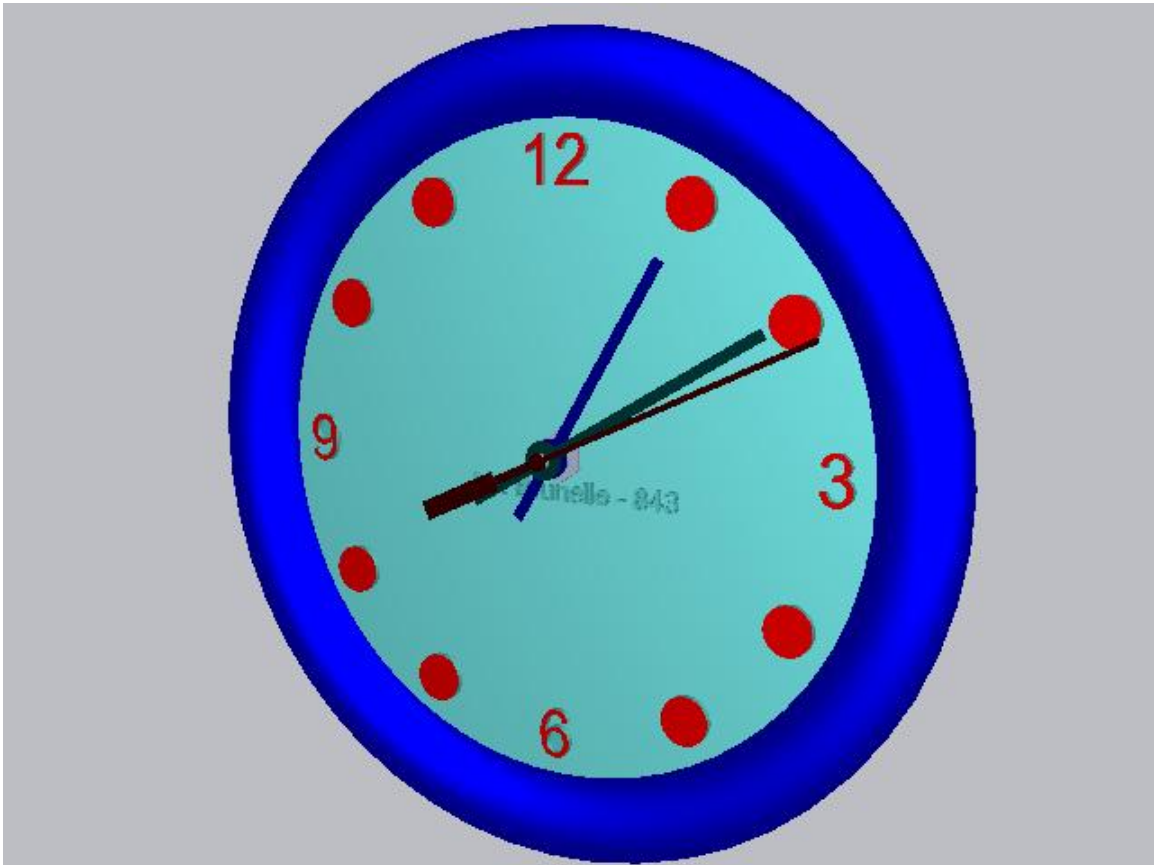



Animating The Clock

- Introduction to "Orient"
- Introduction to Configurations
- Creating a Design Animation
- Creating an Album Animation

