3ds Max FBX Plug-in Guide

3ds Max FBX plug-in
August 2006

Autodesk® FBX® Plug-Ins

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1 Installation

The 3ds Max FBX plug-in is used by 3ds Max® to import, export, and convert files using the *.fbx* file format. This document describes how to install the 3ds Max FBX plug-in for Windows® 2000/XP.

Note	*The 3ds Max FBX plug-in runs only on the version of 3ds Max for which it is created. Verify that the 3ds Max FBX plug-in you are installing is appropriate for your version of 3ds Max, otherwise 3ds Max will reject it.*

Windows Installation

The 3ds Max FBX plug-in is available for Windows 2000 and Windows XP.

To install the 3ds Max FBX plug-in:

1. Delete the old *fbxmaxexp.dle* and *fbxmaximp.dli* files from your 3ds Max FBX plug-in directory. Remove any other 3ds Max FBX plug-ins you have to avoid conflicts.

Note	*These files are removed automatically during the installation process, but if you receive an error warning when you run the plug-in, check for other versions of the plug-in files and remove them manually.*

2. Download the install file from the Autodesk web site (*http://www.Autodesk.com*).

3 Double-click the install file to launch the Autodesk plug-in installer (figure 1-1).

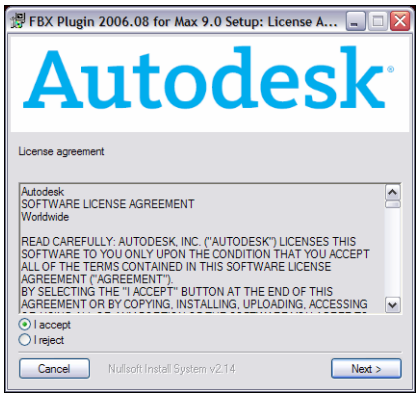

figure 1-1: *Autodesk Installer window*

4 Click I accept to accept the terms of the license agreement, and then click Next.

5 The next window shows the recommended installation location for the plug-in (figure 1-2). To specify another location, click Browse to launch the file browser. Click Next.

figure 1-2: *Autodesk Destination folder window.*

6. The next window shows the recommended installation location for the plug-in documentation. To specify another location, click Browse to launch the file browser. Click Next
7. A series of dialog boxes appear asking if you would like to keep older versions of the plug-in (if applicable), and open the plug-in documentation. Select Yes or No for each of the options.
8. The installation completed window appears. Click Close to exit the installer.

The 3ds Max FBX plug-in is now installed.

2 Importing and Exporting

This section describes how to export models from 3ds Max using the *.fbx* file format, and how to import *.fbx* files into 3ds Max.

It also includes a list of the 3ds Max features supported by this version of the 3ds Max FBX plug-in, as well as a list of new improvements and enhancements.

Exporting from 3ds Max to an .fbx file

1. Create the model, textures (UV file texture), and skeleton in 3ds Max.
2. Select File > Export scene from the main menu bar. A file browser appears. Browse to the location where you want to save the *.fbx* file.
3. Name the file and select FBX as the File type.
4. Click OK. The Export FBX File dialog box appears.

5 Select options for export from the FBX Exporter window (figure 2-1). For more information about the export options, see "FBX Exporter window options" on page 7.

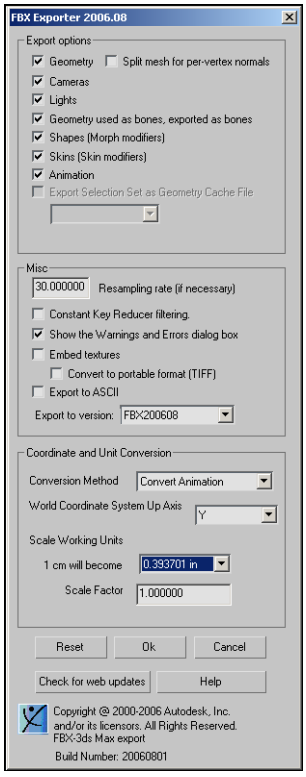

figure 2-1: *FBX exporter window*

FBX Exporter window options

Once you select an *.fbx* file to export from 3ds Max, the FBX Exporter window appears (figure 2-2).

