.

    a. The first frame for the next clip will be View 5.

    b. Set the last frame for that clip: Rotate the neuron until you see approximately View 6.
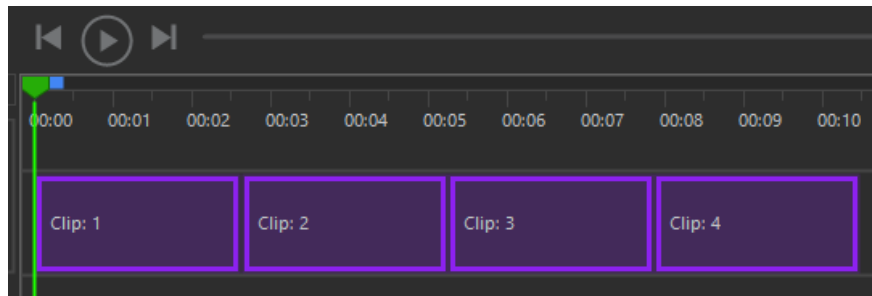

View 6

    c. Click

An animation is created and added to the timeline (Clip: 4). The animation starts with View 5 and ends with View 6.

9. Click **End sequence** to finish the second animated sequence that consists of clip 3 and clip 4. Your timeline should look like this:
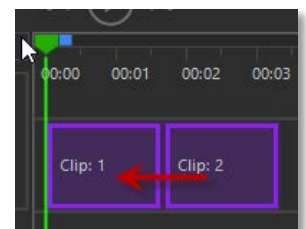

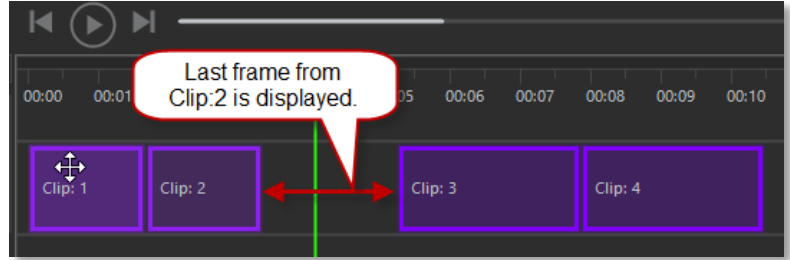10. Now let's increase the speed of clips 1 and 2.

    a.   Select clips 1 and 2 in the timeline: Click **Clip: 1**, press the **Shift** key, then click **Clip:2**.

    b. Click and drag the right side of clip 2 to the left to make the clips shorter.
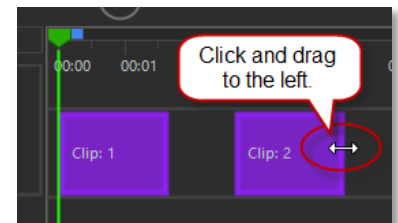
    c. Click and drag **Clip: 2** next to **Clip: 1**.

4

Note that the time period that contains no clip in the timeline will display the last frame from **Clip: 2**.

11. Re-color and rename clip 3.

    a. Click **Clip: 3** to select it.

    b. Right-click and select **Customize clip**.

    c. Change the clip title to *Neuron top*.

    d. Click **Set color** to change the color then click **OK**.

12. Delete clip 4.

    a. Click **Clip: 4** to select it.

    b. Right-click and select **Delete clip**.

13. Add a bookmark to navigate quickly to a specific view (or frame) in the image.

    a. Drag the playhead to a frame in the middle of **Clip: 2**.

    b. Right-click the time axis near the playhead and select **Add bookmark here**.

    c. The bookmark is represented by an orange marker in the timeline and listed in the **Movies** panel on the right.

    d. Rename the bookmark: Double-click the orange marker, type **Soma close-up** in the **Name** field and click **OK**.

    e. Test the bookmark: Drag the playhead back to the beginning of the timeline. In the panel on the right, click the name of the bookmark "Soma close-up" to navigate to the corresponding frame.
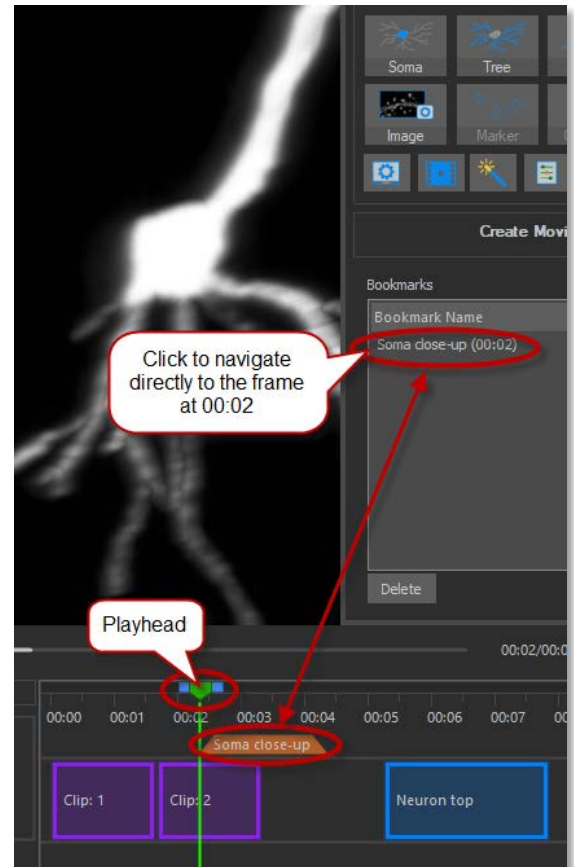
14. Save the movie so that you can edit it again later.

   In the **Save & Export** area, click the **Save** button. This generates an xml file.

15. Preview the movie.

   Click the **Play** button under the **View** area.

16. Export the movie for sharing.
   a. Click the **Export** button.
   b. In the **Export Movie** window, select a location and the 960x720 resolution. This generates an mp4 file.

      NOTE: The higher the resolution, the longer it takes to process the file.