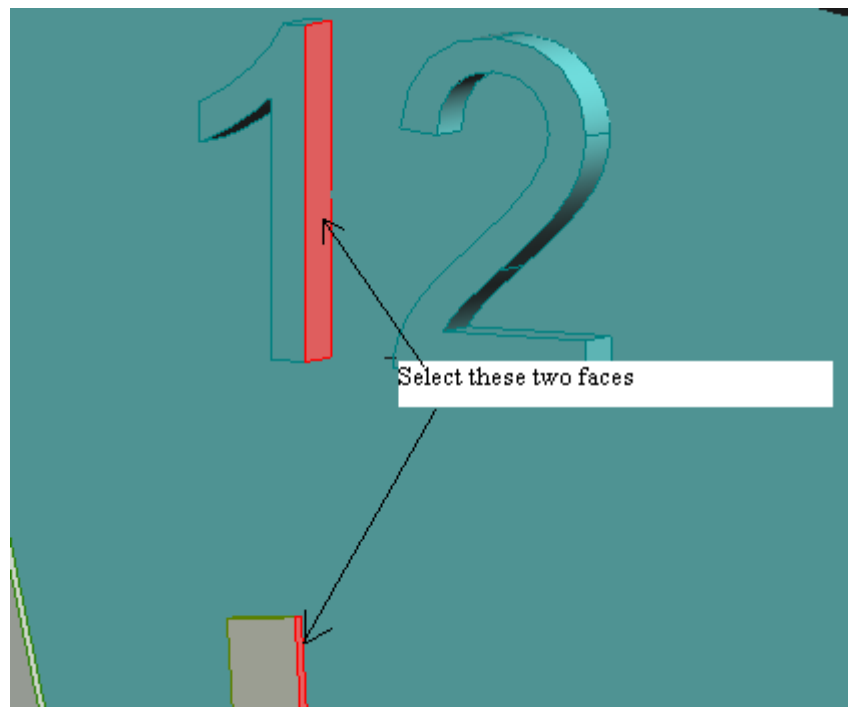


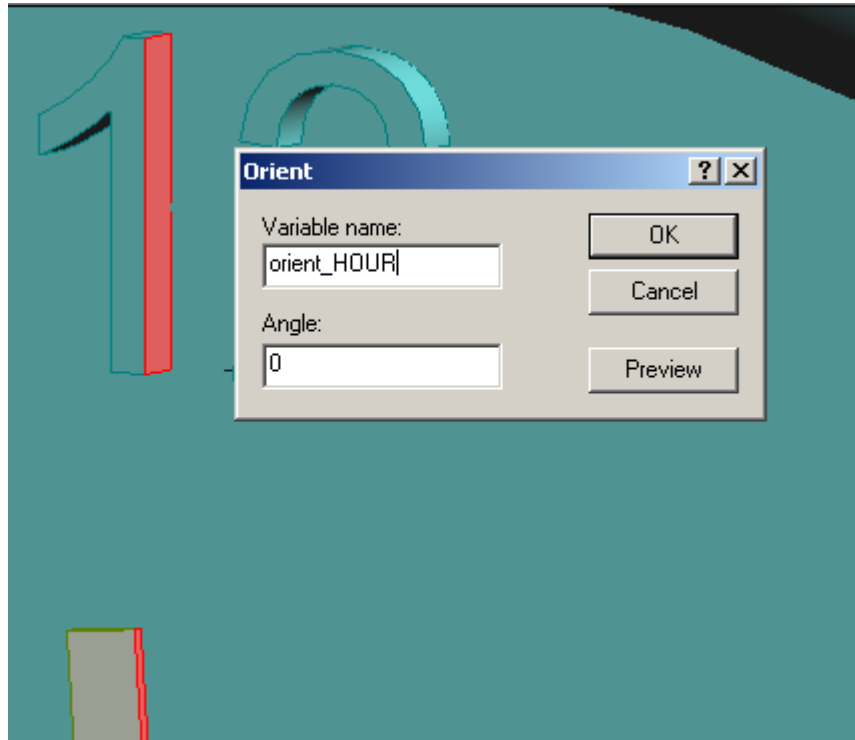
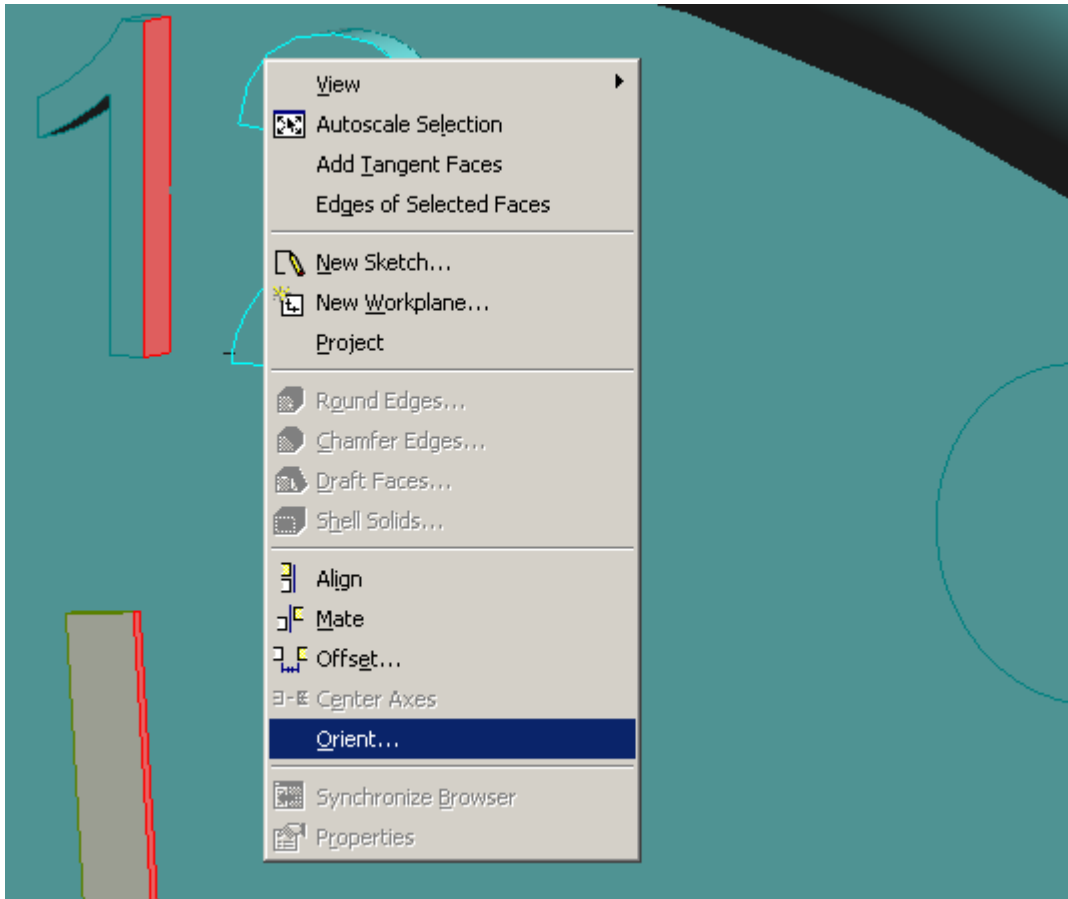
Part 1 – Orienting the Clock Hands