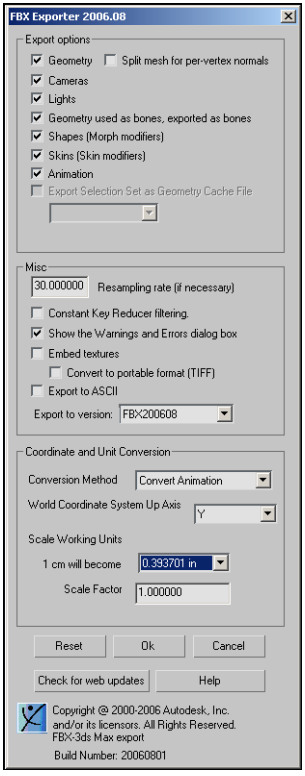

figure 2-2: *FBX exporter window*

Export options area

This area contains elements for exporting to *.fbx* format:

Geometry

Activate this option to export all geometry to *.fbx* format.

Split mesh for per vertex normals

Activate this option so your *.fbx* file will support normal per-polygon vertices.

Cameras

Activate this option to export the scene's cameras to *.fbx* format.

Lights

Activate this option to export the scene's lights to *.fbx* format.

Geometry used as bones, exported as bones

Activate this option to convert geometry used for deforming objects into real bones in the *.fbx* file. When you import this file back into 3ds Max, they become bones.

Shapes (Morph modifiers)

Activate this option to export all shape deformations to *.fbx* format.

Skins (Skin modifiers)

Activate this option to export all skin deformations to *.fbx* format.

Animation

Activate this option to export animation to *.fbx* format.

Export Selection Set as Geometry Cache file

Activate this option to create a cache file for a selected Set for the *.fbx* file to refer to.

Three files are generated when you activate this option:

- an *.fbx* file
- an *.xml* file
- an *.pc2* file

The *.xml* and *.pc2* files are stored in a sub-folder that is named after the *.fbx* file and has the extension *.fpc*. For example, if you export a scene containing a cube named *pCube1* to the *.fbx* file *myTest.fbx,* you create the following files:

- *myTest.fbx*
- *myTest.fpc*
- *pCubeShape1.xml*
- *pCubeShape1.pc2*

Note	*This option is only available with the plug-in for 3ds Max 9.0.*

Selection set menu

Use the Selection Set menu to select an appropriate set to export the cache file.

Misc. area

This area contains miscellaneous options for the export process:

Resampling rate (if necessary)

Shows the scene's Resampling rate.

Double-click the field to enter a new Resampling rate (the default is the 3ds Max frame rate).

Constant Key Reducer filtering

Activate this option to apply Constant Key Reducer filtering to the exported file. This removes redundant keyframes or keys with the same value, which are the same as the flat sections of an FCurve.

Show the Warnings and Errors dialog box

Lets you disable the Warnings and Errors dialog box that may appear during the import/export process.

The default setting is Active.

Embed Textures

Activate this option to export any textures associated with your scene.

Convert to portable format (.tiff)

Activate this option to convert your textures into *.tiff* format, which makes them readable on other platforms.

Export to ASCII format

Activate this option to save the *.fbx* file in ASCII format.

Export to version

Use this menu to export your file to a legacy *.fbx* file format.

Expand the Export to Version menu to select an *.fbx* version. See "FBX Versions" on page 13 for more information about the different *.fbx* file format versions offered.

Coordinates and Unit Conversion area

This section lets you specify the world space in which your scene is exported.

The plug-in reads the World Coordinate system and/or the Scale Working units from the current scene settings and converts it to the specified space. The specified values are saved in the *.fbx* file as global settings for the scene.

Conversion method

Select from one of the following conversion methods:

Option	Function
None	No conversion takes place and the exported data is unaffected.
Convert animation	Recalculates all animation FCurves so their values reflect the new World system.
Add FBX_Root node	Adds a transformation node to the top of the scene to contain the transformations needed to transport the data into the new World system. This option is available to facilitate backward compatibility as it generates the *.fbx* file the same way as earlier releases of the plug-in. ***Note:*** *If the plug-in does not detect a need for the conversion, no Fbx_Root node is added.*

World Coordinate System Up Axis

Use this menu to define the Up axis in your *.fbx* file. There are two choices:

- Y-axis
- Z-axis

The default setting is Y.

