Contents

For additional assistance, contact Technical Support.

Basics of path animation

Step-by-step procedures

The topics below provide step-by-step instructions for working with path animation

- **Creating and modifying animations**
- **Playing an animation**

Step-by-step procedures

The topics below provide step-by-step instructions for working with path animation

▼ Creating and modifying animations

- Creating a path animation
- Creating a cel animation
- Setting animation options
- Selecting an animation to edit
- Moving an animation path
- Extending or shortening an animation path
- Creating curves in the animation path
- Creating multiple animation paths for one object
- Changing an object's size during an animation
- Distributing a book with animation paths

▶ Playing an animation

Step-by-step procedures

The topics below provide step-by-step instructions for working with path animation

▶ Creating and modifying animations

▼ Playing an animation

Starting and stopping an animation

Controlling animation with OpenScript messages

Requesting notification by animations

OpenScript reference

OpenScript reference

Properties

- Getting and setting animation properties
- anim_CelAnimation
- anim_CurrentStep
- anim_CurrentTime
- anim_Duration
- anim_ElapsedTime
- anim_EndSize
- anim_NumRepetitions
- anim_NumSteps
- anim_Offset
- anim_ShowAllSteps
- anim_StartPosition
- anim_StartSize
- anim_StartTime
- anim_StepsPerCel

Messages

OpenScript reference

Properties

Messages

doneAnimatingNotify

jumpToPercent

jumpToStep

playAnimation

playStep

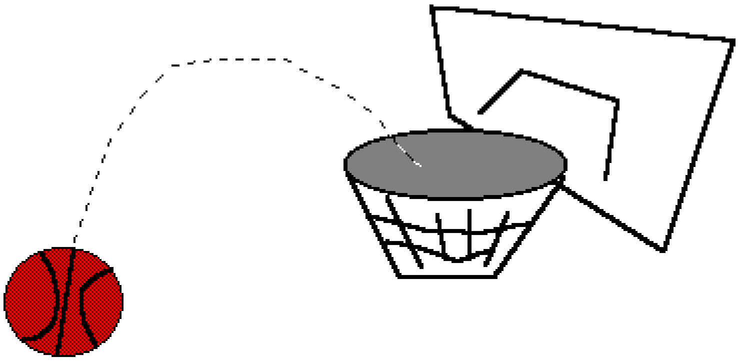
restoreAnimation

stopAnimation

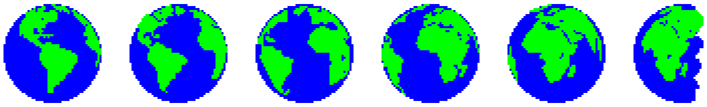
About the Path Animation utility

See also...

The Multimedia ToolBook Path Animation utility lets you animate objects without programming. You can draw a path using the mouse, and when you play the animation, the object moves along the path at a speed you determine. This makes it simple to create animations such as a ball going through a hoop.



You can also create cel animations that show and hide different views of an object in rapid succession, which is useful for animations such as the earth rotating.



In addition to creating animations with the mouse, you can use a dialog box to set the

- speed and duration of animation playback, including acceleration and deceleration.
- number of times to repeat the animation.

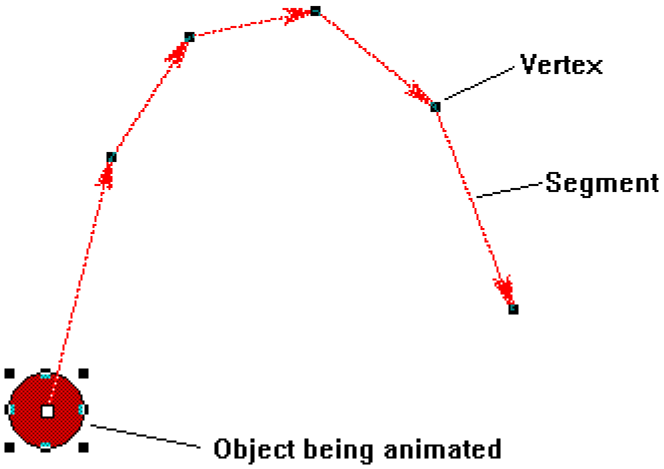
You can define multiple animation paths for each object, then play them back selectively. Information about an object's animation is stored with the object, so it is retained when you cut or copy the object to other pages or books.

Creating a cel animation
Creating a path animation
Distributing a book with animation paths
How path animation works
The Animation window

How path animation works

See also...

To create a path-based animation, you draw the path in the Animation window. The path consists of segments defined by vertices.



After you draw the path, you can adjust it by moving segments, converting them into curves, adding new vertices, or removing existing vertices. When you are finished drawing the path, Multimedia ToolBook compiles information about the path and stores it as a user property of the object.

When you play the animation, the object moves from vertex to vertex. By default, the object moves at a constant rate over the path. If you set its rate to variable, however, the object spends the same amount of time between vertices, moving slower between closely-spaced vertices and faster between widely-spaced ones. This allows you to create animations that appear to accelerate and decelerate.

Animated objects do not move along a completely smooth path. Instead, they jump from point to point on the path; each point is called a step. The more steps in the path, the smoother the animation.

Creating a path animation

To create a path animation, you display the Animation window and draw the path. When you are finished, Multimedia ToolBook compiles the resulting path into an animation that you can play by sending a message to the object.

To create a path animation:

1. In the Multimedia ToolBook Main window, select the object you want to animate. If the object is on the background, switch to the background first, then select the object.
2. Choose Path Animation from the Tools menu. The Path Animation utility displays the objects on the current page in the Animation window, and draws the first segment of the animation path for the selected object.
3. (Optional) To change the location of the first segment, move the cursor over the selected object until ✥ appears, then drag the segment to a new position.
4. To add a segment, click the vertex tool ( ) or press the spacebar, then click at the point where the new segment should end.
5. Move the vertex cursor and click to add segments until you have completed the path.
6. Click Done to save the animation and return to the Main window.

After you have created the animation path, you can set animation options to control the duration and smoothness of the animation.

Note To change the size of an object after you have created an animation path for it, edit the object in the Animation window. Otherwise Multimedia ToolBook displays the object during the animation at the size it was at when the animation was last compiled. For details, see Changing an object's size during an animation.

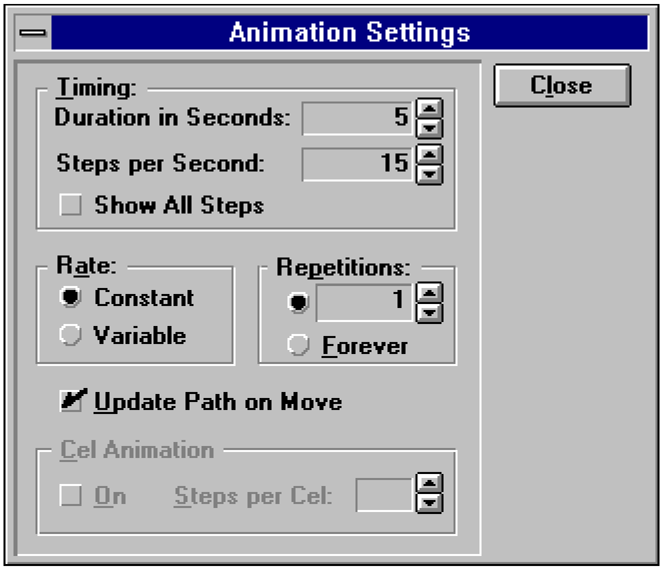
Setting animation options

You can adjust the animation's duration or rate in the Animation Settings dialog box.