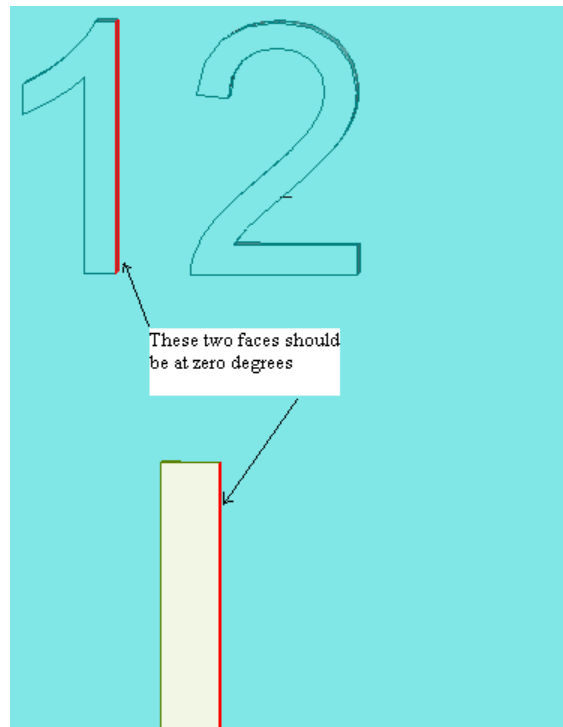
1. Be sure you have used a font that has straight letters – like Ariel. If you used Comic Sans for you clock numbers, you will have to change the font to Ariel. [Watch Video](#)
2. Open your **Clock_AssemblyINL_CAD1_1** design.
3. Next, you are going to “orient” the Hour, Second and Minute hands so that they are all pointing to “12 O’clock”.
4. Using the Select Parts tool , move the three clock hands so that they are **NOT QUITE** vertically aligned to “12 O’clock”. See Below.



5. Zoom in on the Hour hand and the number “12”. Select the two faces indicated below, then click **Assembly > Orient**. Change the **Variable** field to “Orient_HOUR” and the **Angle** field to “0”. Click **OK**. See Below.







