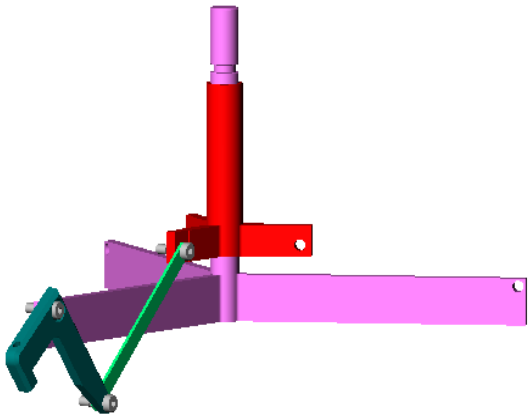
SolidWorks Animator Tutorial

In this chapter, you create animations and animation files of the claw model using SolidWorks Animator tools. This chapter discusses the following topics:

- Viewing the SolidWorks AnimationManager *tab*
- Animating a *rotation* with the Animation Wizard
- Animating an *exploded* view
- *Scheduling* motion
- Animating a *collapsed* view
- Creating a *motion path*
- *Recording* an animation
- Creating an animation file from *screen captures*



Getting Started with SolidWorks Animator

SolidWorks Animator is an add-in product, and it has its own AnimationManager tab.

1 Click **Open** and open **Claw-Mechanism.sldasm**, found in the directory *install_dir***samples\tutorial\animator**.

2 If **Animator** does not appear on the SolidWorks main menu bar, click **Tools, Add-Ins**.

3 In the **Add-ins** dialog box, select **SolidWorks Animator**, and click **OK**.

The following Animator tools are now available:

- The Animator menu appears in the menu bar.
- A **SolidWorks Animator Help Topics** item appears in the Help menu.
- The Animator Controller toolbar appears above the graphics area.

4 Click the AnimationManager tab at the bottom of the left pane.

The AnimationManager tab is displayed when SolidWorks Animator is available. The AnimationManager display includes two sections. Each section lists the assembly components in a different manner.

- Viewpoint - in the chronological order of the assembly creation
- Schedule - in the chronological order of the animation

Animating a Rotation with the Animation Wizard

The Animation Wizard helps you animate a rotation of the model through 360 degrees. For **Rotate**, only one path is created. For **Explode** or **Collapse**, a motion path is created for each component.

To create a rotation animation:

1. Click **Animation Wizard**  on the Animation Controller toolbar or **Animator, Animation Wizard**.

   The **Animation Wizard** dialog box appears.

2. On the **Select an Animation Type** screen, click **Rotate model**, then click **Next**.
3. On the **Select an axis of rotation** screen, select the following.
   - **Axis of rotation** - Y axis
   - **Number of rotations** - 1
   - **Direction** - Clockwise

   NOTE: The axes of rotation are as follows:

   X - around the horizontal screen axis
   Y - around the vertical screen axis
   Z - around the screen axis pointing out of the screen

4. Click **Next**.
5. On the **Animation Control Options** screen, select the following.
   - **Duration (seconds)** - 10
   - **Start Time (seconds)** - 0
   - **At the close of the Animation Wizard** - Play Animation

   NOTE: The setting for **Duration** is the time of replay from an **.avi** file, not the play time in SolidWorks.

   The setting for **Start time** is used for all the motion paths created by this Animation Wizard command.

6. Click **Finish**.

   The model rotates 360 degrees.

Animating an Exploded View

The assembly already contains an exploded configuration. You can animate it using the Animation Wizard.

To animate an exploded view:

1. Click **Animation Wizard** on the Animation Controller toolbar or **Animator, Animation Wizard**.

   The **Animation Wizard** dialog box appears.

2. On the **Select an Animation Type** screen, click **Explode**, then click **Next**.

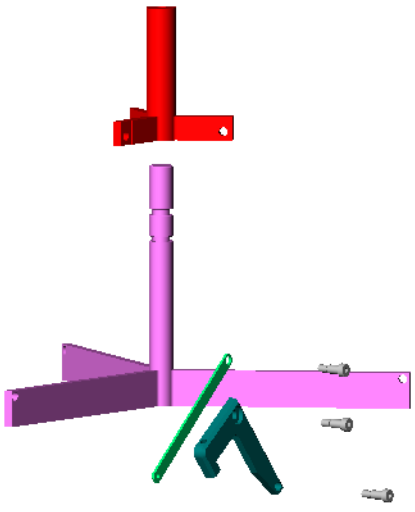
3. On the **Animation Control Options** screen, select the following.

   - **Duration (seconds)** - 10
   - **Start time (seconds)** - 10
   - **At the close of the Animation Wizard** - Play Animation

   NOTE: Since the **Rotate** path begins at 0 and ends at 10 seconds, the **Explode** animation begins at 10 seconds, after the rotation is completed.

4. Click **Finish**.

   The model rotates 360 degrees, then explodes.



Scheduling Motion

You can edit the schedule manually and set the scheduled times so that the components explode one at a time.

To schedule motion manually:

1. Click the AnimationManager tab .
2. Click the beside **Schedule** to expand the motion path schedules.

   Notice that all the **Explode** paths start and end at the same time. We want to schedule each one individually so that they move one at a time to simulate a disassembly process: first the pins, then the claw, the rod, and the collar.
3. Select **Pin-2 Explode**, then click **Edit Path** on the Animation toolbar.

   - or -

   Right-click **Pin-2 Explode** and select **Edit Path**.

   The **Edit Path** dialog box appears.
4. In the **Change Timing** section, change **Start time (sec)** to 20, then click **OK**.

