

Autodesk® MotionBuilder® 2011 Subscription Advantage Pack

What's New



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Introduction

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About MotionBuilder

The MotionBuilder software is the industry-leading, real-time 3D animation solution for feature film, video game, and broadcast productions. With a strong focus on interactive real-time workflows, Autodesk MotionBuilder enables creative 3D artists and technical artists alike to take on the most demanding, animation-intensive projects. MotionBuilder is a professional-level solution designed for 3D data acquisition, manipulation and visualization, which makes it not only an animation productivity tool, but a tool that drives the iterative process of creativity.

About the Learning Material

Updates to the learning material for the MotionBuilder software product can be downloaded from <http://www.autodesk.com/motionbuilder-documentation>.

You can now consult and search the MotionBuilder 2011 web-based Help at: <http://docs.autodesk.com/MB/MB2011/ENU/index.html>.

To find out the version number of the MotionBuilder Help, click the Copyright topic in the Table Of Contents of the MotionBuilder Help and scroll to the bottom of the page. The Copyright page includes the document title, document date, document version, document build version, and software product version.

NOTE For last minute updates to the Autodesk MotionBuilder 2011 software product, refer to the *Autodesk MotionBuilder 2011 Subscription Advantage Pack Release Notes* available at: <http://www.autodesk.com/motionbuilder2011-subadvpack-documentation>.

What is New in this Release

2

The following topics provide an overview of the new features and any additional changes to the software product release.

- [New Features and Enhancements](#) on page 4
- [Additional Changes](#) on page 26

NOTE The *Autodesk MotionBuilder 2011 Subscription Advantage Pack Release Notes* include the most current information related to resolved and unresolved issues as well as any software/hardware limitations deemed important to document. You can download the *Autodesk MotionBuilder 2011 Subscription Advantage Pack Release Notes* from: <http://www.autodesk.com/motionbuilder2011-subadvpack-documentation>.

Related Topics

For information about the Autodesk MotionBuilder software, go to: <http://www.autodesk.com/motionbuilder>.

For additional last minute information about the Autodesk MotionBuilder software or for any downloads, consult our Support page at: <http://www.autodesk.com/motionbuilder-support>.

For last minute updates to the MotionBuilder 2011 Subscription Advantage Pack, refer to the *Autodesk MotionBuilder 2011 Subscription Advantage Pack Release Notes* available at: <http://www.autodesk.com/motionbuilder2011-subadvpack-documentation>. You can also download (from this web site) all the latest updates to the MotionBuilder 2011 Subscription Advantage Pack documentation.

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For information about the Autodesk Media & Entertainment products and solutions, visit: <http://www.autodesk.com/products-me>.

New Features and Enhancements

The following topics provide an overview of the new features, including changes to workflows in this release of the software product.

See also:

- [Additional Changes](#) on page 26

Live Video Input

You can now preview and record video from a live video source such as a webcam within MotionBuilder. Once a video is recorded, it is associated to the active take in the scene at the time the recording took place.

Live video input can be quite useful in cases for example where you would like to record the motion capture stage footage for reference later on in the production process or you would like to record your facial expressions as a reference to help refine an animation in progress.

NOTE QuickTime® is not available for 64-bit applications.

The live video input feature includes the following capabilities:

- Previewing of live video in the Navigator window
- Recording of video files using the MotionBuilder Transport Controls Play controls
- Mapping of live videos to objects as textures

NOTE The same texture mapping rules apply to live video as they do to video clips imported from disk.

- Multiple video source working simultaneously and independently

To access the video settings:

- 1 Connect and configure your video hardware to your workstation.

To see the video settings for your video hardware in MotionBuilder, you need to connect your video hardware to your workstation before launching MotionBuilder.

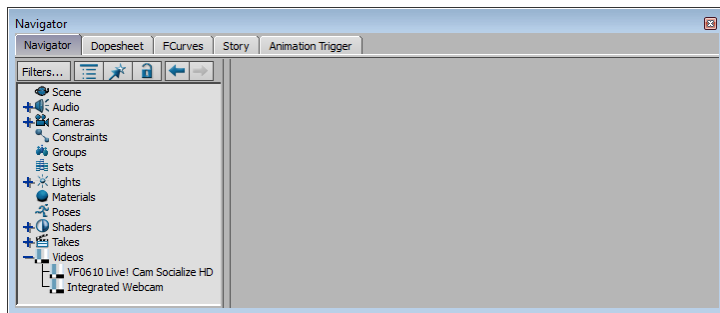
- 2 Launch MotionBuilder.

In the Navigator window, the *Video* branch appears in the Scene browser.

NOTE There is no *Video* branch if there is no video hardware connected to your workstation and if your workstation does not include an integrated webcam.