6. Repeat the procedure for the *Minute Hand* (Orient_MINUTE) and *Second Hand* (Orient_SECOND).
7. Your Clock should look like the one below when finished. [Watch Video](#)

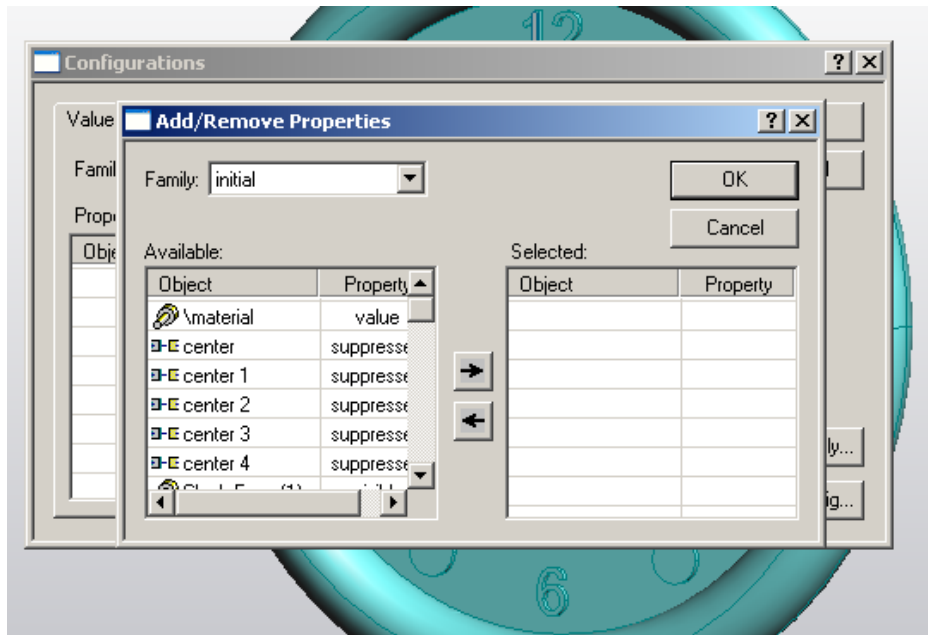


8. Go to **File > Save Copy As....** Answer "**No**" when prompted to save all reference files. Save as filename "**Clock_animationINL_CAD1_1**". Close "**Clock_assemblyINLCAD1_1**".

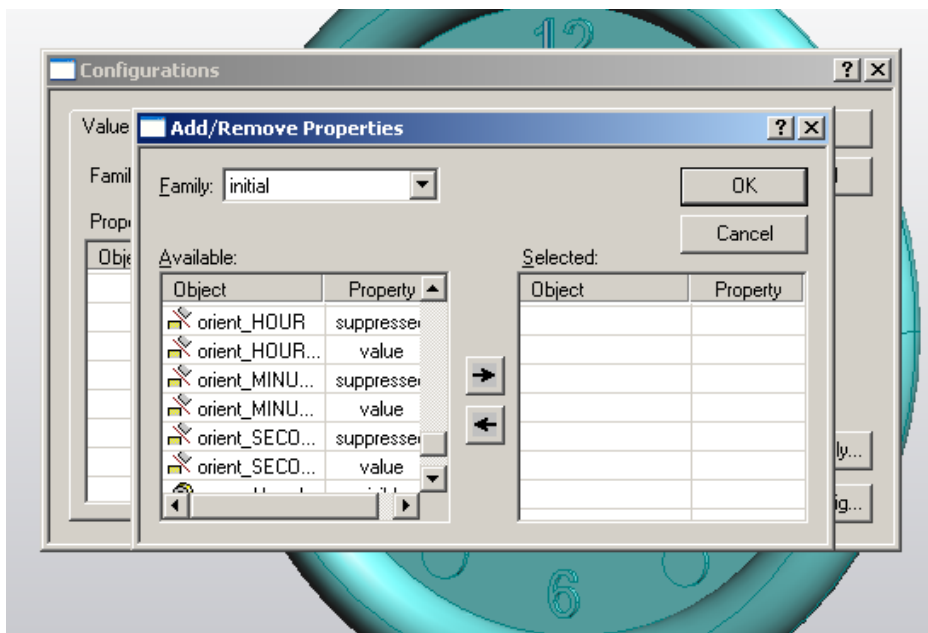
Part 2 – Creating Configurations

Now, you will create two “*configurations*”. A configuration is a version of your assembly that has its own set of assembly constraints. The Clock will have a “*start*” configuration and an “*end*” configuration. The “*start*” will be at 12:00, and the “*end*” will be at 1:00. After creating these two configurations, we will create an animation that will play from the “*start*” to the “*end*”. The clock hands will turn as if in fast motion.