To display the Animation Settings dialog box:

1. Display the Animation window and select the animation to edit.
2. Click to display the Animation Settings dialog box.
3. Make the changes you want, then click OK.
4. Click Done in the Animation window to save your changes and recompile the animation.

The Animation Settings dialog box



Timing:
Duration in Seconds: 5
Steps per Second: 15
□ Show All Steps

Rate:
● Constant
○ Variable

Repetitions:
● 1
○ Forever

☑ Update Path on Move

Cel Animation
□ On
Steps per Cel:

Duration in Seconds

Specifies the time it will take the object to travel along its animation path from beginning to end. The default value is 5 seconds. The duration can contain a decimal value to allow synchronization with events that do not last an equal number of seconds.

This option sets the animation's `anim_Duration` property.

Steps per Second

Determines the number of increments by which the animation moves in a second. The higher this number, the smoother the animation will appear. The maximum number of frames this control will allow is 30. The default is 15.

If Multimedia ToolBook cannot show as many steps per second as you specified, the animation will skip steps to finish in the time that you specified under Duration. This guarantees that the animation lasts the specified amount of time.

Show All Steps

Check this to force Multimedia ToolBook to show all the specified steps per second, even if the animation lasts longer than the specified duration as a result. This feature is helpful if you have drawn an animation in which skipping a step would make the animation look wrong.

This option sets the animation's `anim_ShowAllSteps` property.

Rate

Specifies how steps are distributed along the path. The default value of "Constant" causes Multimedia ToolBook to move the animation along the path at a fixed rate. A value of "Variable" causes Multimedia ToolBook to spend the same amount of time on each segment of the path; as a result, the object appears to move more slowly along shorter segments. Use a variable rate with short and long segments if you want to mimic motion that accelerates or decelerates, such as a ball shot out of a cannon.

Repetitions

Sets number of times that the object travels along its path every time the animation is played. The default is 1 time.

If you click Forever, you can stop the animation by

- pressing the Esc key.
- sending the `stopAnimation` message to the object.
- navigating to a page on which the object does not appear or activating a different window (such as the Command window or another viewer).

This option sets the animation's `anim_NumRepetitions` property.

Update Path on Move

Specifies whether Multimedia ToolBook repositions the animation path if you move the object at Author level in the Main window. If this option is unchecked, the animation starts at a fixed point and Multimedia ToolBook moves the object to the animation's starting point when the animation begins.

Cel Animation On

Specifies that Multimedia ToolBook should treat the selected group as a cel animation, and hide and display objects in the group in layer order as the group moves along the animation path. This option is not available if the object being animated is not a group.

This option sets the animation's `anim_CelAnimation` property.

Steps per Cel

In a cel animation, specifies the number of steps that Multimedia ToolBook moves before hiding one cel and displaying the next.

This option sets the animation's `anim_StepsPerCel` property.

About the Path Animation utility
Creating a cel animation
Creating a path animation
Creating multiple animation paths for one object
Getting and setting animation properties
Selecting an animation to edit
Starting and stopping an animation
The Animation window

OpenScript reference

`anim_CelAnimation`
`anim_Duration`
`anim_NumRepetitions`
`anim_NumSteps`
`anim_ShowAllSteps`
`anim_StepsPerCel`

Selecting an animation to edit

Before modifying an animation, you must select it. If the object for which you want to edit the path is difficult to select in the Main window, or if you want to edit an animation path other than the first one, follow these steps:

To select an animation:

1. In the Multimedia ToolBook Main window, choose Path Animation from the Tools menu to display the Animation window.
2. Click .
3. In the Object To Animate combo box choose the object or group to animate.
4. In the Animation combo box choose the number of the animation to edit, then click OK.

Tip If the object has only one animation, it is easier to select the object in the Multimedia ToolBook Main window, then choose Path Animation from the Tools menu. Multimedia ToolBook displays the Animation window with the object and its path already selected.

About the Path Animation utility
Changing an object's size during an animation
Creating a cel animation
Creating a path animation
Creating curves in the animation path
Creating multiple animation paths for one object
Extending or shortening an animation path
Getting and setting animation properties
Moving an animation path
Setting animation options
The Animation window

Moving an animation path

You can move the entire path at once, or you can move a single segment to reshape the animation path.

To move an entire path:

1. Select the animation to edit.
2. Click
3. Move the cursor over any section of the path until ✥ appears.
4. Drag the path to a new location.

Note If Update Path On Move in the Animation Settings dialog box is checked, Multimedia ToolBook moves the path automatically if you move the object in the Main window. For details, see Setting animation options.

To move one segment of the path:

1. Select the animation to edit.
2. Click
3. Move the cursor over one of the vertices that defines the path segment until ▼ appears.
4. Drag the vertex to a new location.

You can also move the animation path by setting the object's `anim_StartPosition` property using OpenScript commands.

Changing an object's size during an animation
Creating a cel animation
Creating a path animation
Creating curves in the animation path
Creating multiple animation paths for one object
Extending or shortening an animation path
Getting and setting animation properties
Selecting an animation to edit
Setting animation options
The Animation window

Extending or shortening an animation path

You can extend a path by adding a segment to the end or in the middle of a path. To shorten a path, delete a segment.

To add a segment to the end of the path:

1. Select the animation to edit.
2. Click ▼. The vertex cursor appears (+).
3. Move the vertex cursor to where you want the new segment to end, then click.

   Multimedia ToolBook draws a new segment from the end of the path to the vertex cursor.

To add a segment in the middle of the path:

1. Select the animation to edit.
2. Click ▼.
3. Move the vertex cursor over the path until + appears, then click.

   Multimedia ToolBook adds a new vertex at that point. You can drag the new vertex to change the shape of the path.

To delete one segment of a path:

1. Select the animation to edit.
2. Click the vertex that defines the end of the path segment you want to delete.
3. Press Del.

   Multimedia ToolBook removes that vertex and defines a new path segment, attaching the vertices on either side of the deleted vertex.

Changing an object's size during an animation
Creating a cel animation
Creating a path animation
Creating curves in the animation path
Creating multiple animation paths for one object
Getting and setting animation properties
Moving an animation path
Selecting an animation to edit
Setting animation options
The Animation window

Creating and modifying curves in the animation path

To create a curve, you modify individual segments of the animation path.

Note You cannot convert the path defined by the first or last vertex into a curve, nor can you create curves on two successive path segments.

To create a curve:

1. Select the animation to edit.
2. In the Animation window, double-click the vertex to be converted.

   The cursor changes to a move cursor ▼ and the path defined by that vertex becomes curved.
3. Drag the vertex to shape the curve.

To reshape a curve:

1. Select the animation to edit.
2. In the Animation window, move the cursor over the vertex that defines the curve until ▼ appears.
3. Drag the vertex to reshape the curve.

To delete a curve:

Double-click the vertex at the top of the curve. Multimedia ToolBook converts the curve back to a straight segment.