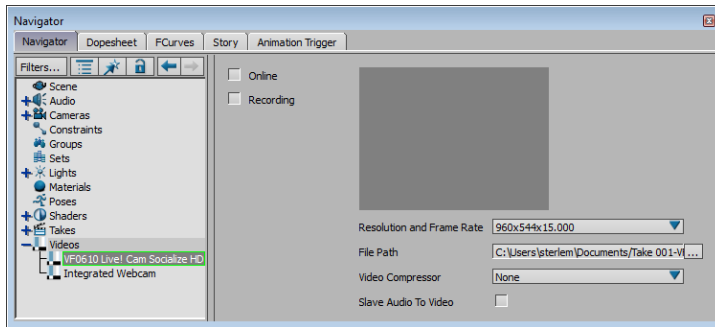
- 3 Expand the *Video* branch to view its contents.

The attached video hardware and integrated webcam appear under the *Video* branch.



- 4 Double-click the video hardware you want to use to capture live video in MotionBuilder.

The live video settings display.



Live Video Settings

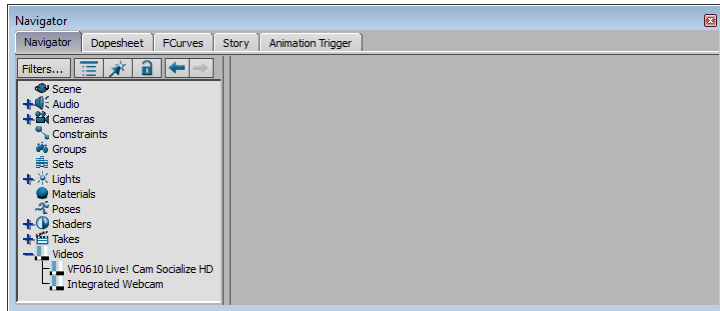
The following table describes the Live Video settings.

Live Video Settings	Description
Online	When enabled, activates the recording.
Recording	When enabled, sets the recording.
Resolution and Frame Rate	Provides the video's width x height and frame rate options you can choose from for capturing the live video.
File Path	Displays the file path where your video is saved. The File Path button enables you to choose another location to save your video files.
Video Compressor	Provides the video's codec options.
Slave Audio To Video	Slave Audio to video Boolean toggle. This option is off by default.

To capture live video:

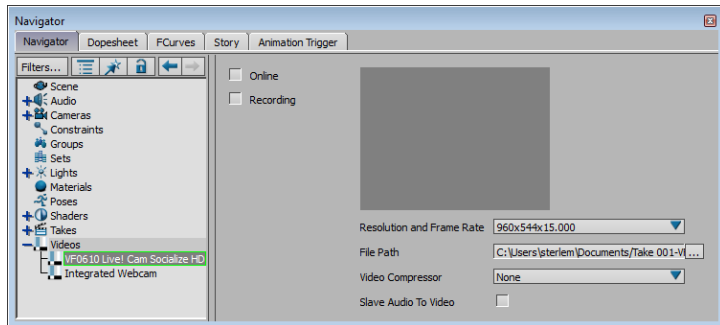
- 1 If you do not have an integrated webcam, connect your video hardware to your workstation.
- 2 Launch MotionBuilder.
In the Navigator window, the *Video* branch appears in the Scene browser.
- 3 Expand the *Video* branch to view its contents.

The attached video hardware and integrated webcam appear under the *Video* branch.



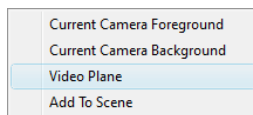
- 4 Double-click the video hardware you want to use to capture live video in MotionBuilder.

The live video settings display.

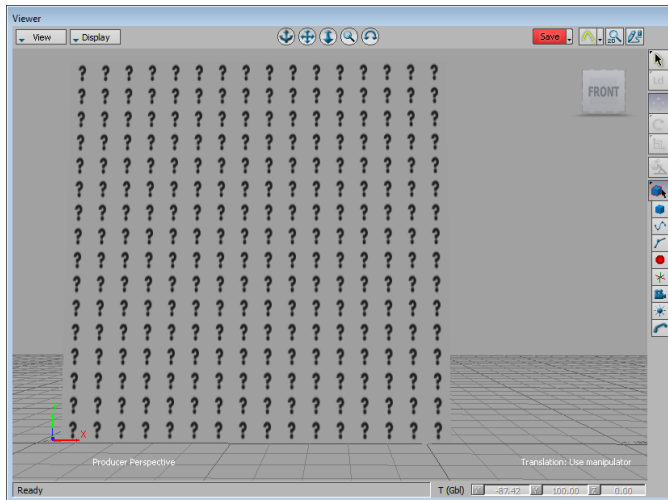


Live Video Settings

- 5 In the Navigator window Scene browser, expand the *Video* branch, click and drag your video hardware into the Viewer window and choose Video Plane from the contextual menu.




A video Plane with the default material displays in the Viewer window.