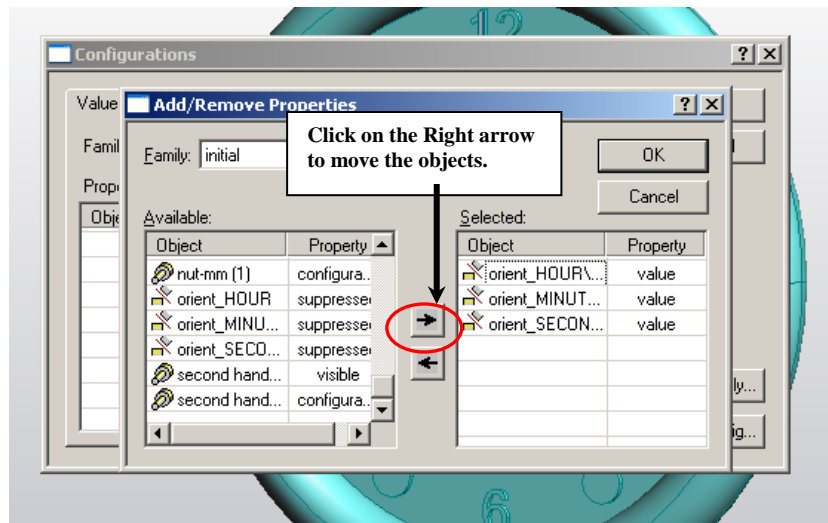
1. Open “**Clock_animationINL_CAD1_1**”.
2. Go to **Tools > Configurations**. The Configurations pop up box will appear.
3. Click on the **Properties** button. See Below.



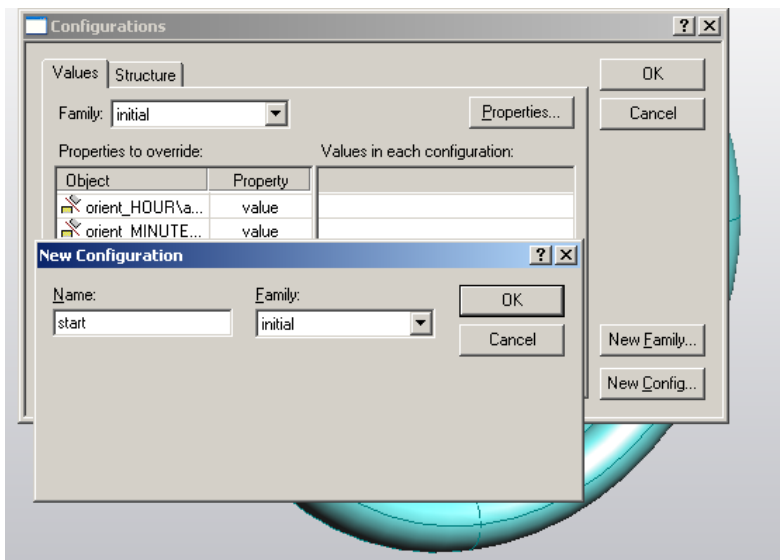
4. Scroll down to where the “orient” constraints are located.



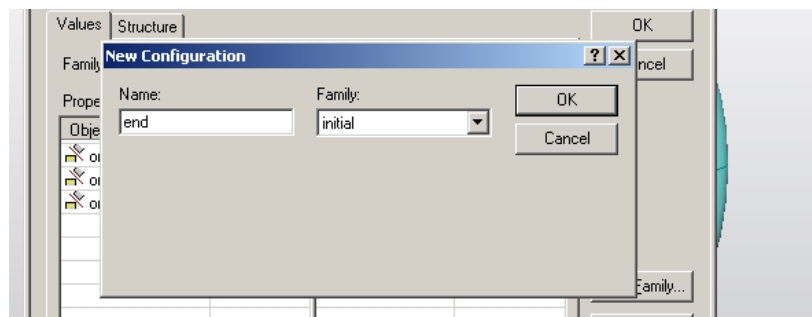
- Select the “**orient_HOUR**”, “**orient_MINUTE**”, and “**orient_SECOND**” objects. Be sure to select the “**value**” properties for each object. Click on the right arrow button to move the objects from the “available” window to the “selected” window. Click “OK” when finished selecting objects. See Below.



- While still in the **Configurations** box, click on “**New Config**”. In the *name* box, type in “**start**”. See Below.