Scale working units

This area lets you specify the units of the scene saved in the *.fbx* file.

1 cm will become

Use the 1 cm will become menu to specify the units of the scene saved in the *.fbx* file from a list of commonly-used unit conversions.

By default, the plug-in offers no conversion, for example 1 centimeter remains 1 centimeter.

Scale factor

Defines a global scale that affects the entire scene.

Reset

Restores the FBX Exporter window's default values.

Ok

Starts the export process.

Cancel

Closes the Export FBX window, without performing any action.

Check for web updates

Opens a browser window and searches the Autodesk web site for newer versions of the plug-in for you to download.

Help

Accesses the 3ds Max FBX Plug-in Guide in *.pdf* format.

FBX Versions

The following table lists the different versions available for you to select from the Export to version menu in the FBX Exporter window.

Version	Description
FBX200608	Select this version to use your file with the latest version of the 3ds Max FBX plug-in (for example, version FBX200608). ***Note:*** *Do not use this option to export from 3ds Max into MotionBuilder 7.5. Use the FBX200602_MB75 option instead.*
FBX200602_MB75	Select this version to use your file with MotionBuilder 7.5 and its associated plug-ins (for example, version FBX200602). ***Note:*** *Use this option to export 3ds Max files into MotionBuilder 7.5. Otherwise, NURBS are lost and mesh normals may be inverted.* *In this mode, normals in normal per polygon/vertex mode are transformed to normals per vertex and hard edges become smooth edges.*
FBX200508_MB70	Select this version to export into a format that can be read by MotionBuilder 7.0 and its associated plug-ins (for example, version FBX200508).
FBX60_MB60	Select this version to export into a format that can be read by MotionBuilder 6.0 and its associated plug-ins).

Version	Description
FBX53_MB55	Select this version to export into a format that can be read by MotionBuilder 5.5 and its associated plug-ins).

Note	*Files remain backward compatible, for example, a file saved with FBX53_MB55 can be read by applications supporting FBX60_MB60, FBX200508_MB70 and FBX200602_MB75.*

Importing .fbx files into 3ds Max

This section describes the import types available to the 3ds Max FBX plug-in and the two methods of importing an *.fbx* file into 3ds Max:

- Importing into an empty scene
- Merging back to the original scene

Import to an Empty Scene

You can import an *.fbx* file directly into an empty scene. Morph creation, mesh, textures, and the 3ds Max bone structure (hierarchy) are supported.

To import an *.fbx* file into an empty scene:

1. Launch 3ds Max.
2. Select File > Import, and use the file browser to locate the *.fbx* file you want to import.
3. Select FBX as the File Type, and click Ok.
4. Select Add in the pop-up menu that appears, and leave the rest of the selected options as they appear.

5 Click Ok.

Merge Back with the Original Scene

You can merge the *.fbx* file with your original scene. Use this method to recognize your existing models and simply copy the new animation onto them.

This method is useful when you already have special behavior effects saved with your 3ds Max scene.

To merge an *.fbx* file back with the original scene:

1 Launch 3ds Max.

2 Load your original scene.

3 Select File > Import, and use the file browser to the locate the *.fbx* file to import.

4 Select FBX as the File Type, and click Ok.

5 In the menu that appears (figure 2-3), make sure that Merge is selected in the Import Type area. Click Ok.

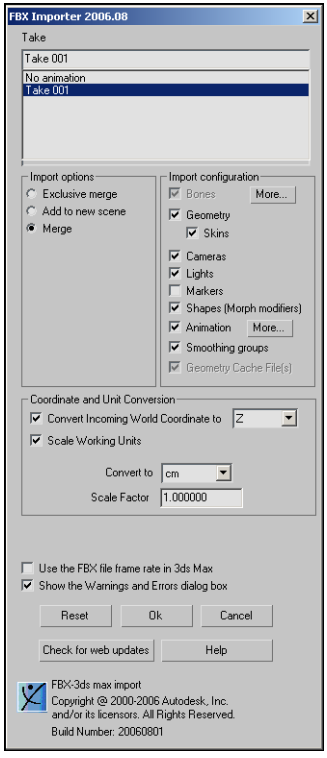

figure 2-3: *FBX importer window*

6 Change the Resampling rate if it is necessary (The default is the 3ds Max frame rate).

7 Click Ok.

FBX Importer window options

Once you select an *.fbx* file to import into Max, the FBX Importer window appears. The FBX Importer window contains import options.