Video Plane displays in Viewer window

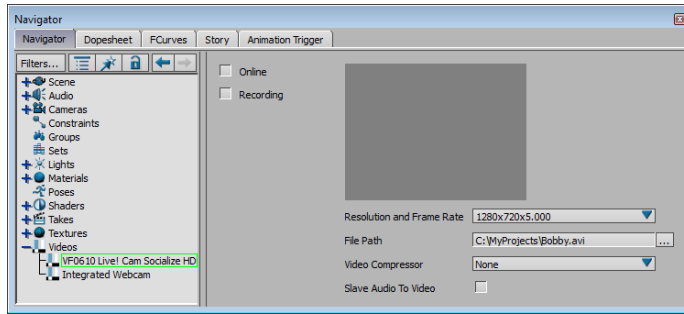
You use a Video Plane in a scene to project images, video clips, or video feeds.

- 6 In the Navigator window Scene browser, *Video* and double-click the video hardware in the *Video* branch to access the live video settings.
- 7 (Optional) In the Live Video settings, change the default settings for the Resolution and Frame Rate, the File Path, the Video Compressor, and the Slave Audio to Video.

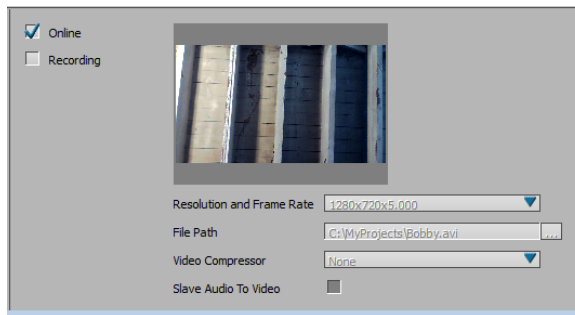
- 8 In the Live Video settings, click the File Path button  .

- 9 In the Video File dialog, choose the location where you want to save your video file, enter the name of the video file, including the file format, and click Save.

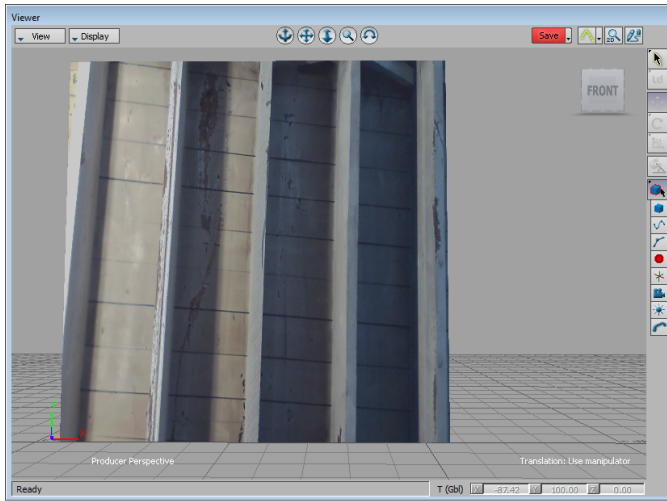
Your changes to the default settings are displayed.




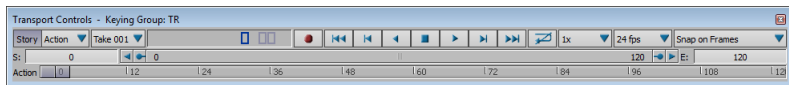
- 10 In the Live Video settings, activate Online.
The Video Preview displays the video capture.





In the Viewer window, the video capture preview is projected on the Video Plane.





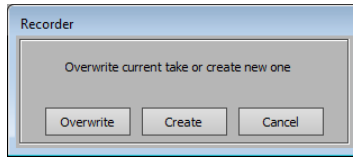
- 11 In the Live Video settings, enable Recording.
The Record Directory dialog appears.
- 12 Choose a location where you want to save your video files and click OK.
- 13 In the Transport Controls, click the Record button ().




- 14 Click the Play button () to start recording footage.
- 15 Click the Stop button () to stop the recording.
The recorded video is attached to the Video Plane's material and appears in the Scene browser's *Video Plane* and *Videos* branch.

To resume video captures:

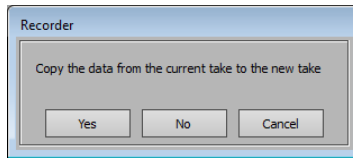
- 1 After capturing a video, click the Record button () in the Transport Controls and then click the Play button () to record footage.
The following dialog appears.



2 Select one of the three options.

If you select Overwrite, click the Transport Controls Record button () to start recording.

If you select Create, you get the following dialog.



