

Movie Making

... for the impatient

Scenes into Movies in 4 steps

Store

Scenes into Movies in 4 steps

Store **Recall**

Scenes into Movies in 4 steps

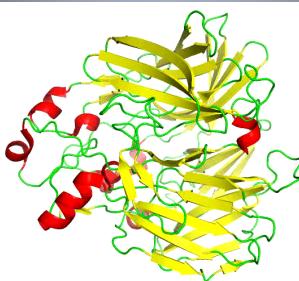
Create Movie Settings

Scenes into Movies in 4 steps

Export Movie

Scenes Export Movie

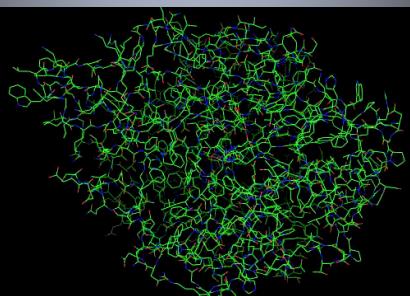
- Example F1-F5 -



F1-2-3-4-5 / 4sec / Y-Rock / 14.8 Mb / MPEG

31 sec.

Scene Export - Example F1-F4 -

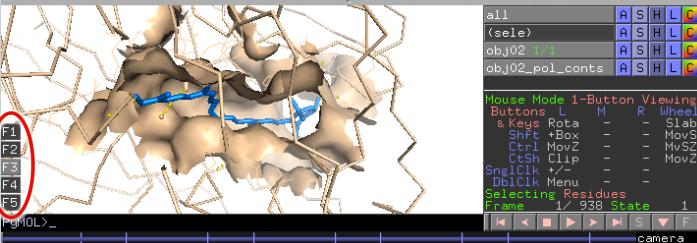


F1-2-3-4 / 4sec / Steady / 9.8 Mb / MPEG

29 sec.

PyMOL> set scene_buttons

PyMOL> set scene_buttons



PYMOL>set scene_buttons, on
Setting: scene_buttons set to on.

PYMOL>set scene_buttons, off
Setting: scene_buttons set to off.

HELP! - PyMol Wiki

<http://www.pymolwiki.org>

Main Page

Welcome to the PyMOL Wiki!

The community-run support site for the PyMOL® molecular viewer.

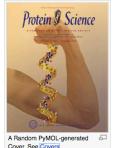
For Educational downloads go to <http://pymol.org/educational/>

Quick Links

Tutorials	Table of Contents	Commands
Script Library	Plugins	FAQ
Gallery Covers	PyMOL Cheat Sheet (PDF)	GoogleSearch

News & Updates

- New Script Anglebetweenhelices calculates the angle between two helices.
- Search GoogleSearch widget fixed.
- New Script Specmurray creates color gradients with arbitrary color sequences.
- New Script BbPlane will draw CSD planes across the backbone highlighting planarity of arrangement.
- New Script Center Of Mass has been re-written to calculate either the center-of-mass or (mass-weighted) center-of-mass for a



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MovieSchool

PyMOLWiki's Movie School

Welcome

Here you will learn all the secret and greatest techniques for making movies in PyMOL. These make you look like a master of PyMOL when you can show them off in a presentation or even in MPEGA/W format. If you are new of learning I have commented all of the movie scripts and tried to ensure that they work in PyMOL. If you just copy/paste the code and run it, it will work. If you have any comments on this tutorial, please add them to the discussion page. If you want to contribute, improvements or corrections, as always, please feel free to improve the pages. If NB: While this is pretty expressive (hence the 8 lessons) it is still incomplete and surely rough in some places.

NB: Make sure you have the newest PyMOL v1.20.6.

Movie Making Roadmap

- The basics: movies in 60 seconds.
- Temporary & Movie Related Commands
- Definitions, parameters, settings;
- + PyMOL GUI for Movie Making
- Using the GUI to make movies
- + Simple Movie Examples
- Easy copy/paste examples
- + Putting it All Together
- More advanced examples: using states, scenes, and object motions
- + Exporting & Using your Movie
- Using your movie, once it's made

.../index.php/MovieSchool



Movie Making

Categories: Main Page · Recent changes · Special pages · Permanent link

navigation

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(Go) Search

toolbar

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Movie Creation in PyMOL

The page lets about how to take your export movie files and turn them into an actual movie. For learning how to make a movie in the first place, see MovieSchool.

Encoding video files

Animated GIF

Quality note: Converting a video generally results in a loss of quality and reduces its size. Of course there is a good reason for this, but if you want to keep the quality of your video as high as possible, then this is the way to do it.

With such use of these options during the generation of the QR it is possible to create

several to emphasize certain frames. Used Gif Animations works well although there are many programs

to do this. One of the best is ImageMagick, which can convert files with many frames to gif files as frames at a time.

