

Keyframed Object Animator Script

(This script is MOD. You can modify it, use it in your creations, keeping it COPY, MODIFY and NO TRANSFER.)

This script allow to animate an object by Keyframed Motion (non-physical SMOOTH movement) and more:

- Move to absolute/relative position
- Rotate to world coordinates / or relative to the current placement
- Change speed
- Move and rotate parts of the object linkset
- Modify textures, emit light
- Play sounds and particles
- Send chats to public or owner
- Wait
- Schedule cycling events (not movements) by separate script, same configuration notecard

When an object is moving by keyframed motion, it cannot be modified or stopped until it complete its course.
(If you take it in inventory, will continue the motion after rez).

When you remove the notecard or the scripts, the object set with keyframed motion will continue to move until it complete the movement.

Requires to add the script and the animation_program notecard to the object inventory.
If the notecard is missing, the animation stops. You need to reset the script to restart.

The starting position is saved into the object description.
You can re-set the starting position by clearing or editing the object description field.

You can RECORD and SAVE a complex sequence of movements and rotations by using the "Say Position&Rotation" script included.
You need to click the object for every step you want to save. Position and rotations will be printed in chat.
You need to copy and edit the sequence from the chat history into your notecard.
You can UNDO and return to the last position pressing CTRL+Z while the object is selected.

The COMMAND INSTRUCTIONS accepted are:
(each line have 1 character command followed by arguments)

O : set the default orientation (the preferred side of the XYZ defined as frontal face)
S : set the object speed (integer or floating point values)
P : move to offset position $\langle \pm X, \pm Y, \pm Z \rangle$ from the current
L : move to region location $\langle X, Y, Z \rangle$ from the current
R : rotate the object as defined by $\langle A, B, C, D \rangle$
D : add a rotation $\langle \pm 180, \pm 180, \pm 180 \rangle$ to the current (in degrees)
F : the object turn the front face toward a relative $\langle \pm X, \pm Y, \pm Z \rangle$ position in space
M : send a message to public chat
W : wait N seconds (before next instruction)
B : move back to starting position (saved in the object description)
A : repeat the execution from line N (0 is first line)
> : play (>1) a sound or stop (>0) a sound
* : play (*5,1) a ParticleSystem on linkset number 5 or stop it (*5,0) on linkset number 5
& : (DEBUG) show the current command as hover text
! : schedule one of the above commands (not movements)

":" MODIFY PRIM PARAMS

;is used as separator between parameters

[PRIM_POS_LOCAL, position]

:2:PRIM_POS_LOCAL;<0.70490,0.40808,-0.06985>

[PRIM_ROT_LOCAL, rotation]

:2:PRIM_ROT_LOCAL;<-0.66572,-0.23836,-0.66572,0.23836>

[PRIM_OMEGA, axis, spinrate, gain] - Sets the prim's spin to the specified axis and rate.

:2:PRIM_OMEGA;<1,0,0>;3;3

[PRIM_POINT_LIGHT, boolean, linear_color, intensity, radius, falloff]

:4:PRIM_POINT_LIGHT;1;<1,1,1>;1.0;4;0

[PRIM_PROJECTOR, texture, fov, focus, ambiance]

:4:PRIM_PROJECTOR;33953c73-5096-f2ba-a20b-991ec694eb72;2.5;0;0

(Requirement: texture must be in the object inventory)

[PRIM_GLOW, face, intensity]

:4:PRIM_GLOW;0;0.20

[PRIM_FULLBRIGHT, face, boolean]

:2:PRIM_FULLBRIGHT;4;0

[PRIM_COLOR, face, color, alpha]

:2:PRIM_COLOR;4;<0.000,0.000,0.000>;1.0

[PRIM_TEXTURE, face, texture, repeats, offsets, rotation_in_radians]

:2:PRIM_TEXTURE;2;00000000-0000-0000-0000-000000000000;<1.0,1.0,0.0>;<0.0,0.0,0.0>;0.0

The object can move in ANY direction, you need to rotate it properly if you want to move it along its frontal face.

EXAMPLES OF COMMANDS:

R<0,0,0,1> (4 parameters)

Set the initial rotation placement of the object.

For an accurate rotation, split it in steps: a 180 degrees turn, need to be split it in TWO 90 degrees rotations.

Set default orientation:

O<90,180,0> (3 parameters in Degrees)

Adjust the side of the object defined as FRONTAL FACE:

Any object have 6 sides according to X,Y,Z coordinates.

This define the INITIAL ROTATION defined as DEFAULT. AFTER you set R<0,0,0,1>

MOVEMENT: <X,Y,Z>

Back and Forth:

P<-10,0,0>

P<+10,0,0>

Up and Down:

P<0,0,+10>

P<0,0,-10>

ABSOLUTE ROTATION EXAMPLES:

(These are generated by the Script-Tool "Say Position&Rotation")

R<0.00000,0.00000,0.00002,1.00000>

P<-1.06,0.00,0.00>

R<0.00000,0.00000,-0.38268,0.92388>

P<0.59,-1.85,0.00>

P<0.28,1.39,0.00>

R<0.00000,0.00000,0.38268,0.92388>

NOTE: split 180 degrees inversions in two 90 degrees steps
(to specify on which side you want it to happen)

If both Position and Rotation are changed, they are shown on the same line, YOU choose which one you want to execute first.