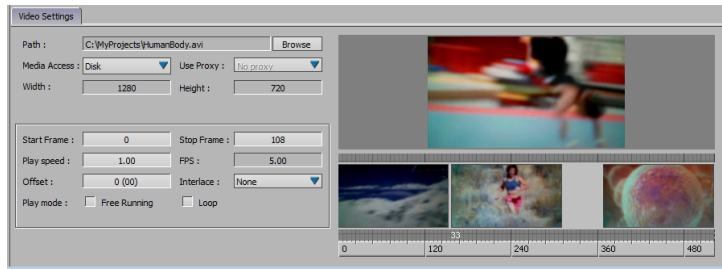
3 Select one of the three options and resume recording footage.

The video is once again live, ready for you to capture footage.

A Take is created for every capture you take. All takes appear in the Navigator Scene browser's *Video* branch.

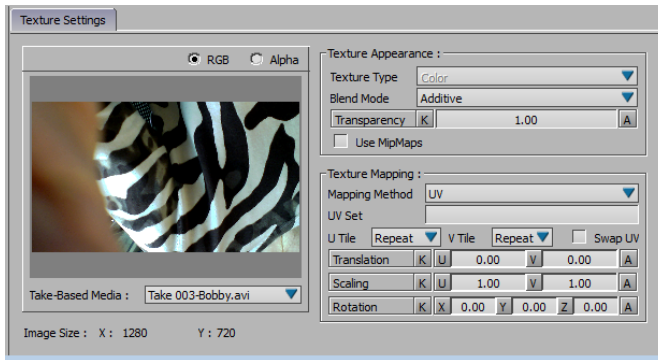
NOTE You can create takes via the Transport Controls Current Take menu.

4 In the Navigator Scene browser's *Video* branch, double-click a take to access the Video Settings.



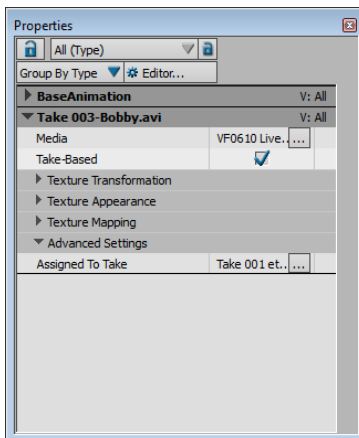
The Video settings enable you to select various file and playback options for the current video.

You can apply a video take to a texture or material.



Video take set as texture

You can change the texture take settings via the Texture Settings and Properties window.



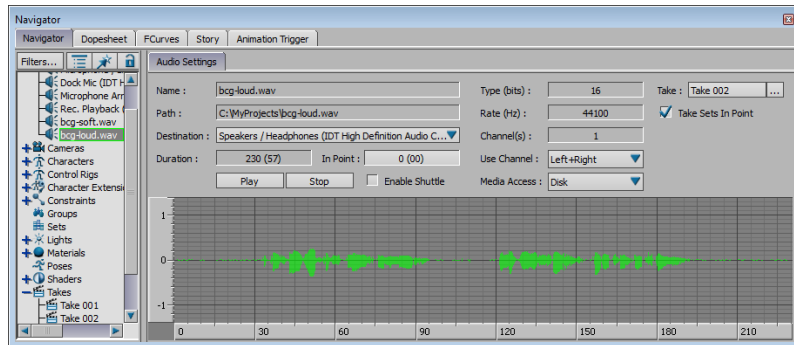
See the MotionBuilder Help for information on Video settings, Materials, and Textures.

Audio Link to Take

You can now assign an audio file to a take using the Take Audio setting. Previously, since you could not assign audio clips to takes, you had to mute/un-mute the audio clip or load another clip manually when switching takes.

The new Audio setting properties include the Take and the Take Sets In Point. The Audio settings are available via the Navigator window, in the Audio Settings.

NOTE The Audio Settings are accessible when an Audio clip is selected in the Navigator window.




The following table provides a description of the Audio Settings.

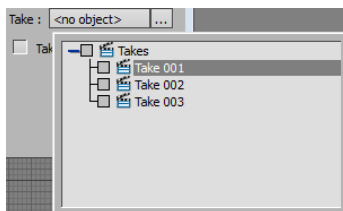
Setting	Description
Name	Shows the name of the audio file currently loaded in the Audio settings.
Path	Shows the location of the selected audio file.
Destination	Lets you choose the audio that is selected as the default on your computer.
Duration	Shows the length of the audio clip, and uses the same measurement as what is set in the Frame Rate field in the Transport Controls.
In Point	Lets you enter a value to offset the beginning of the audio file, letting you start the file at a time other than the start of the take. For example, if you want the audio file to begin several minutes into the take, double-click the In Point field, and enter a value or drag right on the value until the In Point timecode equals the amount of time you want to offset the audio file. The waveform moves to the appropriate place in the Waveform area. The In Point field displays the same measurement as the Frame Rate field in the Transport Controls window.