Avidemux

Avidemux is a great tool to edit your image files together as a movie. It can read the PNG output

http://www.pymolwiki.org/index.php/Making_Movies

Movies within PyMol

mset 1

mset defines which "state" (MODEL) is used

mdo 1: turn y,5;

turn = the action
Y = the axis
5 = number of degrees per turn

mdo = action list on which "state"



PyMol movies Suitable for Export

```
mclear          mclear = clears previous settings

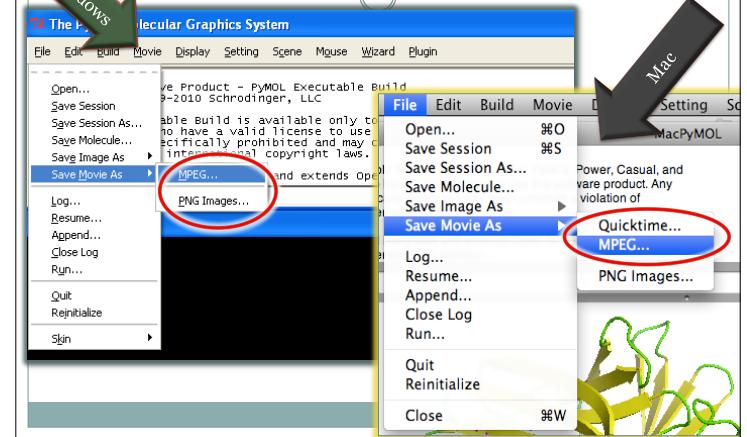
mset 1 x36      mset defines which "state" (MODEL) is used
                  AND how many frames are in the movie: 36

movie.roll 1, 36 movie.roll = action
                  1 = first frame
                  36 = last frame
                  ASSUMED = y axis and 360° rotation

mplay          play button icon

mstop
```

Saving movie as MPG



Saving the Movie as Frames

- Movie can be saved as individual frames to be assembled in 3rd party software:
 - QuickTime™Pro (Mac / PC / 29.99\$)
 - <http://www.apple.com/quicktime/extending/>
 - VideoMach (PC – 3 price versions)
 - <http://www.gromada.com/>
 - ImageMagick (Open Source, free)
 - <http://www.imagemagick.org/>
 - Avidemux (Open Source, free) <- recommended by PyMolWiki
 - <http://avidemux.sourceforge.net/>

Ray Trace images and Viewport

viewport 320,240
viewport = size of the image

set ray_trace_frames=1
turn ray trace "on"

set cache_frames=0
one frame at a time

mclear

mset 1 x36

movie.roll 1, 36

Movie Display Setting
Frame Rate Program Update Program
Draw Frames Ray Trace Frames Cache Frame Images Clear Image Cache
Static Singletons Show All States

Movie Commands

Movie programs	Definitions and complete parameters
movie.rock	movie.rock(first,last,angle=30,phase=0,loop=1,axis='y')
movie.roll	movie.roll(first,last,loop=1,axis='y')
movie.zoom	movie.zoom(first,last,step=1,loop=1,axis='z')
movie.screw	movie.screw(first,last,step=1,angle=30,phase=0,loop=1,axis='y')
movie.sweep	movie.sweep(pause=0,cycles=1)
movie.pause	movie.pause(pause=15,cycles=1)
movie.nutate	movie.nutate(first,last,angle=30,phase=0,loop=1,shift=math.pi/2.0,factor=0.01)
movie.tdroll	movie.tdroll(first,rangex,rangey,rangez,skip=1)
movie.timed_roll	timed_roll(period=12.0,cycles=1,axis='y')
movie.load	movie.load(*args,**kw)

movie.roll

viewport 640,480
mclear
mset 1 x360

movie.roll 1,120,1,axis=x
movie.roll 121,240,1,axis=y
movie.roll 241,360,1,axis=z

mplay
mstop # to halt the movie

movie.tdroll 1, 180, 180, 180, 5

2biw

movie.rock

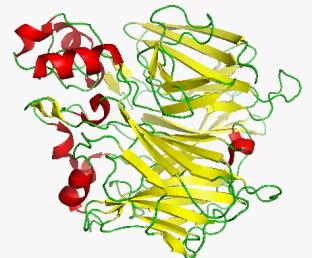
```
mclear  
mset 1  
  
movie.  
  
mplay  
mstop
```

Tyrosine 322

2biw

movie.zoom

```
mclear  
mset 1 x120  
  
movie.zoom 1, 120  
  
mplay  
mstop # to halt the movie
```

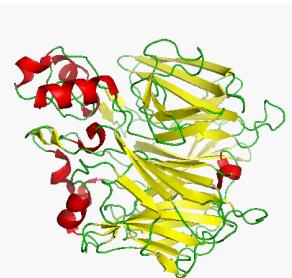
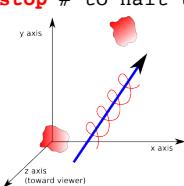


2biw

Note: you can change the axis (default is y): movie.zoom 1, 120, axis = x

movie.screw

```
mclear  
mset 1 x120  
  
movie.screw 1, 120  
  
mplay  
mstop # to halt the movie
```



2biw

movie.nutate

```
mclear  
mset 1 x120  
  
movie.nutate 1, 120  
  
mplay  
mstop # to halt the movie
```