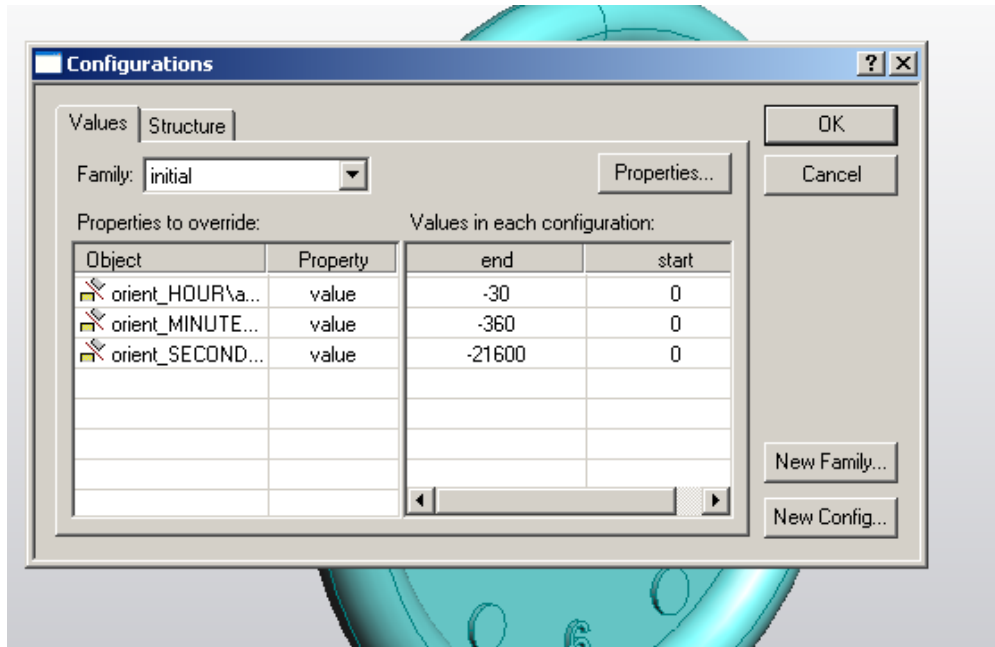
- Click **OK**. Next, click on **New Config** AGAIN. In the *name* box, type in “**end**”. Click OK, then OK again. Watch Video



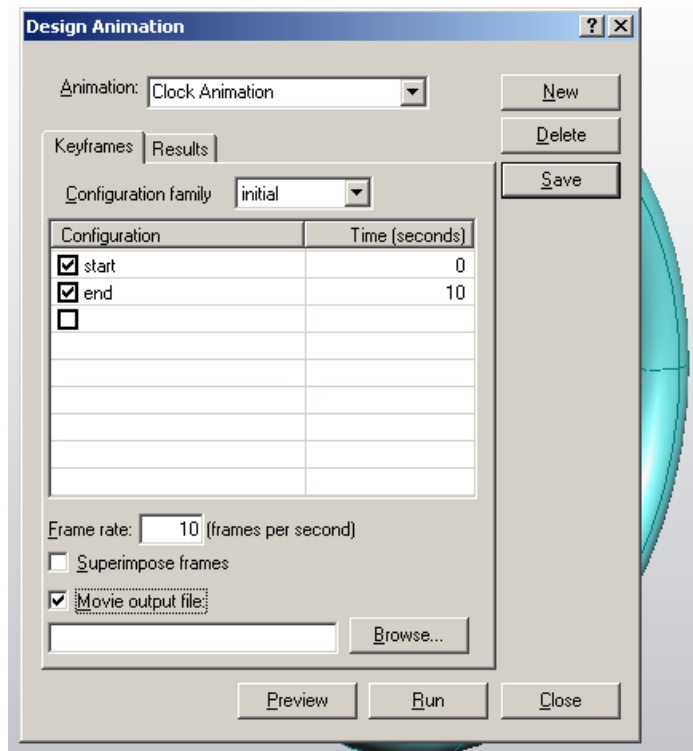
Part 3 – Creating the Design Animation

Now, you will set your configurations so that the animation will simulate a “fast motion” hour of time. The Hour hand will move from 12:00 to 1:00 (30 degrees); the minute hand will make one complete revolution (360 degrees); the second hand will make 60 complete revolutions ($60 \times 360 = 21600$ degrees). Read on.