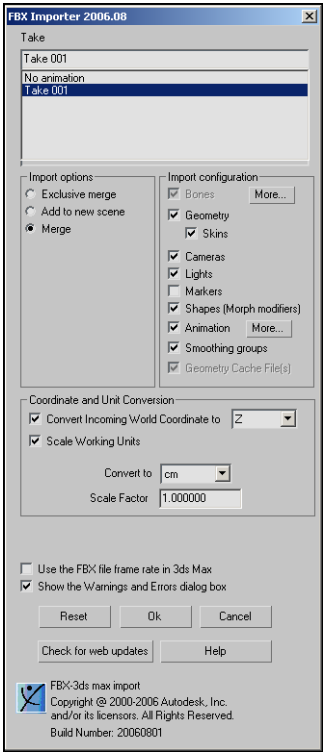

figure 2-4: *FBX importer window*

Take

Displays the takes saved with the scene. Click a take to select it for import.

Note	*You can only select one take at a time.*

Import options

Select the import type that best suits your needs before choosing your import method.

Import type	Description
Exclusive merge	Use to merge only the elements modified in the 3ds Max FBX plug-in with elements in the original 3ds Max scene. Exclusive Merge does not import control-sets, optical markers and other specific 3ds Max FBX plug-in elements.
Add to new scene	Use to import all the 3ds Max FBX plug-in elements (enabled in the Import Configurations menu) into a new scene.
Merge	Use Merge to use a combination of the Exclusive Merge and Add to New Scene. When you activate Merge, the 3ds Max FBX plug-in merges the animation with the elements that are already present in the 3ds Max scene, and creates any other objects that are defined in the *.fbx* file. This is the default setting.

Import configuration option

Activate the following options to import these features of your scene:

Bones

Activate this option to import your scene's bones.

Click the More button to access additional Bone import options like Width, Height and Taper in the Advanced FBX Import Parameters window. For information on these advanced Bone options, see "Advanced Bone Options window" on page 22.

Geometry

Activate this option to import your scene's geometry.

Skins

Activate this option to import your scene's Skin.

Cameras

Activate this option to import any cameras used in the scene.

Lights

Activate this option to import any lights used in the scene.

Markers

Activate this option to import any markers used in the scene.

Shapes (Morph modifiers)

Activate this option to import any shapes used in the scene.

Animation

Activate this option to import any animation found in the scene.

Click the More button to access additional Animation import options like Constant Key Reducing Filtering, Gimble Lock Killer Filtering, XYZ FCurve Synchronization filtering, and Resampling rate. See "Advanced Animation Options window" on page 24 for more information.

Smoothing groups

When this option is active, the plug-in exports the required information for identifying edges that are defined as hard or smooth and sets the polygon edges with the saved state.

If you disable this option, these states are discarded and 3ds Max recomputes the normals with internal algorithms, causing all hard edges to be lost. Any smoothing groups are collapsed into one group that contains all polygons.

This setting is active by default.

Geometry Cache File(s)

Loads cache file(s) referenced by the *.fbx* file.

Note	*This option is only available with the plug-in for 3ds Max 9.0.*

Coordinate and Unit conversion area

This section lets you specify the world space in which your scene is imported.

The plug-in processes the conversions of the World Coordinate System and/or the Scale Working units defined in the *.fbx* file, as well as the options you set.

Note	*This conversion affects only the incoming data. 3ds Max's settings are not changed.*

World Coordinate System Up Axis

Activate this option so you can use the menu to select a Y- or Z-up axis convention for the import of your file. There are two choices:

- Y-axis
- Z-axis

If this option is disabled, the menu is grayed out and displays the current 3ds Max world coordinate setting.