Changing an object's size during an animation
Creating a cel animation
Creating a path animation
Creating curves in the animation path
Creating multiple animation paths for one object
Extending or shortening an animation path
Getting and setting animation properties
Moving an animation path
Selecting an animation to edit
The Animation window

Creating a cel animation

Cel animation displays a series of images to give the illusion of motion. For example, you can use cel animation to create a spinning globe. The animation consists of different views of the earth, each called a cel. Showing one cel at a time in succession gives the illusion that the globe is turning.

Each cel in the animation is a separate object, which can include ToolBook objects, draw objects, and imported bitmaps or picture objects. After creating all the individual cels, you arrange them in layer order, and then group them. When you play a cel animation, Multimedia ToolBook hides the current cel and shows the next one from first to last over and over as the animation moves along the path.

To create a cel animation:

1. In the Multimedia ToolBook Main window, create individual objects to serve as cels in the animation.
2. Arrange the layer order of the objects so the first cel is on the furthest (lowest) layer and the last cel is on the closest (highest) layer.
3. Position the objects relative to one another. For example, in a spinning globe animation, the objects are placed on top of one another so only the top one is visible.
4. Group the objects.
5. Select the group, the choose Path Animation from the Tools menu.
6. Create a path as you would for other objects. For details, see Creating a path animation.
7. When you are done creating the path, click ▼ to display the Animation Settings window. Under Cel Animation, click On, and then click OK.
8. Click Done in the Animation window to save the animation.

By default, Multimedia ToolBook shows the next cel of the animation at each step of the path. For example, if your animation is set to 15 steps per second, Multimedia ToolBook will show 15 cels every second. To slow the rate at which the cels are shown, click ▼ to display the Animation Settings dialog box, and then enter a higher value under Steps Per Cel.

Creating multiple animation paths for one object

You can create multiple animation paths for one object. For example, if you are creating an animation for a basketball, you could create two paths, one that goes through the hoop, and another that bounces off the rim. You could then play one or the other animation depending on other variables in your application.

To create multiple animation paths:

1. In the Multimedia ToolBook Main window, select the object you want to animate.
2. Choose Path Animation from the Tools menu. The Path Animation utility displays the objects on the current page in the Animation window.

   If the object has no animation paths defined, Multimedia ToolBook draws one segment of the first animation path. If the object already has an animation path, Multimedia ToolBook displays the object and the path in the Animation window.
3. If the object does not already have an animation path, draw the first one. For details, see Creating a path animation.
4. Click ▼ and under Animation select `<new>`.

   Multimedia ToolBook saves the animation you just finished and starts a new one.
5. Draw the next path and repeat Step 4 for each additional animation path you want to draw.
6. Click Done.

To play a specific animation, you specify the number of the animation when you send the `playAnimation` message. For details, see playAnimation.

About the Path Animation utility
Changing an object's size during an animation
Creating a cel animation
Creating a path animation
Creating multiple animation paths for one object
Getting and setting animation properties
How path animation works
Selecting an animation to edit
Setting animation options
The Animation window

Changing an object's size during an animation

You can make an object change size as it moves along its animation path, so it appears to grow or shrink. To do so, you define the starting and ending sizes at each end of the animation path. When the animation plays, Multimedia ToolBook changes the object's size incrementally as it moves along the path until it reaches the end point.

Note If you want to resize an object in the Main window for which you have defined an animation, you must also edit the animation path and resize the object there. Otherwise when you play the animation the object will revert to the size it was when the animation was last edited.

To change an object's size during an animation:

1. Create an animation path for the object. For details, see Creating a path animation.
2. Click the first vertex in the animation to move the object to the beginning of the path. Or press Home.
3. Use the object's resize handles to size the object to its beginning size.
4. Click the last vertex in the animation to move the object to the end of the path. Or press End.
5. Resize the object to its ending size.
6. Click Done to save the animation.

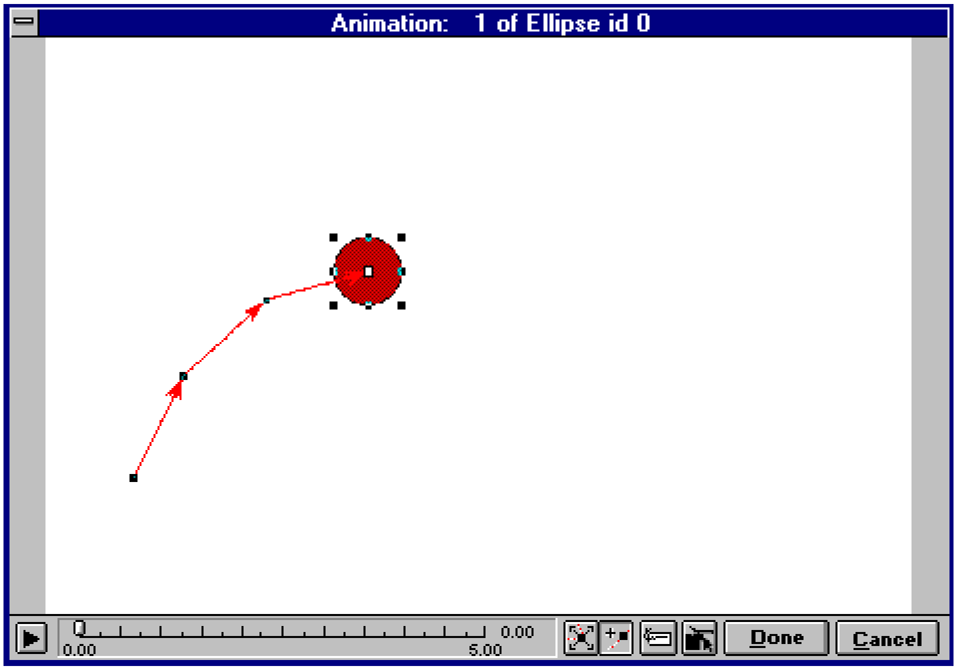
Tip If you want the object to grow, then shrink, create two animations. Make the object grow during the first one and shrink during the second one. Add a notification request to the first animation that starts the second animation automatically. For details, see Requesting notification by animations.

Creating a cel animation
Creating a path animation
Extending or shortening an animation path
Getting and setting animation properties
How path animation works
Requesting notification by animations
Selecting an animation to edit
Setting animation options
The Animation window

The Animation window

You draw animation paths in the Animation window, which appears when you choose Path Animation from the Tools menu. Multimedia ToolBook copies all the objects from the current page or background into the Animation window, and allows you to edit animation paths for objects or groups.

Note If you display the Animation window while on a page, you can edit the animations for objects on that page. To edit animations for objects on the background, switch to the background before displaying the Animation window.



▶ Click to run the current animation.

0.00 Drag the slider bar to move to a specific point on the animation path.

▼ Click to turn the cursor into a move cursor and move segments, vertices, or the entire path.

▼ Click to turn the cursor into a vertex cursor and add new segments to the animation.

▼ Click to display the Animation Settings dialog box and set animation options.

▼ Click to display the Select Object dialog box and select an animation to edit.

Done Click to save the current animation and return to the Multimedia ToolBook Main window.

Cancel Click to cancel changes to the current animation and return to the Multimedia ToolBook Main window.