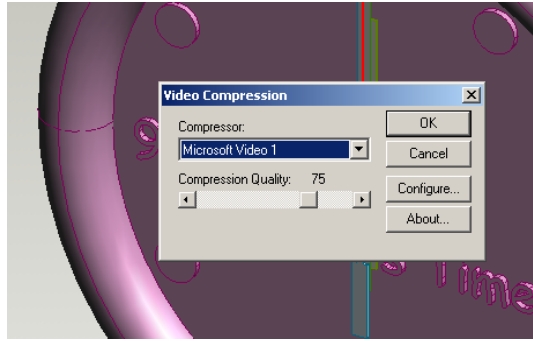
1. Go to **Tools > Configurations**. Change the “end” values to the ones below, and click OK.



2. Go to **Tools > Animation**. Fill out the box like the one below. **DO NOT CLICK ANY BUTTONS YET!!**



3. Click on the **Browse...** button. You will be prompted to save your animation design. Save it in your Clock Parts folder with the filename “**Clock_animationINL_CAD1_1**”. Click on **Run**. Choose the Default video format – **Microsoft Video 1**. [Watch Video](#)

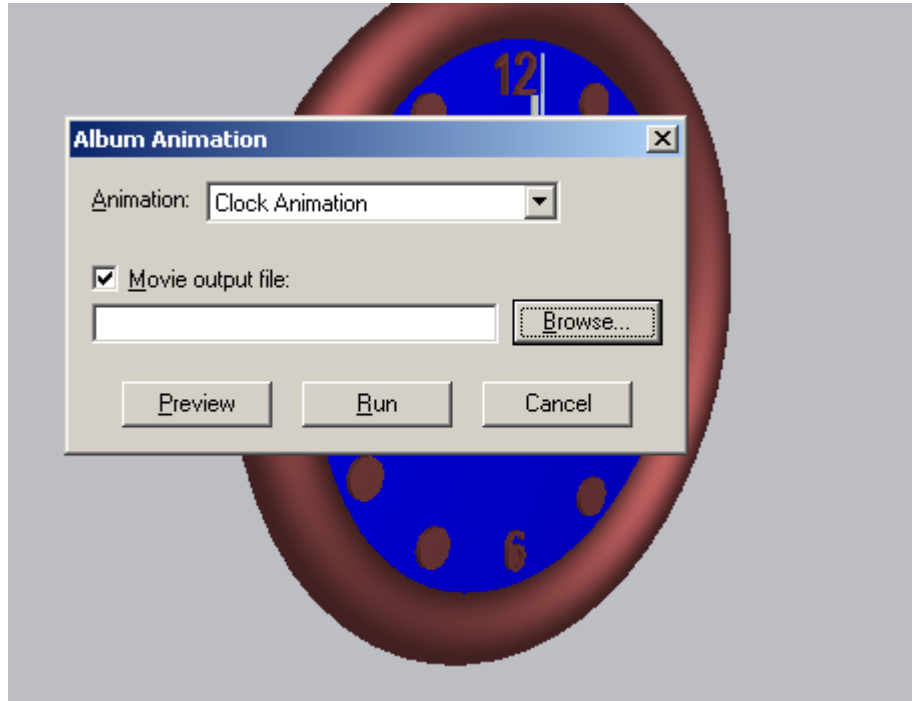


4. Click **OK**, Your Video should play in the Design window. It has been created and saved.
5. ****If your clock hands are going BACKWARDS, change the number values in the Configurations box to POSITIVE numbers (the numbers -30, -360 and -26100 – Part 3, Step #1).****

Part 4 – Creating the Album Animation

You can easily create an Album Animation now. This allows you to add colors and/or materials to make your clock even more realistic.

1. Be sure “**Clock_animationINL_CAD1_1**” is open.
2. Go to **File > New > Photo Album**. Go to **Image > New Image**. Choose **Clock_animationINL_CAD1_1** from the **Choose Modeling View** box.
3. Color your clock as you did when you created a Photo Album of your Clock Assembly.
4. When you are done adding color, go to **Tools > Animation**. Check off the “**Movie Output File**” box. See Below.



5. Click on the **Browse** button. Save your Album animation as “**Clock_animation_INL_CAD1_1_album.avi**”.
6. Click on **Run**.
7. Your Video should play in the Album window. It has been created and saved. It may take a minute or two to “render” – that is, to make the movie frames.
8. You can play your animations using Windows Media Player. Remember, you should have saved the animations in your Clock Parts folder.