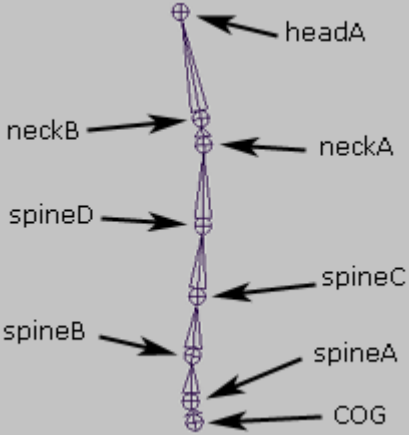
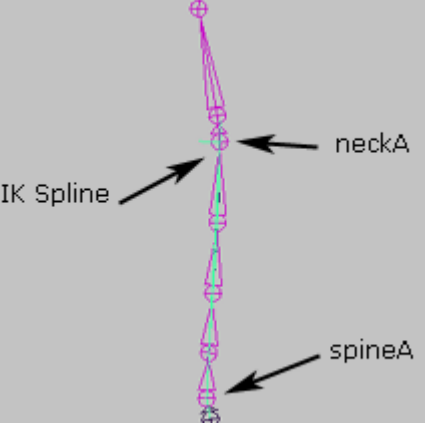
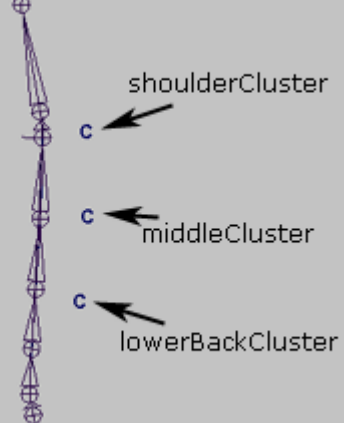
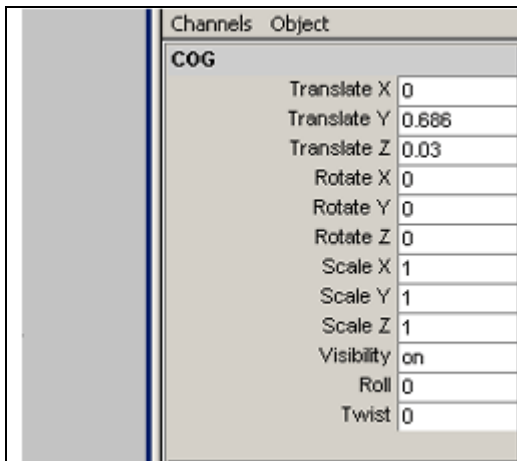


## Spine with Spline IK

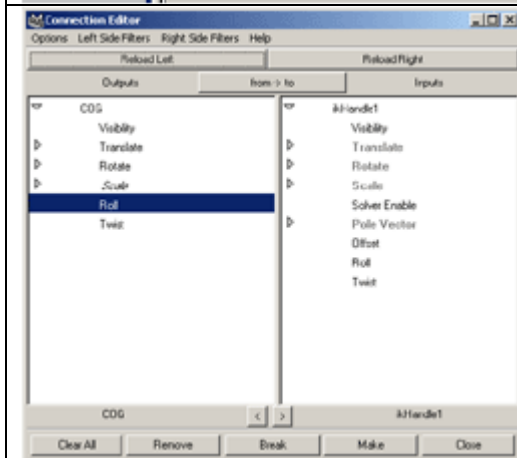
Here is a simple way to construct a spine. This spine will give you quite a bit of control by keeping things really simple.

 <p>A vertical spine structure with several joints. Labels with arrows point to: headA (top), neckB (left), spineD (left), spineB (left), neckA (right), spineC (right), spineA (right), and COG (bottom).</p>	<p><b>Bones</b> Build the spine</p> <p><b>COG-&gt;spineA-&gt;spineB -&gt; spineC -&gt; spineD -&gt; neckA -&gt; neckB -&gt; headA</b></p>
 <p>The same spine structure as above, but with a pink IK Spline overlaid. Labels with arrows point to: IK Spline (left), neckA (right), and spineA (right).</p>	<p><b>Create Spline IK</b> Build an IK Spline with 1 as number of spans from <i>spineA</i> to <i>neckA</i>.</p>
 <p>The spine structure with three clusters marked with a 'c' and labeled: shoulderCluster (top), middleCluster (middle), and lowerBackCluster (bottom).</p>	<p><b>Create Clusters</b> Select the spline, go into component mode and select the top CV. Create a cluster (make sure that the relative option is turned on) Name it: <b>shoulderCluster</b> Do the same with the middle and lower CV. Name them: <b>middleCluster</b> and <b>lowerBackCluster</b></p>



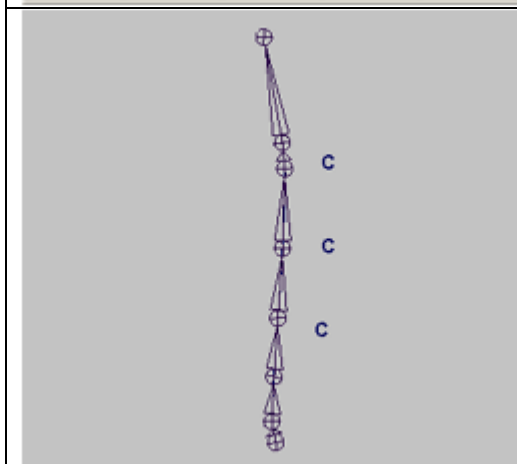
### Add Attributes to COG

Add Roll & Twist attributes to the COD joint. Make them with -180 as minimum value and 180 as maximum value.



### Connection Editor

Open the connection editor and constrain the Roll from the COG to the Roll from the spline IK. Do the same with the Twist.



### Parent Clusters to COG

Parent all the clusters to the COG joint.

That's it.