Starting an animation

To run an animation, use OpenScript commands in a script or in the Command window to send the playAnimation message to the object whose animation you want to play. For example, this button handler runs the animation for an ellipse when the user clicks the button:

```
to handle buttonClick
   send playAnimation 1 to ellipse "basketball"
end
```

If the object has more than one animation, specify the animation number to play:

```
to handle buttonClick
   system svMakePoint     --System variable set elsewhere
   if svMakePoint = true
      send playAnimation 1 to ellipse "basketball"
   else
      send playAnimation 2 to ellipse "basketball"
   end if
end buttonClick
```

If you want the animation to suspend all other activity while it plays, send the `wait` parameter with the `playAnimation` message:

```
to handle buttonClick
   send playAnimation 1 to ellipse "basketball" wait
end
```

If you don't send the `wait` parameter with the `playAnimation` message, you can have Multimedia ToolBook send the `doneAnimatingNotify` message when the animation is complete so you can reset animation or perform other actions. For details, see Requesting notification by animations.

You can also perform processing while the animation is running. For details, see Controlling animation with OpenScript messages.

About the Path Animation utility

Controlling animation with OpenScript messages

Creating a cel animation

Creating a path animation

Distributing a book with animation paths

Getting and setting animation properties

How path animation works

Requesting notification by animations

Setting animation options

Controlling animation with OpenScript messages

Example...

Animations are controlled by messages. You start an animation by sending a message to the object whose animation you want to play. Then Multimedia ToolBook sends messages to move the object along the animation path and to stop the animation when it finishes. The following messages are used to control an animation:

Message	Sent by	Purpose
`playAnimation`	You	Begins animation
`playStep`	Multimedia ToolBook	Moves object one step along animation path
`stopAnimation`	Multimedia ToolBook or you	Stops animation

Because Multimedia ToolBook sends the `playStep` message to the object for each step of the animation, you can write a handler for that message to modify the animation as it is running. (Always forward the `playStep` message if you want the object to continue moving along the path.)

To determine when an animation is finished or if it is interrupted, you can request that Multimedia ToolBook send the `doneAnimatingNotify` message notification. You can write a handler for this message to take appropriate action, such as moving the object back to the beginning of the animation path.

If the animation is not running, you can send messages to move the object to the start of the animation path. You can also move the object along the path manually, which is useful if you want to preview the animation. Send one of the following messages:

Message	Purpose
`restoreAnimation`	Moves object to starting point of animation
`jumpToPercent`	Jumps to a point at the specified percentage of the path
`jumpToStep`	Jumps to the specified step in the path

Creating a cel animation
Creating a path animation
Distributing a book with animation paths
Getting and setting animation properties
Requesting notification by animations
Setting animation options
Starting and stopping an animation

Copy...

Print

Tile windows

```
--Handler that illustrates how to modify an animation while it is
--running. Changes the color of the animated object as it
--moves along its animation path
to handle playStep
  system colorNumber
  if colorNumber = null then
    colorNumber = 1
  end
  colors = "blue,green,red,yellow,black,white"
  increment colorNumber
  if colorNumber > itemCount(colors) then
    colorNumber = 1
  end
  fillColor of target = evaluate(item colorNumber of colors)
  forward
end


--Handler that illustrates how to move an object along its animation
--path when the animation is not running. Moves an animated object
--along its animation path by 5% each time the button is clicked
to handle buttonClick
  system percent
  if percent is null then
    percent = 0
  end
  increment percent by .05
  if percent > 100 then
    percent = 0
  end
  send jumpToPercent percent to ellipse "basketball"
end
```

Requesting notification by animations

Example...

When you play an animation with the `playAnimation` message, you can request that Multimedia ToolBook send a message when the animation is finished or stops for any reason. For example, you can start an animation and request that a message be sent when it is done so that you can reset the animation to its starting point.

To request notification, include the name of an object to notify when you send the `playAnimation` message. Multimedia ToolBook plays the animation and sends a `doneAnimatingNotify` message to the specified object when the animation is done or interrupted. Write a handler for the `doneAnimatingNotify` message to take appropriate action.

Controlling animation with OpenScript messages
Creating a cel animation
Creating a path animation
Starting and stopping an animation

Copy...
Print
Tile windows

```
--Plays animation and requests that notification be sent
--to the current object when the animation finishes
to handle buttonClick
   send playAnimation 1 to ellipse "basketball" notify self
end


--Handles the notification message by resetting the animation
--when it is finished
to handle doneAnimatingNotify status, animObject
   send restoreAnimation to animObject
end
```

Distributing a book with animation paths

When you distribute an application that contains path animations, make sure that you include the file MTB30ANM.SBK as part of the application. This file contains the handlers necessary to run (but not create or change) animations you drew in the Animation window.

Note If you use MTB30.SBK as a system book in your application (the system book that contains handlers for creating animations, indexes, and multimedia widgets), you do not need to also include MTB30ANM.SBK. However, because MTB30.SBK contains authoring tools, your applications probably do not require it; include MTB30ANM.SBK instead.

So that your application can find the animation handlers, make MTB30ANM.SBK a system book in your application. You can do this in one of two ways:

- Make the file a startup system book by assigning it to `startupSysBooks` in the [TOOLBOOK] section of the MTB30.INI file. For example:

```
startupSysBooks=MTB30ANM.SBK
```

You can establish settings for the MTB30.INI file if you use the Asymetrix Setup utility. For details, refer to the online Help for that product.

- Write an `enterApplication` handler that loads MTB30ANM.SBK into `sysBooks` when users open the book containing the path animation. For example:

```
to handle enterApplication
   if "MTB30.SBK" is not in sysBooks then
      if "MTB30ANM.SBK" is not in sysBooks then
         push "MTB30ANM.SBK" onto sysBooks
      end if
   end if
   -- ... further statements here
   forward      --Always forward enterApplication handlers
end enterApplication
```

Getting and setting animation properties

Example...

Each animation has properties that you can use to determine the animation's settings using OpenScript commands. Some are runtime properties, which means you can set them to affect the animation currently running, or get them to determine the status of the current animation. If you change a runtime property, it does not affect how the animation plays the next time.

Others properties are permanent, meaning you can get their values at any time, even if the animation is not running. If you set a permanent property while an animation is running, you affect the way the current animation runs and the way it runs the next time it is played.

Some properties are get-only, which means you can get their values, but cannot set them.

Tip Runtime properties return a value of -1 when the animation is not running, which is useful to determine whether the animation is running.

The complete list of properties is listed in the following table.

Property	Description	Type
`anim_CelAnimation`	If `true,` Multimedia ToolBook hides and displays individual objects in an animated group.	Permanent
`anim_CurrentStep`	The current step number in a running animation.	Runtime
`anim_CurrentTime`	Elapsed time since Windows was started.	Runtime, get-only
`anim_Duration`	Total duration in seconds of the animation (can be overridden by `anim_NumSteps` if `anim_ShowAllSteps` is `true`).	Permanent
`anim_ElapsedTime`	Elapsed time since the animation started.	Runtime, get-only
`anim_EndSize`	Size in page units of object when animation ends.	Permanent, get-only
`anim_NumRepetitions`	Number of times to repeat the animation.	Permanent
`anim_NumSteps`	Total number of steps in the animation.	Permanent
`anim_Offset`	Amount in page units to move the entire animation path from the point specified in `anim_StartPosition`.	Runtime, get-only
`anim_ShowAllSteps`	If `true`, Multimedia ToolBook shows all steps in an animation even if the animation takes longer than specified in the `anim_Duration` property	Permanent
`anim_StartPosition`	Coordinates in page units specifying where the animation begins.	Permanent
`anim_StartSize`	Size in page units of object when animation begins.	Permanent, get-only
`anim_StartTime`	Time at which animation started.	Runtime, get-only
`anim_StepsPerCel`	Number of steps to complete before showing next cel in a cel animation.	Permanent

Other information about the animation is available in an array stored as a user property of the object. For details on how to access this array, see `anim_AnimationSettings`.