   Pin-2 Explode appears at the bottom of the list with the timing (20.00, 30.00) showing that Pin-2 starts moving at 20 seconds and stops at 30 seconds.
5. Repeat steps 3 and 4 for the other parts except **Pin-1 Explode**. Set the following start times.

Pin-3 Explode	30
Claw-1 Explode	40
Con-Rod-1 Explode	50
Collar-1 Explode	60

   The Explode components appear in the Schedule list in chronological order.
6. Click **Play** or **Animator, Animation, Play**.

   The model rotates 360 degrees, then explodes one part at a time.

Playing the Animation

To play the animation from beginning to end:

Click **Play**  or **Animator, Animation, Play**.

To go to the beginning of the animation:

Click **First**  or **Animator, Animation, First**.

To go to the end of the animation:

Click **Last**  or **Animator, Animation, Last**.

To single step backwards from the end of the animation:

Click **Previous Frame**  or **Animator, Animation, Previous Frame**.

To single step forward from the beginning of the animation:

Click **Next Frame**  or **Animator, Animation, Next Frame**.

Animating a Collapsed View

Animating a collapsed view is similar to animating an exploded view.

To animate a collapsed view:

1. Click **Animation Wizard**  or **Animator, Animation Wizard**.

   The **Animation Wizard** dialog box appears.
2. On the **Select Animation Type** screen, click **Collapse**, then click **Next**.
3. On the **Animation Control Options** screen, select the following.
   - **Duration (seconds)** - 10
   - **Start time (seconds)** - 70
   - **At the close of the Animation Wizard** - Play Animation

   The model rotates 360 degrees, explodes one part at a time, then collapses.

Creating a Motion Path

You use the **Move Component** tool on the Assembly toolbar to specify a motion path for animation.

To create a motion path:

1. Select **Collar-1** in either AnimationManager, FeatureManager, or the graphics area.
2. Click **Create Path** or **Animator, Create Path**.

   The **Create Path** dialog box appears.
3. Click **Add Path Point** to set the current position as the initial position of the collar.
4. Leave the dialog box open. On the Assembly toolbar, click **Move Component**.
5. In the graphics area, drag the collar up to a new position.
6. In the dialog box, click **Add Path Point** to set the current position on the motion path.
7. Select the **Repeat initial path point as final path point** check box so the collar returns to the starting position at the end of the motion path.
8. Set the **Start time (sec)** to 70 to place the motion path at the end of the previous animation, then click **Done**.

   By setting the starting time to 70, the motion path overlaps the **Collar-1 Collapse** motion path. A warning message appears indicating that two or more paths are overlapping.
9. Click **OK**.

   Note the red exclamation points beside all instances of **Collar-1** in AnimationManager.

To fix the overlapping paths:

1. Select **Collar-1-3**, then click **Edit Path** on the Animation toolbar.

   - or -

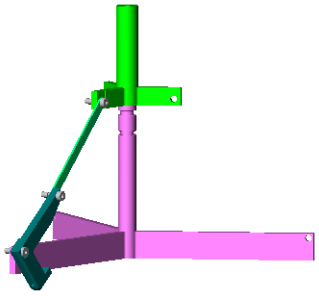
   Right-click **Collar-1-3** and select **Edit Path**.

   The **Edit Path** dialog box appears.
2. In the **Change Timing** section, change **Start time (sec)** to 80, then click **OK**.

   The warning exclamation points disappear.

To play the animation:

Click **Play** or **Animator, Animation, Play**. The model rotates, explodes, collapses, and finally the collar moves up and back down.



Recording an Animation

You can record an animation to a file of type **.avi** that can be played later.

To record an animation:

1. Click **Record Animation** or **Animator, Record Animation**.

   The **Save Animation to File** dialog box appears.
2. Set **Frames per second** to **5**, and click **Save**.
3. In the **Video Compression** dialog box, click **OK**.

   The animation plays as it is recorded.

To replay the animation from file:

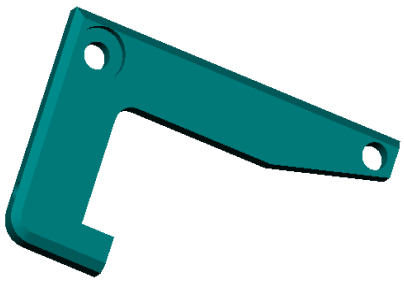
1. In Microsoft Explorer, find **Claw-Mechanism.avi** in the same directory as the model.
2. Double-click the file name to play the animation in a separate window.

Creating an Animation File from Screen Captures

Use the part file **Claw.sldprt** to create an animation from screen captures.

To create an animation file from screen captures:

1. Open file **Claw.sldprt**, which is in the same directory as the claw assembly.
2. Click the FeatureManager design tree tab .
3. Drag the rollback bar to before the first feature, **Base-Extrude**, so that nothing appears in the graphics window.
4. Click **Turn on screen capture** or **Animator, Screen Capture, Turn on screen capture**.
5. In the **Save Animation to File** dialog box, set **Frames per second** to **1**, and click **Save**.
6. In the **Video Compression** dialog box, click **OK**.
7. In the FeatureManager design tree, rebuild the part by dragging the rollback bar down the tree one feature at a time.
8. Click **Turn off screen capture** or **Animator, Screen Capture, Turn off screen capture**.



To replay the animation from file:

1. In Microsoft Explorer, find **Claw.avi** in the same directory as the model.
2. Double-click the file name to play the animation in a separate window.

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