8.0 Animation Sequences

This demo shows how to create a set of animations, for example a Walk animation for Legs combined with a Wave animation for Arms. They will be created as separate sequences in order to be stored separately for import into a game engine as independently-invokable animations.

Open and Initialize the Model

1. Open a fully-rigged Blender model. This demo presumes you have a model with arms (for which we’ll create a WAVE sequence) and legs (for which we’ll create a WALK sequence).
2. Open two new windows (in addition to the 3D View): a Timeline window and a Dope Sheet window.

Create Animation Sequence #1 (e.g. “Legs_Walk”)

1. go into POSE Mode
2. Pose just the bones which will participate in the sequence. For example, pose the LEG bones (only) in their First Keyframe position (usually the Rest Pose position).
3. Select all bones (A-key, A-key), then insert a keyframe (Toolshelf → Keyframe Insert). ALL bones must be specified for each keyframe.
4. Duplicate the start keyframe (select all the keyframe components in the Dopesheet window and hit Shift-D) then drag the duplicate to the desired end time. This provides a loop from the starting position back to the starting position. Note that keyframe components in the Dopesheet are YELLOW when selected.
5. Create a middle pose. For example, select Pose → Copy Pose, then select Pose → Paste X-flipped Pose, to create a copy with the legs in opposite positions from their start (and end) positions.
6. Set the “current time” in the DopeSheet window to half-way between the start and end time.
7. Insert a Keyframe to complete a “walk-cycle” (confirm with PLAY).

Convert the Animation Sequence (Keyframes) into an Action

1. Change the dopesheet window into an Action Editor. (use the drop-down to the right of the Key menu)
2. In the Action Name text box, the action probably has a name like “armature action”. Change its name to something more descriptive, such as “Legs_walk”.
3. Click the “F” button next to the name. This “adds a Fake user” to the Action – meaning, Blender will retain it even if it is not attached to a model (this is important because we’re going to un-attach it).
4. Click the “X” button on the DopeSheet header. This detaches the current Action from the model. This is so we can create another, new Action. The DopeSheet keyframes will disappear, but they are still there – you can see them by clicking the Action Browser button and selecting the Action.
5. Open a new “NLA Editor” window. This new type of window shows “Non-Linear Actions” – that is, it allows combining different actions.
6. Initially the NLA window will be empty. In the Action Editor (DopeSheet) window, click the Action Browser button and select the Legs_walk Action. You should see the “Legs_walk” action displayed in the NLA Editor window.
7. Click the “Snowflake” button next to the Legs_walk Action in the NLA Editor. This will “unfreeze” the Action and display it as a single colored block. If needed, use the mouse wheel and Ctrl-MMB to scale the NLA window down so the Action covers only part of it.

Create Animation Sequence #2 (e.g., “Arm Waving”)

1. In the 3D View window, clear all the transformations from the pose:
   a. go back into Pose Mode (the Armature object must be selected)
   b. Select all bones (A-key, A-key)
   c. Pose → Clear Transform → All
2. In the Action Editor (DopeSheet) window, click the “+” in the header bar to add a New Action.


3. Type a name in the Action Name text box, such as “Arms_wave”. You should see it appear in the NLA window – but it will be empty.

4. Follow the steps above, under “Create an Animation Sequence”, to define a new animation: Pose the arms, select all bones, insert keyframe, create second pose, select all bones, insert keyframe, etc.

5. Repeat the steps above to give this second action a “fake user”, detach it from the model, and click the “Snowflake” to unfreeze it.

6. RMB-select the “Arms_wave” Action in the NLA Editor, and slide it to the right (or left) so it does not overlap the Legs_walk Action. Be careful not to drag it down into the Legs_walk track; the two actions must be on separate tracks and must not overlap.

**Export the model as an OgreXML file**

Don’t forget that your model will need a UV-unwrapping, a material, and you’ll need to select all the faces and the skeleton in order to export it in Ogre format properly.

Look in the skeleton XML file -- you should see an <animations> tag containing two distinct <animation> sub-tags: one with a name attribute of “Legs_walk” and the other with a name attribute of “Arms_wave”. These can be imported into a game engine as separate Animation Sequences and activated independently.

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**Diagram:**

- DopeSheet window icon
- DopeSheet type
- Action name
- Add Fake user
- Detach Action
- Action Browser