Scale Working Units

Activate this option so you can access the Convert to menu to specify units to import data from the *.fbx* file.

Convert to

Use the Convert to menu to specify the units of the scene saved in the *.fbx* file from a list of commonly-used unit conversions.

By default, the plug-in offers no conversion, that is, 1 centimeter remains 1 centimeter.

Scale factor

Defines a global scale that affects the entire scene.

Use FBX file frame rate in 3ds Max

Lets you import the frame rate from the *.fbx* file. This overwrites the rate used in 3ds Max.

Show the Warnings and Errors dialog box

Lets you disable the Warnings and Errors dialog box that may appear during the import/export process.

The default setting is Active.

Reset

Restores the FBX Importer window's default values.

Ok

Starts the import process.

Cancel

Closes the Import FBX window, without performing any action.

Check for web updates

Opens a browser window and searches the Autodesk web site for newer versions of the plug-in to download.

Help

Accesses the 3ds Max FBX Plug-in Guide in *.pdf* format.

Advanced Bone Options window

Click the More button next to the FBX Importer window's Bones option to display the Advanced Bone Options window (figure 2-5). The Advanced Bone Options window lets you customize the creation of 3ds Max bones.

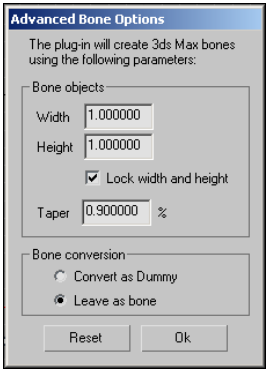

figure 2-5: *Advanced FBX Import Parameters window*

Bone objects

Use the Bone objects options to customize any bone objects. These values are only used on rare occasions when the plug-in cannot automatically compute bone size.

Setting	Description
Width	The size of the bone width. (This is only represented graphically.)
Height	The size of the bone height.
Lock width and height	This is active only if the same value is entered in the Bone Width and Height fields.
Taper	Percentage of the Width or Height thickness at the end of the bone.

Bone conversion

Select a method to convert bones.

Option	Behavior
Convert as Dummy	Changes imported joints into Dummy objects. They resemble bones but do not have the limitations of a “real” 3ds Max bone.
Leave as bone	Creates imported joints into true Max Bones

Reset

Restores the Advanced Bone Options window to its default settings.

OK

Applies the setting changes and closes the window.

Advanced Animation Options window

Click the More button next to the FBX Importer window's Animation option to display the Advanced Animation Options window. The Advanced Animation Options window lets you set filtering options for the imported animation (figure 2-6)

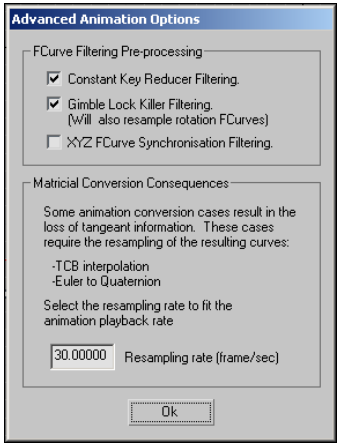

figure 2-6: *Advanced FBX Import Parameters window*

FCurve filtering pre-processing

Select any of these options to affect how the animation is filtered:

Option	Description
Constant Key reducer filtering	Removes redundant keyframes or keys with the same value, the same as flat sections of an FCurve.

Option	Description
Gimble Lock Killer filtering (will also resample rotation FCurves)	Re-evaluates the rotation FCurve to remove any 180 degree rotation jumps.
XYZ FCurve Synchronization filtering	On a XYZ group of FCurves (position, rotation and scale) checks that a keyframe exists for each component (X,Y,Z) at the same time.

Matricial conversion consequences

This field is used when converting animation results in the loss of tangent information. Enter a new resampling rate if you want to compensate for the new behavior.

What's supported in the 3ds Max FBX plug-in

This section lists the supported features for the 3ds Max FBX plug-in:

- Collada format (beta-level support only).
- NURBS. (For NURBS curves, ensure that the "Enable In Viewport" option in 3ds Max must is active.)
- Patches. (Patches are converted and exported as triangle meshes. We recommend using triangle meshes when building models.)
- Geometry Cache files. (Available only with the plug-in for 3ds Max 9.0.)
- Normals and smoothing groups have improved support.
- Bones (imported as true bones or as dummies that appear as bones).
- Converts Polygons to triangles when exporting mesh geometry.
- Normals.