Controlling animation with OpenScript messages
Setting animation options
Starting and stopping an animation

Copy...

Print

Tile windows

```
--Starts animation after determining total number of
--steps in animation
to handle buttonClick
  system numSteps     --Variable to share with playStep handler
  numSteps = anim_NumSteps of self
  send playAnimation 1 to self
end

--Monitors animation, using animation properties to
--calculate percentage complete
to handle playStep
  system numSteps
  curStep = anim_CurrentStep of target
  if now <> null then
    percent = ceiling((curStep/numSteps)*100)
    caption of statusBar = percent & "%"
  end if
  forward     --Always forward playStep message
end playStep
```

anim_CelAnimation

Permanent property

Syntax

```
get anim_CelAnimation(<animNumber>) of <objectRef>
anim_CelAnimation(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description A permanent property that determines whether the animation cycles through the cels as the object moves along the animation path.

Value `True` if cel animation is turned on. If `false`, the object moves along its path, but does not display successive cels of a cel animation.

Controlling animation with OpenScript messages
Creating a cel animation
Getting and setting animation properties
Setting animation options

```
--Sets second animation of object to be a cel
--animation (object being animated must be a group)
anim_CelAnimation(2) of ellipse "basketball" = true
```

anim_CurrentStep

Runtime property

Syntax

```
get anim_CurrentStep(<animNumber>) of <objectRef>
anim_CurrentStep(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description A runtime property containing the current step of the animation. Set this property to skip to particular points in the path. Setting this property has no effect unless `anim_ShowAllSteps` is set to `true`.

Value Number of the current step. If the animation is not running, the value is -1.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

```
--Displays current step in status bar as object
--moves along animation path; put handler in script
--of animated object
to handle playStep
   caption of statusBar = anim_CurrentStep of target
   forward      --Always forward playStep message
end playStep
```

anim_CurrentTime

Runtime property

Syntax `get anim_CurrentTime(<animNumber>) of <objectRef>`

Parameters `<animNumber>` The animation number to get. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get.

Description A runtime property containing the elapsed time since Windows was started. Use the value of this property as a reference time for calculating elapsed time. You cannot set this property.

Value Integer value indicating elapsed time in milliseconds. If the animation is not running, the value is -1.

Controlling animation with OpenScript messages
Creating a cel animation
Getting and setting animation properties
Setting animation options

anim_Duration

Permanent property

Syntax

```
get anim_Duration(<animNumber>) of <objectRef>
anim_Duration(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A permanent property specifying the time that one iteration along the path should take. If `anim_ShowAllSteps` is set to `true`, the number of animation steps in `anim_NumSteps` takes precedence over this property, so the animation may take longer than the time specified.

Changes to this property do not take effect until the next time you run the animation.

Value

A decimal number specifying the duration in seconds.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

```
--Sets animation speed by changing duration based
--on radio button settings
to handle buttonClick
  conditions
    when checked of button "Slow" = true
      duration = 15
    when checked of button "Medium" = true
      duration = 10
    when checked of button "Fast" = true
      duration = 5
  end conditions
  anim_Duration of target = duration
end
```

anim_ElapsedTime

Runtime property

Syntax `get anim_ElapsedTime(<animNumber>) of <objectRef>`

Parameters `<animNumber>` The animation number to get. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get.

Description A runtime property containing the elapsed time for the animation currently running. This property is valid only while an animation is running. You cannot set this property.

Value Number of milliseconds since the animation was started. If the animation is not running, the value is -1.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

OpenScript reference
`anim_CurrentTime`
`anim_StartTime`

```
--Displays elapsed time over the total duration
to handle playStep
  duration = anim_Duration of target
  et = ceiling(anim_ElapsedTime of target / 1000)
  text of field "status" = et & "/" & duration
  forward
end
```

anim_EndSize

Permanent property

Syntax `get anim_EndSize(<animNumber>) of <objectRef>`

Parameters `<animNumber>` The animation number to get. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get.

Description A permanent property indicating the size of the object when the animation ends. You cannot set this property.

Value List of two integers indicating the size of the object in page units.

Changing an object's size during an animation
Getting and setting animation properties

OpenScript reference

`anim_StartSize`

anim_NumRepetitions

Permanent property

Syntax

```
get anim_NumRepetitions(<animNumber>) of <objectRef>
anim_NumRepetitions(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description A permanent property that determines the number of times the object will go along the path before the animation stops.

Value A positive integer indicating the number of times to repeat the animation, or zero to cause the animation to run continuously.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

```
to handle buttonClick
  ask "Repeat how many times?"
  if sysError <> "ok" then
    break buttonClick
  end if
  if isType("int",It) then
    anim_NumRepetitions of target = It
  end if
end buttonClick
```

anim_NumSteps

Permanent property

Syntax

```
get anim_NumSteps(<animNumber>) of <objectRef>
anim_NumSteps(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A permanent property containing the number of steps in the compiled path, based on this formula:

```
steps per Second * duration
```

The actual number of steps is adjusted depending on the `rateType` and on whether the animation is looped (where the first vertex is within two pixels of the last vertex). The final number of steps is calculated using this formula:

```
itemCount(compiled path) DIV 4 -1
```

The value in this property is useful for creating status updates such as a percentage-done bar.

Changing the value of this property sets how far along the path the object will move. It also indirectly sets the speed and smoothness of the animation; the object will move the number of specified steps in the time specified in the `anim_Duration` property. The higher the value of `anim_NumSteps`, the further along the path the object moves, and the faster it moves, because it moves more steps in the specified time. Changes to this property do not take effect until the next time you run the animation.

Value

A number denoting the number of steps in the animation.

Note You should not set the value of `anim_NumSteps` higher than the value returned by the formula for the final number of steps as described above (the default value for this property). Multimedia ToolBook displays an error when the step count exceeds the final step value calculated by the formula.

Changing an object's size during an animation
Setting animation options

OpenScript reference

anim_CurrentStep
anim_Duration
anim_ShowAllSteps
anim_StepsPerCel

```
--Displays percentage done by current step against
--total number of steps. For efficiency, anim_NumSteps
--can be determined when the animation begins and passed to
--this handler.
to handle playStep
  numSteps = anim_NumSteps of target
  curStep = anim_CurrentStep of target
  if now <> null then
    percent =  ceiling((curStep/numSteps)*100)
    caption of statusBar = percent & "%"
  end if
  forward
end

--Changes number of steps, checking that value does not exceed
--original (default) value
to handle buttonClick
  --Preserve default value of property in user property
  if orig_NumSteps of target = null then
    orig_NumSteps of target = anim_NumSteps of target
  end
  numSteps = anim_NumSteps of target
  msg = "Current # of steps =" && numSteps & crlf & "Enter new value."
  ask msg
  if sysError = "ok" then
    if It > orig_NumSteps of target then
      It = orig_NumSteps of target
    end
    anim_NumSteps of self = It
  end
  send playAnimation 1 to self
end
```

anim_Offset

Runtime property

Syntax

```
get anim_Offset(<animNumber>) of <objectRef>
anim_Offset(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A runtime property containing the amount to offset the step positions while an animation is playing. Set this property to move an animation path while the animation is playing.