Setting	Description
Play	Previews the audio file.
Stop	Stops the audio file from playing.
Enable Shuttle	Activates audio shuttling. If more than one audio file is used in the scene, only one of these files can have shuttling activated. Disable shuttling if your disk access is slow.
Type	Shows the bit rate used by your computer's audio hardware.
Rate	Shows the sampling rate (in Hertz) of your computer's audio hardware.
Take	Displays the take associated with the audio clip. If there is no take associated with the audio clip, <no object> is displayed.
Take Sets In Point	When enabled, the start of the audio clip is synchronized with the start of the take.

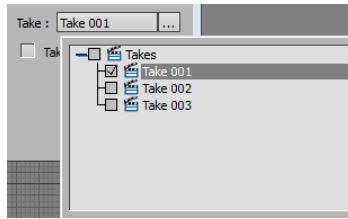
To assign an audio clip to a take:

- 1 In the Navigator window, expand the Audio branch.
- 2 Double-click an audio clip to access the Audio Settings.
In the Audio Settings, notice there is no Take (<no object>) associated with the selected audio clip.

- 3 In the Audio Settings, click the Take button  .
The list of available takes (included in the scene) is displayed.




- 4 Click the take you want to associate with the selected audio clip.

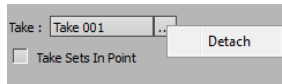


Notice the selected take is now associated with the selected audio clip.

To detach an audio clip from a take:

1 Double-click an audio clip to access the Audio Settings.

2 In the Audio Settings, right-click the Take button  .



3 Click Detach.

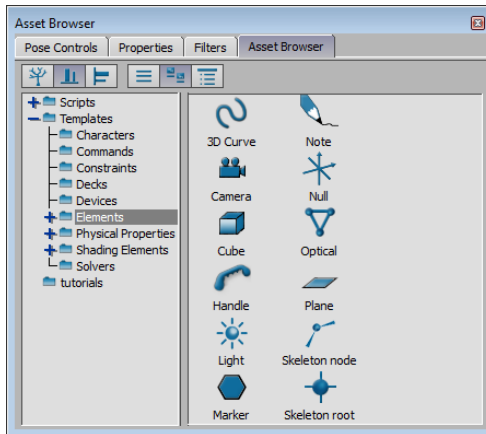
Path Constraint Up-Vector Setting

The Path constraint enables you to convert a 3D curve into an animation path so you can attach a scene object to the animation path.

You can now specify an arbitrary up vector for your path constraint.

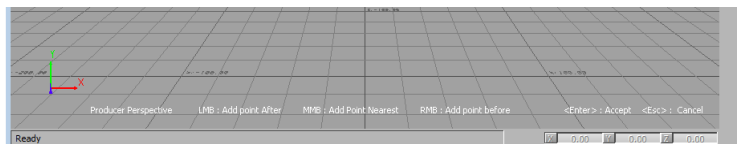
To create a constraint path:

1 In the Asset browser, click the *Elements* folder to view its contents.



- 2 In the *Elements* folder, double-click the 3D Curve asset.

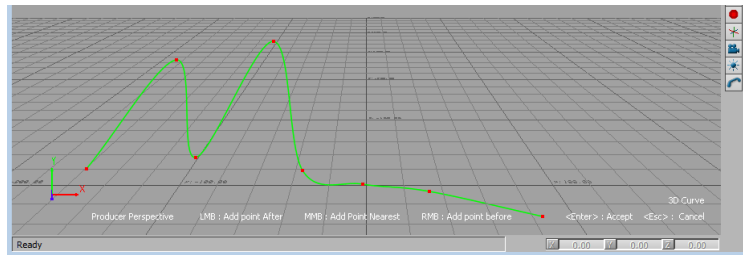
The keyboard shortcuts for creating control points for the path are shown at the bottom of the Viewer window.



NOTE The default keyboard shortcuts assume the mouse buttons are set to the default button configuration.

Keyboard Shortcuts	Description
LMB: Add point After (left-mouse button)	Adds a control point.
MMB: Add point Nearest (middle-mouse button)	Adds a control point between the nearest two control points, and thus reshapes the curve.
RMB: Add point Before (right-mouse button)	Adds a control point following the first control point curve.
<Enter>: Accept	Finalizes the 3D curve.
<Esc>: Cancel	Deletes the 3D curve asset.

- 3 Click in the Viewer window to add control points to define the animation path.

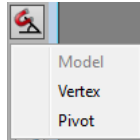


Animation path

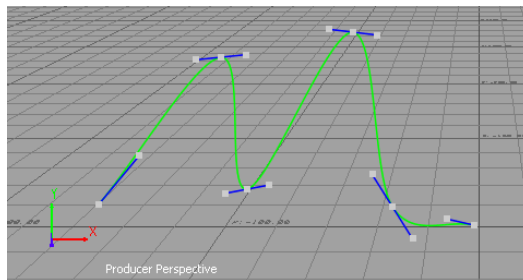
- 4 Press *Enter* to finalize the path.