2biw

Same as "lemniscate" in VMD

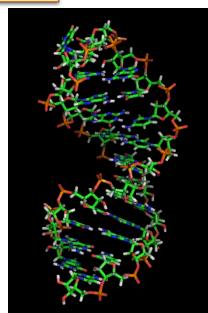
Multiple PDB files: MODEL ENDMDL

```
MODEL      1  
ATOM    1  O5'   G A   1    -11.545 -12.549  4.261  1.00  0.00      O  
ATOM    2  C5'   G A   1    -12.281 -11.830  5.254  1.00  0.00      C  
//  
ATOM    768  H6   C A   24    -0.402 -19.203  3.575  1.00  0.00      H  
TER    769          C A   24  
ENDMDL  
MODEL      2  
ATOM    1  O5'   G A   1    -10.937 -10.771  1.038  1.00  0.00      O  
ATOM    2  C5'   G A   1    -12.150 -10.309  1.638  1.00  0.00      C  
//  
ENDMDL  
MODEL      3  
ATOM    1  O5'   G A   1    -10.937 -10.771  1.038  1.00  0.00      O  
ATOM    2  C5'   G A   1    -12.150 -10.309  1.638  1.00  0.00      C  
//
```

Multiple PDB files: mset

contains 12 models PDB: 1SY4

mset 1 -12 -1



1SY4

morph command



New simpler command starting with PyMOL 1.6

```
# get open & closed conformation of E.Coli adenylate kinase
fetch lakeA 4akeA, async=0
# Align
align lakeA, 4akeA
# morph
morph mout, lakeA, 4akeA
```

See page 155

<http://pymolwiki.org/index.php/Morph>

GUI method:

The morph feature is available from the object menu panel: A > generate > morph

morph command



adenylate kinase

See page 171

rate > morph

Morph: lake / 4ake

MORPHS: 2RGX into 2RH5



File: **all.pdb2** provided on scratch server

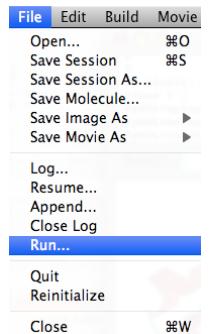
2RGX: Adenylate Kinase from Aquifex Aeolicus in complex with Ap5A
2RH5: Structure of Apo Adenylate Kinase from Aquifex Aeolicus



Scripts



Set of commands in a text file



Activate on line command with @

IF file ends with .pml :

- Can use menu File > Run...

PyMol : Beyond Basic Movies



✓ Advanced:

• rTools

http://www.rubor.de/pymol_extensions_de.html
Last modified: Wed Apr 28, 2004

• eMovie PyMol plug-in

<http://www.weizmann.ac.il/ISPC/eMovie.html>
Last Updated: 02/04/2008

Hodis, E., Schreiber, G., Rother, K., Sussman, J.L.,
eMovie: a storyboard-based tool for making molecular movies,
Trends in Biochemical Sciences 32, 199-204 (2007).

Movies with PyMol: 3 ways built in



Scene Menu:

○ Saved scenes in Function keys F1-F12

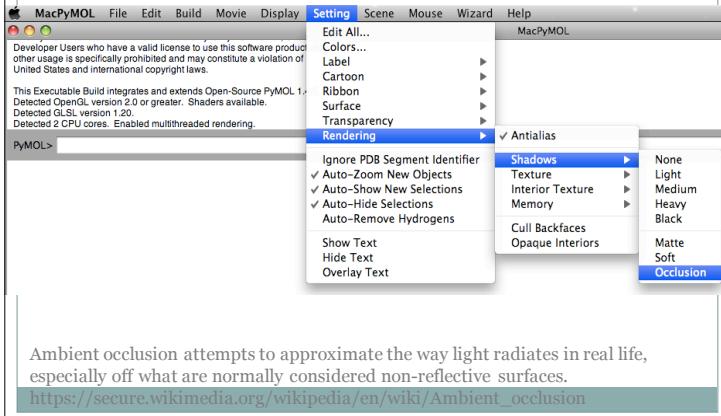
Animate within PyMol

Animate Script command

○ can export frames/MPEG/QuickTime™

Other ways with external scripts or plug-ins.

Ambient Occlusion (new in PyMOL 1.4)

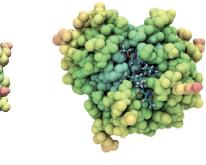
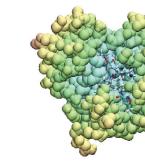


Ambient occlusion attempts to approximate the way light radiates in real life, especially off what are normally considered non-reflective surfaces.

https://secure.wikimedia.org/wikipedia/en/wiki/Ambient_occlusion

Optional Tutorials: VMD

VMD: Ambient Occlusion



The tutorials can be downloaded from:

<http://virology.wisc.edu/acp>

Click on "Class Tutorials"

Then under "Our Tutorials" use the pull-down menu to select the PDF you want to download. It will open automatically in your browser.

To save simply use the "Save As" command from the File menu in the browser.

