Animation Kit for FirstGlance in Jmol Version 4.7.

You may save this PDF document to your computer if you wish.

Try the Animation Maker built into FirstGlance first.

FirstGlance can make a presentation-ready animation of any molecular view with just a few mouse clicks. Here is how to do that. Here are examples of such animations in Google Slides. These easily-made animations simply **rock or spin.** To capture more complex movements, see the Video Capture Instructions.

The new animation-making mechanism built into FirstGlance version 4.7 is much more reliable than the old server-based mechanism, and can make larger animations. This Kit is provided in case the animation-maker built into FirstGlance does not do quite what you want. With this kit, you have more control over the speed of animation, and the smoothness of movement.

Animation Kit Instructions

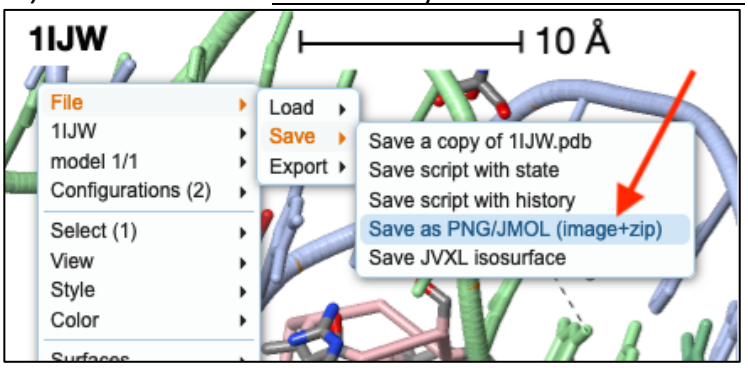
1. Download the *Animation Kit* and unzip it. (If you downloaded it a while ago, best to download it again in case it has been updated.) This will produce a folder (directory) named *animation_kit*. The animations you create will be made in this folder.

2. Install or update **Java**. You will need to run the stand-alone Jmol application (included in the kit), which requires Java. Go to java.com and follow instructions to download and install the current version. (Optionally, if you already have Java installed, you can verify the installed version – see instructions under Options below.)

> If you don't know where in FirstGlance to find something mentioned below, look it up in the How & Where Index.

3. In FirstGlance, get exactly the molecular view that you want to animate. Things to consider:
   A. Usually you will want to depress the **quality** button. It is near the top of the *Molecule Information Tab*, and in the *Button Box* in the Views or Tools tab.
   B. Use a **white background** using the *Background* button (near the top of the *Molecule Information Tab*, and in the *Button Box* in the Views or Tools tab). Black backgrounds generate distracting artifacts in these animations.
   C. **Size** your browser window so that JSmol is the size you want for your animation. You can change the size later, but it's simpler to start with the size and shape that you want. The animation can be rectangular if your molecule fits better in a rectangle. Large sizes will generate larger animation files. To avoid an unnecessarily large presentation file (.pptx), don't make the size larger than needed for a clear animation when projected. A square 500 pixels on a side is usually large enough.
   D. **Zoom** your molecule to fill JSmol. If there is a lot of empty space around the molecule, that empty space will be in your animation, taking up wasted space in your slide.

4. Save a **png** file containing the JSmol state:
   A. Right click on or near the molecule in JSmol, and on the menu that appears, click on *File*, *Save, Save as PNG/JMOL*. Be sure to save it into your animation kit folder.



   B. Rename the .png file to something descriptive of the molecular view it contains (keeping the file type/suffix **.png**).

5. Run Jmol: double click on the file **Jmol.jar** in your animation kit folder. A black window should appear.

   macOS: The first time you double-click Jmol.jar, macOS will refuse to run it. Open *System Settings* and go to *Privacy & Security*. Scroll down near the bottom, where you will see, under the *Security* section, *"Jmol.jar" was blocked to protect your Mac*. Click the button **Open Anyway** (twice). After doing this, in future, you can simply double-click on Jmol.jar to run it.

6. **Display** your molecular view in Jmol: The png file you saved in step 4 is special: it contains JSmol commands to re-create your molecular view. Drag the special png file and drop it into the black Jmol window. OK changing the window width and height to the size when you saved your molecular view. Your molecular view should appear.

7. Set the **animation speed**: Drag the file *playback-slow.spt* and drop it onto your molecular view. (Later, if you repeat this step, you may choose a different speed.)

8. **Create** the animation file:
   A. Decide whether you want rocking or spinning. If rocking through 40, 60, or 90 degrees is sufficient, the animation file will be smaller. If you need to show all sides of the molecule, you can spin (360°), but the animation file will be larger.
   B. Decide whether to rock or spin around the X (horizontal) or Y (vertical) axis.
   C. Drag the appropriate file and drop it onto the molecule. For example, if you want to rock 60 degrees around the Y axis, drag and drop the file **rock-y-60.spt**. The molecule will begin to move. Wait until it stops moving. This may take several minutes.

9. **Rename** the animation file: The previous step will create a file whose name begins **rock** or **spin**, and ends in **.gif**, in your animation kit folder. Rename it to something appropriate

(**keeping .gif as the end of the file name!**), because if you make another animation, it will overwrite this file.

10. Drag the .gif file and **drop it into a slide** in your presentation. Resize and position as desired. In Google Slides or recent versions of PowerPoint, it will animate automatically. In older versions of PowerPoint, it will animate only when you go into *Slideshow/Projection* mode. (Optional: you can preview the animation by dragging the .gif file and dropping it into a web browser window.)

Repeat steps 3-10 to make additional animations.

If you have any problems with the animation kit, we'd like to help, and to know how to improve it. Please contact m0lviz@yahoo.com

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Options

Adjusting animation size, zoom (optional):

After you drop your png file into Jmol, and see your molecule, and *before* you set the playback speed and generate the .gif file, you may resize the Jmol window if you wish. The animation .gif file will be the same size as the window. You may also rotate the molecule to a different starting orientation, or zoom it (mouse wheel, or hold down Shift while dragging up/down).

Making other rocking angles or playback speeds (optional):

The files **playback....spt** contain Jmol commands that set the frame capture rate and playback speed. If you wish, you can try other values by duplicating one of these files and editing it with a plain text editor.

The files **rock....spt** contain Jmol commands that determine the rocking angle. If you wish, you can try other angles by duplicating one of these files and editing it with a plain text editor. Note that the value at the end of the rock command is *half* of the full sweep angle.

Smoother Rotation (optional):

Most of the animation script files move 1 degree between frames. If this seems too jerky, you can try moving 0.5 degree between frames at the expense of doubling the size of the GIF file produced. Try **rotateslab-rock-y-60-0.5deg.spt**. Although it is named "rotateslab" it will equally well rock a view that has no slab cuts.

Verifying your Java version (optional):

You must be online to do this.

Windows:

A. In the *Type here to search* slot at the left in the Taskbar below your desktop, enter *control panel*.
B. If you are viewing by Category, select Programs. If you are viewing by icons, skip this step.
C. Click on Java.
D. In the *Java Control Panel* that opens, select the *Update* tab. Click the *Update Now* button at the lower right. It will tell you if you have the current version. If you don't, proceed to update.

macOS:

A. Open *System Preferences.app* (in your Applications folder).
B. Click on Java in the bottom row. (If Java is not there, you don't have Java installed. Go to java.com, download, and install.)
C. In the *Java Control Panel* that opens, select the Update tab. It will tell you if you have the current version. If you don't, there is a button for updating Java.