The compiled path of an animation is based on an offset of 0,0 so it can be easily manipulated; when each step is played, Multimedia ToolBook adds the value of the offset to step position stored in the compiled path to get the actual step position. The initial value for this property comes from the object's `anim_startPosition` animation property.

Value

A list specifying the X and Y offset values in page units.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

```
--Causes the ellipse "Moon" to animate around the object
--while the object itself is animated
to handle buttonUp
  send playAnimation 1
  send playAnimation 1 to ellipse "Moon"
end

--Makes the ellipse moon "orbit" around self
to handle playStep
  --Stores original position
  oldPos = my position
  --Animates self
  forward
  --Gets new position
  newPos = my position
  --Calculates movement of self
  dx = item 1 of newPos - item 1 of oldPos
  dy = item 2 of newPos - item 2 of oldPos
  --Gets the old offset of the ellipse
  get anim_Offset of ellipse "moon"
  -- -1 means the ellipse isnt being animated
  if it <> -1
    --Changes the offset by the amount of movement
    get item 1 of it + dx, item 2 of it + dy
    set anim_Offset of ellipse "moon" to it
  end
end
```

anim_ShowAllSteps

Permanent property

Syntax

```
get anim_ShowAllSteps(<animNumber>) of <objectRef>
anim_ShowAllSteps(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A permanent property that determines whether to skip steps when the animation gets behind. If this property is `true`, Multimedia ToolBook shows all steps in the animation path. If this property is `false`, the animation runs for the amount of time specified in `anim_Duration`, even if Multimedia ToolBook has to skip some steps to complete the animation in time.

Setting `anim_ShowAllSteps` to `true` is useful if the animation would look bad with missing steps, while setting it to `false` is useful if it is important that the animation finish within a specified time.

Changes to this property do not take effect until the next time you run the animation.

Value

`True` or `false`.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

OpenScript reference

`anim_CurrentStep`
`anim_Duration`
`anim_ShowAllSteps`
`anim_StepsPerCel`

```
anim_showAllSteps of ellipse "basketball" = true
```

anim_StartPosition

Permanent property

Syntax

```
get anim_StartPosition(<animNumber>) of <objectRef>
anim_StartPosition(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A permanent property containing the starting position of an animation. The value in this property is added to the values in `anim_Offset` to determine where to start the animation.

Changes to this property do not take effect until the next time you run the animation.

Value

A list in page units of the start position for the animation.

Changing an object's size during an animation
Controlling animation with OpenScript messages
Getting and setting animation properties
Moving an animation path
Setting animation options

```
--Book script to move the starting position of an animation
--when the user presses Shift+arrow keys
to handle keyUp key, isShift, isCtrl
  startPos = anim_StartPosition(1) of ellipse "basketball"
  conditions
    when key = keyLeftArrow and isShift = true
      decrement item 1 of startPos by 720
    when key = keyRightArrow and isShift = true
      increment item 1 of startPos by 720
    when key = keyUpArrow and isShift = true
      decrement item 2 of startPos by 720
    when key = keyDownArrow and isShift = true
      increment item 2 of startPos by 720
    else
      forward
  end conditions
  anim_StartPosition(1) of ellipse "basketball" = startPos
end
```

anim_StartSize

Permanent property

Syntax `get anim_StartSize(<animNumber>) of <objectRef>`

Parameters `<animNumber>` The animation number to get. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get.

Description A permanent property indicating the size of the object when the animation begins. You cannot set this property.

Value List of two integers indicating the size of the object in page units.

Changing an object's size during an animation
Getting and setting animation properties

OpenScript reference

`anim_EndSize`

anim_StartTime

Runtime property

Syntax `get anim_StartTime(<animNumber>) of <objectRef>`

Parameters `<animNumber>` The animation number to get. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get.

Description A runtime property containing the start time of the object's current animation. The value of this property is compared to the current time and the duration of the animation to calculate which step to show next. You cannot set this property.

Value Number in milliseconds based on the system time. If the animation is not running, the value is -1.

Controlling animation with OpenScript messages
Getting and setting animation properties
Setting animation options

OpenScript reference

`anim_Duration`
`anim_CurrentStep`
`anim_ShowAllSteps`
`anim_StepsPerCel`

```
get anim_StartTime of ellipse "basketball"
```

anim_StepsPerCel

Permanent property

Syntax

```
get anim_StepsPerCel(<animNumber>) of <objectRef>
anim_StepsPerCel(<animNumber>) of <objectRef> = <value>
```

Parameters

`<animNumber>` The animation number to get or set. If you do not indicate an animation number, Multimedia ToolBook uses the first animation.

`<objectRef>` The object whose animation to get or set.

Description

A permanent property that determines how many steps along the path the object moves before the next cel in a cel animation is shown. For example, if the value is 5, Multimedia ToolBook completes five steps in the animation before showing the next cel. To change cels more slowly, use a higher value; to change cels more quickly use a lower value.

Changes to this property do not take effect until the next time you run the animation.

Value

Integer greater than zero indicating the number of steps to take before showing the next cel.

Controlling animation with OpenScript messages
Creating a cel animation
Getting and setting animation properties
Setting animation options

```
to handle buttonClick
  --Sets speed at which cel animation changes cels based
  --on radio button settings
  conditions
    when checked of button "Slow" = true
      speed = 10
    when checked of button "Medium" = true
      speed = 5
    when checked of button "Fast" = true
      speed = 1
  end conditions
  anim_StepsPerCell(1) of group "globe" = speed
  send playAnimation 1 to group "globe"
end
```

doneAnimatingNotify

Message

Syntax `doneAnimatingNotify <status>,<object identifier>`

Parameters `<object reference>` A reference to the object whose animation just finished.

`<status>` The value `successful` if the animation completed; `aborted` otherwise.

Description Sent by Multimedia ToolBook when an object finishes its animation to the object specified for notification in the `playAnimation` message.

Note The `doneAnimatingNotify` script belongs to the object specified as the `notifyObject` in the `playAnimation` call that started the animation.

Controlling animation with OpenScript messages
Requesting notification by animations
Starting and stopping an animation

OpenScript reference

`jumpToPercent`
`jumpToStep`
`playAnimation`
`playStep`
`restoreAnimation`
`stopAnimation`

```
--Hides objects after they finish animating
to handle doneAnimatingNotify whatObject, status
  if status is "successful"
    send restoreAnimation to whatObject
  end
end
```

jumpToPercent

Message

Syntax `jumpToPercent <percentComplete>, <animNumber>`

Parameters `<percentComplete>` How far along the path to move as a decimal percent. The number should be between 0 and 1.

`<animNumber>` The number of the animation along which the object should move.

Description Sent to an object whose animation is not running to move the object to the point along its path nearest the specified percentage. This is useful if you are manually stepping through an animation. This message does not start the animation.