To edit vertices:

- In the Viewer window, click the Viewer toolbar Object mode button and select the Vertex mode option.



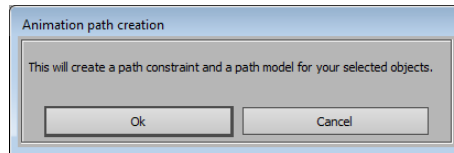
The Vertex mode (button) is active and the Constraint's path tangent handles are shown in the Viewer window.



Constraint Path displays tangent handles

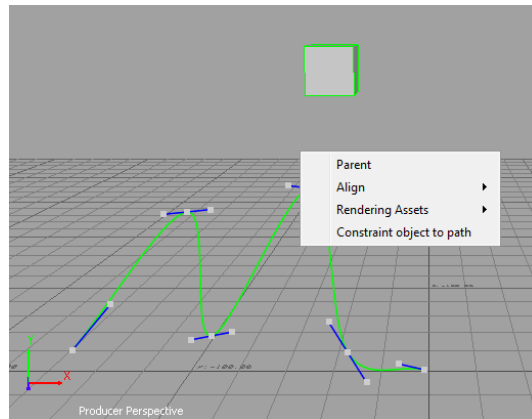
To constrain a model to a path:

- Perform any of the following:
 - In the Viewer window, select the model and then choose from the menu bar Animation > Create Path Animation (Selected Object), and click OK.

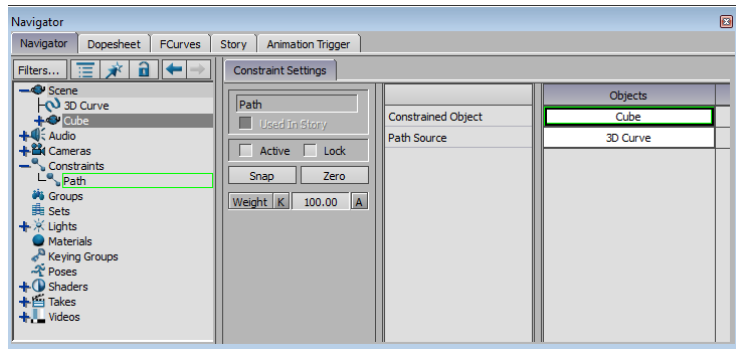


As you add keyframes to animate the model, a path is created and the model is constrained to the path.

- In the Viewer window, click the model and *Alt*-drag to select the path. When you release the mouse, select from the contextual menu “Constraint the object to path”.

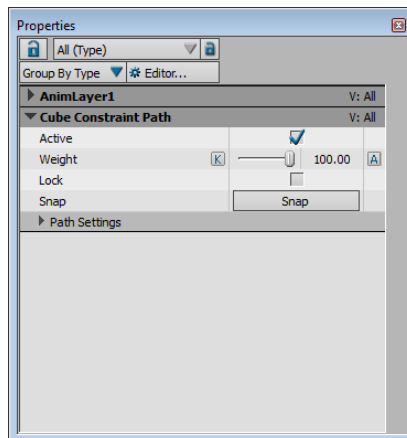


- In the Asset browser, click the Constraints folder and drag the Path constraint asset in the Viewer window. In the Navigator Scene browser, expand the Scene branch, select the constrained object and drag the object in the Constrained Settings Constrained Object field, then select the constraint path source and drag it in the Constrained Settings Path Source field. Click Snap to keep the offset, or Active to place the object at the start point of the path.



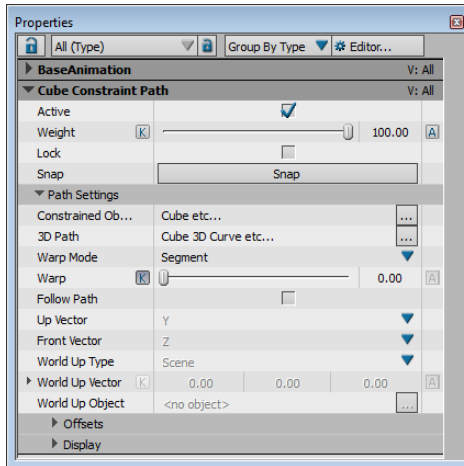
To edit the Path Constraint settings:

- 1 In the Navigator Scene browser, double-click the model's Constraint Path to access the model's Constraint Path settings and the Path Settings in the Properties window.



Model's Constraint Path settings and Path Settings

- 2 In the Properties window, expand the Path Settings.



The Path Settings control how the object behaves relative to the path.

3 Enable Follow Path.

You need to enable Follow Path to access the Up Vector, Front Vector, World Up Type, and World Up Object.

4 Edit the Path Settings.

The changes to this release include the following Path settings: Up Vector, World Up Type, World Up Vector, and World Up Object.