- All texture mapping types are exported as a UV map. Texture maps are only supported on the Diffuse channel.
- Control Points.
- Morphing.
- Colored Vertices.
- Phong and Lambert standard materials are supported directly with no conversion. Blinn materials are converted to Phong.
- Skins using Physique are still exported but will be imported using the Skin modifier.

Lights

The following section has tables that indicate how lighting is treated by both 3ds Max and the *.fbx* file format.

Export

The following table lists 3ds Max lights and how they are treated by the *.fbx* file format on export:

In 3ds Max	**Becomes in *.fbx***
Omni	Point Light.
Free Directional	Directional Light.
Targeted Directional	Directional Light. The Target is exported as a null.
Free Spot	Spot.
Targeted Spot	Spot. The Target is exported as a null.
Intensity	Intensity FCurve (resampled).
Color channel	Color channel.

In 3ds Max	Becomes in *.fbx*
Coneangle FCurve	Coneangle. The cone angle is computed as the (Hotspot+Falloff)/2. If these parameters are animated, the resulting FCurve is evaluated at each frame.
Ambient Light color	Ambient light. Applies only to 3ds Max's Ambient light, not to the Environment Tint and Level fields.

Import

The following table lists *.fbx* lights and how 3ds Max treats them on import.

In *.fbx*	Becomes in 3ds Max
Omni	Point Light.
Directional Light	Free Directional light.
Light Spot	Free Spot.
Coneangle FCurve	Hotspot and Falloff channels.
Intensity FCurve	Intensity channel.
Color FCurve:	Color channel. The animation on a Target null node is merged as usual, and the Targeted light retains its Targeted state while in 3ds Max.

Merge Back

- Intensity is merged into the Intensity channel.
- Color FCurve is merged into the Color channel.

Cameras

The following section's tables indicate how cameras are treated by both 3ds Max and the *.fbx* file format.

Export

The following table lists 3ds Max cameras and how the *.fbx* file format treats them on export:

In 3ds Max	Becomes in *.fbx*
Free Camera	Camera without interest.
Targeted Camera	Camera with interest.
Roll Angle Animation	Roll Fcurve. Angle values are inverted when exporting to *.fbx* to maintain a consistent orientation.
Parallel Camera	Ortho (parallel), but the width and height values are not the same.
FOV channels	Field of View FCurve. The view is consistent, even though the focal length values changes.
Width-related FOV	Horizontal Aperture.
Height-related FOV	Vertical Aperture.
Near and Far plane	Near and Far values if clipping is enabled. Since Near and Far values cannot be animated in MotionBuilder, the current time value is used for evaluating the resulting Near and Far value.

Notes	*The UpVector animation is plotted on the Roll FCurve. If not animated, it is always exported as (0,1,0).* *Camera Scale is not supported.* *Diagonal-Related Field Of View is not supported, and its channels are interpreted as an horizontal Field of View.* *Environment Planes are not supported.* *Target Distance is exported as a static value. If the channel is animated, the resulting value is the one evaluated at the current time.*

Import

The following lists how MotionBuilder cameras are treated by 3ds Max on import:

In *.fbx*	**Becomes in 3ds Max**
Free Camera	Free camera.
Camera (With a look-at Target/Interest)	Targeted camera.
Ortho (parallel) Camera	Parallel camera
3ds Max Parallel Camera (a parallel camera generated by a 3ds Max export)	The camera's width is set in the FOV Channel. By importing an exported 3ds Max parallel camera, the width parameters are restored, even if it is not considered by MotionBuilder.

Notes	*Since the Near and Far plane values for cameras in MotionBuilder are constant, the 3ds Max channel cannot be animated.* *Target Distance is imported for the Free Camera.*

What's not supported in the 3ds Max FBX plug-in

This section lists the features that the 3ds Max FBX plug-in does not currently support:

- Ambient light animation is not supported by the 3ds Max FBX plug-in.
- The option to import skinned objects using the Physique Modifier has been removed as Physique Modifier is no longer supported on export. Skins using Physique are still exported but are only imported using the Skin modifier.