Controlling animation with OpenScript messages
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToStep`
`playAnimation`
`playStep`
`restoreAnimation`
`stopAnimation`

```
--Moves the object half way to the end of path 3
send jumpToPercent 0.5, 3 to ellipse "Moon"
```

jumpToStep

Message

Syntax `jumpToStep <stepNumber>, <animNumber>`

Parameters

`<stepNumber>`	The step to show.
`<animNumber>`	The number of the animation along which the object should move.

Description Sent to an object whose animation is not currently running to position it at the point along its path specified by `stepNumber`. This is useful if you are manually stepping through an animation. This message does not start the animation.

Controlling animation with OpenScript messages
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToPercent`
`playAnimation`
`playStep`
`restoreAnimation`
`stopAnimation`

```
send jumpToStep 26, 1 to ellipse "Moon"
```

playAnimation

Message

Syntax `playAnimation <animNumber>[,<notifyObject>,<wait>]`

Parameters `<animNumber>` The number from among the object's animations to play.

`<notifyObject>` An object to send the `doneAnimatingNotify` message to when the object's animation is done playing. This parameter can be `null,` but you must include a placeholder for this parameter to use the <`wait>` option.

`<wait>` If `true`, specifies that the animation should complete before returning control to the handler that sent the message. If `false` or `null`, the animation begins and control returns to the calling handler

Description Sent to an object to cause the object's specified animation to start playing.

Controlling animation with OpenScript messages
Requesting notification by animations
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToPercent`
`jumpToStep`
`playStep`
`restoreAnimation`
`stopAnimation`

```
send playAnimation 2 to ellipse "Moon"
```

playStep

Message

Syntax `playStep <animNumber>`

Parameter `<animNumber>` The number from among the object's animations currently playing.

Description Sent by Multimedia ToolBook to an object currently running an animation to advance the object to the next step in the path. You can write a handler for this message to update status counters or perform other processing; be sure to forward the message. Do not send this message yourself.

Controlling animation with OpenScript messages
Requesting notification by animations
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToPercent`
`jumpToStep`
`playAnimation`
`restoreAnimation`
`stopAnimation`

```
--Starts object's animation when object is clicked
to handle buttonClick
  system halfway    --Establishes variable used in playStep handler
  system soundAlreadyPlayed  --Flag indicating if sound clip played
  soundAlreadyPlayed = false
  mmOpen clip "chimes"
  halfway = (anim_Duration of self) * 1000 / 2
  send playAnimation 1 to self
end

--Monitors the animation at each step. When the
--animation is half completed, plays a .WAV file
to handle playStep
  system halfway        --Variable set earlier when animation began
  system soundAlreadyPlayed
  if anim_ElapsedTime of target > halfway then
    if soundAlreadyPlayed = false then
--    mmPlay clip "chimes"
      soundAlreadyPlayed = true
    end if
  end if
  forward
end playStep
```

restoreAnimation

Message

Syntax `restoreAnimation [<objectList>, <animationList>]`

Parameters `<objectList>` A list of objects whose animations should be reset.

`<animationList>` A list of animations corresponding to the items in `<objectList>`, which allows you to move an object to the starting position of a particular animation.

Description Sent to an object to reset the object to the starting point of an animation. If the `<objectList>` parameter is set, the objects in the list are reset instead of the object that is the target of the message.

Use the `restoreAnimation` message to reset an animation so it is at its starting point when started again. Otherwise, when an animation is started again, it moves to the starting point from its current location.

Controlling animation with OpenScript messages
Requesting notification by animations
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToPercent`
`jumpToStep`
`playAnimation`
`playStep`
`stopAnimation`

```
send restoreAnimation to ellipse "Moon"
send restoreAnimation objects of this page
send restoreAnimation button "Guy" 3
```

stopAnimation

Message

Syntax `stopAnimation <status>`

Parameter `<status>`Contains the value `successful` if the animation reaches its end, or `aborted` if the animation is stopped early.

Description Sent to an object to stop the animation in progress and leave the object where it was when the message was sent.

Multimedia ToolBook sends this message to objects when

- the object reaches the end of the animation path.
- the user presses the Esc key.
- the user moves to a page that does not display the object being animated.

You cannot send this message to stop animations played with the `wait` parameter because the script running the animation must finish before any other OpenScript statements can be executed.

Controlling animation with OpenScript messages
Requesting notification by animations
Starting and stopping an animation

OpenScript reference

`doneAnimating`
`jumpToPercent`
`jumpToStep`
`playAnimation`
`playStep`
`restoreAnimation`

```
send stopAnimation to ellipse "Moon"
```

anim_AnimationSettings

Permanent property

Description A user property of an animated object containing a table of the animation paths of the object and their settings. The table consists of a two-dimensional dynamic array in which the first element identifies an animation and the second element an animation setting.

You can make changes to the settings in this array by editing the animation in the Animation window. Alternatively, some of the values in the array are accessible via properties of the animated object.

If you require access to values in the table that are not already available via properties, you can write `to get` and `to set` handlers that access the array directly. For details about accessing the array directly, see Creating handlers to access the animation array.

Although you can change values in the array using `to set` handlers, some changes do not take effect unless you recompile the array by editing it in the Animation window. For example, you can change element 9 (number of steps), but Multimedia ToolBook calculates the actual number of steps based on the number of bounds in element 10 (compiled path).

Note Before making changes to the contents of the animation array, be sure you understand the structure and purpose of each element. If you make an error when setting the value of an element in the array, the animation might not run, and you might have to redraw it from scratch.

Value `null` if the object does not have any animations or an [n] by 16-element array of animation settings, where "n" is the number of arrays you created for the object. The structure of the table is as follows:

Elements in **`anim_AnimationSettings`** *array*

Value	Description	For more details, see
[n][1]	Path; list of coordinates for the vertices in the path.	
[n][2]	Curved vertices; list of `true` or `false` corresponding to each vertex in the path indicating whether the vertex defines a curve.	
[n][3]	Rate type; `constant` if the object moves along the path at a steady speed, "variable" if the animation speed depends on the length of the segment.	"Animation rates" under Setting animation options
[n][4]	Cel animation; `true` or `false` to determine whether an animation plays cels. You can set this value by checking Turn On in the Animation Settings dialog box	"Cel Animation On" under Setting animation options; `anim_CelAnimation` property
[n][5]	Show all steps; determines whether to skip steps when the animation gets behind.	"Show All Steps" under Setting animation options; `anim_ShowAllSteps` property
[n][6]	Start position; a list in page units of an animation's starting position.	`anim_StartPosition` property
[n][7]	Repetitions; the number of times the object will go along the path before the animation stops.	"Repetitions" under Setting animation options; `anim_NumRepetitions` property
[n][8]	Duration; the time that one iteration along the path should take.	"Duration in Seconds" under Setting animation options; `anim_Duration` property
[n][9]	Number of steps; the total number of steps in the animation.	`anim_NumSteps` property
[n][10]	Compiled path; list of the bounds of the object at each step of the animation.	
[n][11]	Steps per cel; how many steps along the path the object moves before the next cel in a cel animation is shown.	"Steps per Cel" under Setting animation options; `anim_StepsPerCel` property

[n][12]	Step rate; how many steps along the path the object will move each second.	"Steps per Second" under Setting animation options
[n][13]	Fixed path; `false` if path moves when object is moved at Author level; `true` if path remains in place.	"Update Path on Move" under Setting animation options
[n][14]	Row number; the number of the current animation (corresponds to the value of the first element of the `anim_AnimationSettings` array).	
[n][15]	Start size; the size of the object in page units at the first step of the animation. (This size is not necessarily the same as the size of the object before the animation starts, because the object may be resized when the animation begins.)	
[n][16]	End size; the size of the object in page units at the last step of the animation.	