Path Settings	Description
Up Vector	Vector that defines the world up. This setting is used with the Front Vector and World Up Type.
Front Vector	Axis pointing forward.
World Up Type	Defines the world up. Click the menu and select Scene to use the scene for orientation, Object to use the object for orientation, Object Rotate to take only the orientation of the object, or Vector to set and animate the vector in the World Up Vector x, y, and z fields.
World Up Object	Uses an object in the scene to determine the up vector. Click the field and select a scene object.

WARNING FBX support the path constraint, however, since the Autodesk® Maya® software product and the Autodesk 3ds Max® software product have different types of path constraints, the path constraints are not compatible between applications. The Up vector settings are not supported by FBX. A workaround for the lack interoperability for the path constraint, it is to bake the animation onto the constrained object before bringing it into Maya.

Real Time Relation Constraint Filter

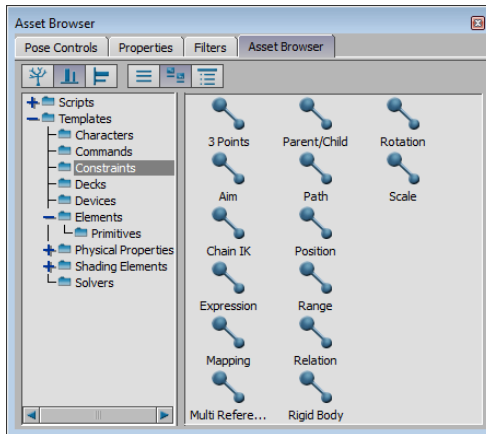
Constraints are tools used to create relationships between objects. You can use constraints to make a character pick up an object, have a camera follow a character, manipulate other objects in relation to each other, or use the keyboard or mouse to trigger events. A Relation constraint consists of at least two objects: One object transmits data (Sender) while the other object interprets the sent data (Receiver).

Unlike other constraints, Relation constraints come with mathematical operators that you can use as building blocks to create specific actions for your models. These building blocks are called Operators.

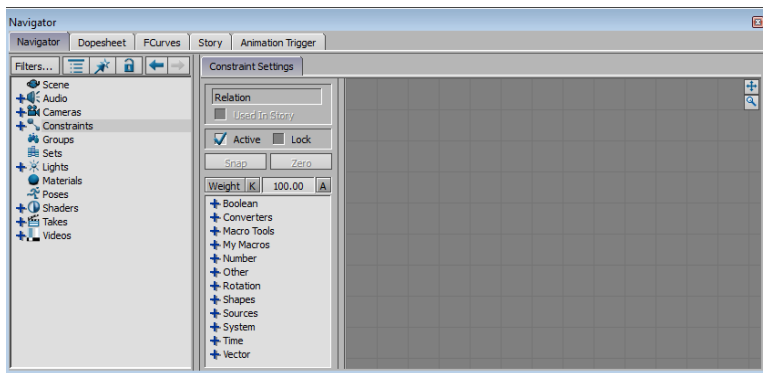
Relation constraints enable you to build sophisticated relations between elements in your scene. The new Real Time relation constraint filter applies a low-pass filter enabling incoming live data filtering. It enables you to filter data as it is being recorded live from a device using a Relation constraint.

To create a Real Time filter:

- 1 Go to the Asset browser and click the *Constraints* folder.



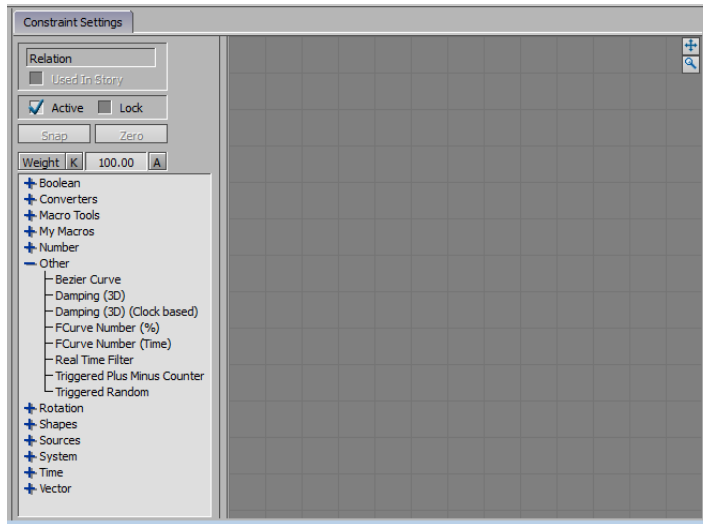
- 2 Drag and drop the Relation constraint on the *Constraints* branch in the Navigator window Scene browser.



TIP You can also drag the Relation constraint into the Viewer to add it to the scene or on an object you want included in the constraint.