When you see two rotations with very similar values, one can be removed.

ADD ROTATION

X=+90

R<0.70711,0.00000,0.00000,0.70711>

X=+180

R<-1.00000,0.00000,-0.00000,0.00000>

X=-90

R<-0.70711,0.00000,0.00000,0.70711>

Y=+90

R<0.00000,0.70711,0.00000,0.70711>

Y=+180

R<-0.00000,-1.00000,-0.00000,0.00000>

Y=-90

R<0.00000,-0.70711,0.00000,0.70711>

Z=+90

R<0.00000,0.00000,0.70711,0.70711>

Z=+180

R<-0.00000,0.00000,-1.00000,0.00000>

Z=-90

R<-0.00000,0.00000,-0.70711,0.70711>

Turn toward North, North-East, North, North-West:

R<0.00000,0.00000,0.00000,1.00000>

R<-0.00000,-0.00000,-0.38268,0.92388>

R<0.00000,0.00000,0.00000,1.00000>

R<0.00000,0.00000,0.38268,0.92388>

TURN FACE TOWARD REGION COORDINATES XYZ: (you can set them manually)

F<0,1,0> / North

F<0,-1,0> / South

F<1,0,0> / East

F<-1,0,0> / West

F<0,0,1> / Up

F<0,0,-1> / Down

F<1,1,0> / North-East

F<0,-1,-1> / South-Down

=RELATIVE ROTATIONS=

PITCH DOWN +45 degrees

D<45,0,0>

PITCH UP -45 degrees

D<-45,0,0>

TURN (yaw) LEFT +90 degrees

D<0,+90,0>

TURN (yaw) RIGHT -90 degrees

D<0,-90,0>

ROLL (banking) RIGHT +30 degrees

D<0,0,+30>

ROLL (banking) LEFT -30 degrees

D<0,0,-30>

Move along a rectangle perimeter rotating the face to the next position:

(This is useful to turn the object face exactly toward the position where it will move next)

F<-5,0,0>

P<-5,0,0>

F<0,+7,0>

P<0,+7,0>

F<+5,0,0>

P<+5,0,0>

F<0,-7,0>

P<0,-7,0>

Move to region coordinates:

L<85,90,35>

Play particles and sounds

*3,1

>1,8ca800ea-6502-00db-692c-21bfd387d43

W5

*3,0

>0

W3

A0

Verbose mode OFF
&0
Verbose mode ON
&1

Set speed at 1.5 (default is 1)
S1.5

SCHEDULE EVENT (executed only by "Scheduled Animator")
!01^500&
Schedule event 1 to be repeated every 500 centseconds (5.00 seconds)
01 has value in centsec, and is used to set an order of execution

EVERY 5.00 sec, set the face 4 of linkset 2 as FULLBRIGHT,GLOWING, RED
!01^500&:2:PRIM_FULLBRIGHT;4;1
!03^500&:2:PRIM_GLOW;4;1.0
!05^500&:2:PRIM_COLOR;4;<1.000,0.000,0.000>;1.0

EVERY 5.00 sec, AFTER 0.40 sec, set the same face as BLACK
!41^500&:2:PRIM_COLOR;4;<0.000,0.000,0.000>;1.0
!43^500&:2:PRIM_GLOW;4;0.0
!45^500&:2:PRIM_FULLBRIGHT;4;0

NOTE: a complete movement may fail, or rotation not executed because of region LAG.
If the lag ends, the correct movement/rotation will be executed on the next cycle.

This does not depend on the script execution, is just server lag.

Scheduled Animator is OPTIONAL only to interpret "!" schedule commands

This script is not monkey-proof, need understanding and testing to reach the desired behavior.
Questions are welcome!



You add temporarily "Say Position&Rotation" to your object to record a sequence of positions and rotations changes IN SPACE..

You need to click the object after EACH change. IF CHANGED, the position and/or rotation will be printed in chat.



You can temporarily add "Detect Linked Position and Rotation" Script to your object when you want to record a sequence of different positions and rotations of its linked parts.

Position and Rotation of linked parts are RELATIVE to the ROOT of the object (linkset number 1).

YOU NEED TO CLICK ON THE LINKED PART to print out its position and rotation.



You can temporarily add "Detect Touched Link+Face" Script to your object when you want to know the LINKSET number of a specific part of your object and the FACE number you want to change.

You need to remove these scripts manually after you finish to use them.

Note about LINKSETs

In every object composed by a group of parts (a linkset), the parts have a number to identify them.

If you want to assign a specific number to each part, you need to UNLINK the object, and RE-LINK the parts one by one, following the number order you want.

Example: linking together a linkset of 3 objects

- Select linkset 2 (click)
- Select linkset 1 (shift-click)
- LINK them
- Select linkset 3 (click)
- Select Object [1+2] (shift-click)
- LINK them

Now you have an object with linked parts ordered 1,2,3 as you have chosen.

Every additional linked part you add, will have progressive numbers: 4,5,6,7,8,...