Note This array is subject to change in future versions of the Path Animation utility.

Setting animation options

OpenScript reference

anim_CelAnimation
anim_CurrentStep
anim_CurrentTime
anim_Duration
anim_ElapsedTime
anim_NumRepetitions
anim_NumSteps
anim_Offset
anim_ShowAllSteps
anim_StartPosition
anim_StartTime
anim_StepsPerCel

Creating handlers to access the animation array

Multimedia ToolBook stores information about animation settings in a two-dimensional array as a user property (called `anim_AnimationSettings)` of the animated object. You can get and set many of the values in the array using animation properties such as `anim_Duration` and `anim_NumSteps`.

However, if you want access to the array values for which there is no corresponding property, you can write `to get` and `to set` handlers. One method is to write a single `to get` handler for each element of the array you want to be able to access, using a passed parameter to indicate which of the object's animations you want to access.

> **Note** Before making changes to the contents of the animation array, be sure you understand the structure and purpose of each element. If you make an error when setting the value of an element in the array, the animation might not run, and you might have to redraw it from scratch.

To write the handler, you must know what element of the array contains the information you want. Declare a local two-dimensional, dynamic array, copy the user property into it, then extract the value you want. For details about the layout of the array, see `anim_AnimationSettings`. For example, the following handler illustrates how you can get element 15 (start size) of the array.

```
to get anim_StartSize rowNum
   local settingsTable[][]
   --Defaults to animation 1 if no other is specified
   if rowNum = null then
      rowNum = 1
   end
   settingsTable = anim_animationSettings of target
   return settingsTable[rowNum][15]
end
```

Put the handler in the script of the book that contains the object being animated. You can then get the array value using an OpenScript command such as this one:

```
get anim_StartSize of ellipse "basketball"
```

To get the value of the start size for the object's second animation, you can use a command such as this:

```
get anim_StartSize of ellipse "basketball"
```

If you write a corresponding `to set` handler, you can change the value of the array element as well using a statement such as this:

```
anim_StartSize of ellipse "basketball" = 1000,1000
```

However, remember that although you can change values in the animation array, some of them do not take effect until you recompile the animation by editing it in the Animation window.

For further examples of `to get` and `to set` handlers that access the animation array, click Example.

> **Note** The `anim_AnimationSettings` array is subject to change in future versions of the Path Animation tool.

Setting animation options

OpenScript reference

`anim_AnimationSettings`

```
--Returns value out of the anim_AnimationSettings array
to get anim_FixedPath rowNum
  local settingsTable[][]
  if rowNum = null then
    rowNum = 1
  end
  settingsTable = anim_animationSettings of target
  return settingsTable[rowNum][13]
end

--Sets value in anim_AnimationSettings array
to set anim_FixedPath rowNum to value
  local settingsTable[][]
  if rowNum = null then
    rowNum = 1
  end
  settingsTable = anim_animationSettings of target
  settingsTable[rowNum][13] = value
  anim_animationSettings of target = settingsTable
end
```

Glossary

- cel animation
- compiled path
- path
- permanent
- runtime
- segment
- step
- vertex, vertices

cel animation

A type of animation in which individual views of an object, called cels, are shown in rapid sequence to make the object look as if it is moving or changing. For example, a cel animation of a spinning globe might consist of 16 views of the earth, each slightly different. If you see the individual cels in rapid sequence, it looks as if the globe is spinning. In Multimedia ToolBook you create cel animations by drawing individual objects to act as cels, then grouping them.

compiled path

A property of an animated object containing the coordinates for the object at each step of the animation. Multimedia ToolBook plays the animation by using the next set of coordinates (four coordinates per step) from the compiled path and setting the object's bounds to them.

The number of steps in the compiled path is based on the duration and steps per second specified when you saved the animation in the Animation window. A compiled path with 30 steps (including the start and end point) will have 120 items in its compiled path.

path

The course that the object will follow as it moves during the animation. You create a path in the Animation window by clicking to create vertices that define the path. By setting the number of steps per second, the total duration of the animation, and the animation rate, you can control how quickly and smoothly the object moves along the path. To play the animation and move it along its path, send the `playAnimation` message to the object.

The path is stored as a list of coordinates for each vertex in the object at each step of the animation.

permanent

Of a property, that you can get its value at any time, even if the animation is not running. If you set a permanent property while an animation is running, you affect the way the current animation runs and the way it runs the next time it is played.

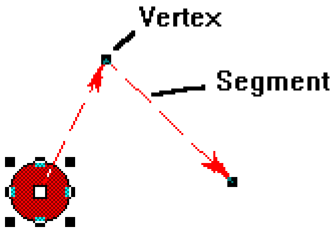
runtime

Of a property, that it contains a valid value only when the animation is running. When the animation is not running, the value of a runtime property is -1. If you set a runtime property, it affects only the animation currently running.

segment

One leg of the path along which the object moves. When you draw an animation path, you click to create a new vertex. Multimedia ToolBook then draws a new segment from the end of the existing path to where you clicked.

By default segments are straight lines, but you can convert them to curves.



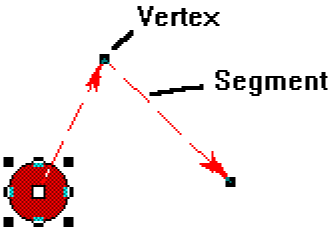
step

One increment along the animation path. To make the animation look smooth, specify a high number of steps per second so that the object moves only a small distance with each step.

If you are creating a cel animation, you can specify how many steps the object moves before Multimedia ToolBook shows the next cel.

vertex, vertices

The points defining the beginning and end of a segment. When you draw a path animation, you click to position a vertex, and Multimedia ToolBook draws a segment between the vertex at the end of the path and the new vertex.



Technical support contact information

Telephone support

Contact Asymetrix at the telephone numbers listed below for information on telephone support contracts.

Australia/Asia Pacific	(61+3) 5255471
Europe (except France and Germany), Middle East, Africa, Russia	44-923-208-433
UK	0800-716-957 (freephone)
France	05-90-83-19 (freephone)
Germany	01-30-81-27-07 (freephone)
USA and rest of world	206-637-1600

Online services

Asymetrix provides complimentary support via fax, Asymetrix BBS, CompuServe, America Online, and Internet to registered users. Technical support responds to online queries within 48 hours (Monday to Friday).

Technical support fax

- Australia/Asia Pacific (61+3) 5255-482
- Europe 44-923-208-419
- USA 206-454-0672

Asymetrix BBS

- Line 1 (1200-2400 baud/9600 baud, US Robotics HST mode) 206-451-1173
- Line 2 (9600-14,400 baud v.32bis) 206-451-8290

America Online

- Find Asymetrix in the Industry Connection, a subset of the Computing and Software area.

CompuServe

- Windows Third Party Developer A forum, section 1 *go asymetrix* or *go winapa*
- Multimedia Vendors forum, Section 15 *go multiven*
- IBM Ultimedia Tools A forum, Section 5 *go ultiatools*

Internet

- techsup@asymetrix.com
- support@asymetrix.com