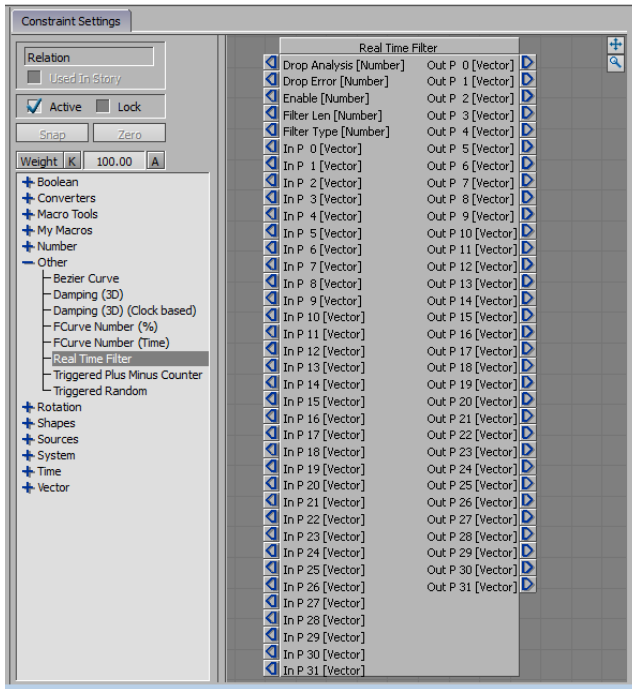
The Navigator window displays the Constraint Settings, and the Relation constraint is added to the Scene browser.

- 3 In the Constraints Settings, expand the *Other* object constraint category to access its contents.



The Real Time filter is included in the list of objects.

- 4 Drag the Real Time filter in the Relations pane.



The Real Time filter includes the following operators: Drop Analysis [Number], Drop Error [Number], Enable [Number], Filter Len [Number], Filter Type [Number], In P [Vector], and Out P [Vector].

Real Time Filter Operator Description

Drop Analysis [Number]	On/off value for Drop Error.
Drop Error [Number]	Specifies a tolerance for dropping frames. If a value exceeds the specified threshold, it is rejected and the previous value is re-taken for sample. For example, if set at 2 a value changes more than 2 units on a per-frame basis, it is deemed an invalid value and therefore it is rejected.
Enable [Number]	This is the on/off switch. 0 means off, and any value greater than 1 means on.
Filter Len [Number]	This has a maximum value of 10 and it specifies the width or number of frames used to calculate a final value which

Real Time Filter Operator	Description
	is the filtered value. For example, if set at 5, then it is averaging 5 frames to output a number.
Filter Type [Number]	Currently, there is only one type of filter applied. This is a low pass filter which is optimal for smoothing capture data.
In P [Vector]	Connected to the output source.
Out P [Vector]	Filtered data.

Displacement operator for Relation Constraint with

The following displacement operator has been created to eliminate the problem of using Relation Constraints with Physics and dependency on display frame rate of the scene.

- Input 1 : 3D Velocity (in cm/s)
 - Input 2 : Reset (Action button to reset original position to 0)
 - Output : 0 based Position computed from live input velocity
- This new Displacement operator can be found in the *Vector* object constraint category in the Constraint Settings.

Python and C++ SDK New Features and Enhancements

The following topics provide an overview of the SDK enhancements in this release of the software.

Live Video Input

The new *FBVideoIn* class enables plug & play capture through a hardware camera and use of the stream in a scene. This is demonstrated in the new sample *VideoInput.py*.

Merging Animation Layers

Merging animation layers is now exposed via the new `MergeLayers()` function. It is demonstrated in the new sample script *MergeAnimationLayer.py*.

Creating Auxiliary Effectors

It is now possible to create an auxiliary effector. `GetEffectorModel` can now get a model for given effector set. Exposed `FBCharacter.CreateAuxiliary()`. Functionality is demonstrated in the new Python sample script *MatchAuxiliaryEffectors.py*.

New Boolean Attribute for FBTreeNode

The class `FBTreeNode` has a new boolean attribute: `Checked`. It is used to change the state of `CheckBoxes` created with `FBTree`, and is available in both C++ and Python.

Additional Changes

The following describes additional changes to this release of the MotionBuilder software product.

See also:

- [New Features and Enhancements](#) on page 4

Configuration Files

Since configuration files cannot be written in the MotionBuilder *Program Files* on Microsoft® Windows Vista® and Windows 7 operating systems, and the User Application Data files are not updated when MotionBuilder updates are installed, the user application configuration files are now saved as follows.

The MotionBuilder 2011 Subscription Advantage Pack 64-bit version configuration files are saved in: `C:\Documents\MB\2011.1-64` on a 64-bit OS.

The MotionBuilder 2011 Subscription Advantage Pack 32-bit version configuration files are saved in `C:\My Documents\MB\2011.1` on a 32-bit OS.