Custom properties

Because of type limitations in *.fbx* files, the following conversions are applied.

Exported from 3ds Max	**Becomes in *.fbx***
Float	REAL
Boolean	BOOL
Integer	INTEGER
Color	COLOR
Array	INTEGER

Exported from 3ds Max	Becomes in *.fbx*
Node	ignored.
TextureMap	ignored • *The minimum and maximum values of this property cannot be retrieved, so they are not considered.*

Imported *.fbx*	Becomes in 3ds Max
REAL	Float
BOOL	Boolean
INTEGER	Integer
COLOR	Color
VECTOR3	Float

What's new

The following section contains the new features, bug fixes, and known limitations for this version of the 3ds Max FBX plug-in:

New features

- Beta support for the import and export of Collada format.
- NURBS are now supported on export and import. For NURBS curves, ensure that the "Enable In Viewport" option in 3ds Max must is active.

- A new option has added to the 3ds Max FBX Importer and Exporter windows for the support of Geometry caches. See "Export Selection Set as Geometry Cache file" on page 8 and "Geometry Cache File(s)" on page 20.
- New options to accommodate changes for the Z-up to Y-Up axis have been added to the FBX Exporter and Importer. See "Coordinates and Unit Conversion area" on page 10 and "Coordinate and Unit conversion area" on page 20.
- Normals and smoothing groups have improved support, and the "Support normals per polygon vertex" option has been renamed "Split mesh for per vertex normals". To view this option, see "Split mesh for per vertex normals" on page 8.
- Bones can be imported as true bones or as dummies that appear as bones. See "Bone conversion" on page 23.
- Import or export warning and error messages are now grouped and shown when the import or export process finishes (figure 2-7).

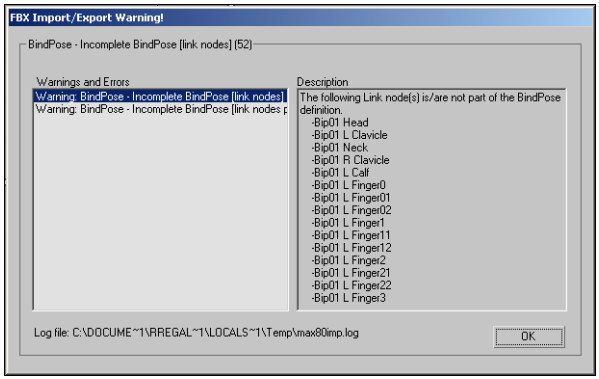

figure 2-7: *3ds Max Warnings and Errors dialog box.*

- A new option in the 3ds Max Importer and Exporter windows lets you show or hide the Warning/Error Messages dialog box. See "Show the Warnings and Errors dialog box" on page 10.
- The name-handling algorithms have been enhanced.

- An option in the Importer window, Use FBX file frame rate in 3ds Max, lets you import the frame rate from the FBX file. This overwrites the rate used in 3ds Max with the rate used in MotionBuilder.
- The default Import mode is now set to “Merge”. See "Import options" on page 18.
- Constant Key Reducer Filtering is now disabled by default on export. See "Constant Key Reducer filtering" on page 9.
- Physique modifier is no longer supported. Skins using Physique are still exported but will be imported using the Skin modifier. The option to import skinned objects using the Physique Modifier has been removed.
- Two options have been added to the Bone conversion dialog box:

Option	Result
Convert as Dummy	Converts Joint nodes in the FBX file to Dummy objects that display as bone objects but without true bone constraints.
Leave as bone	Leaves the bones as they are.

- A Help button has been added to the 3ds Max FBX Importer and Exporter windows so you can access the 3ds Max FBX Plug-in Guide from within the Importer and Exporter windows.
- A new Check for web updates button has been added to the FBX Importer and Exporter to let you search the Autodesk web site for newer versions of the plug-in.
- New options have been added for Coordinate and Unit Conversion. These options replace the “Rescale scene's root node to unit size” and “Y-Up to Z-Up root node rotation” options in the 3ds Max FBX Importer.

- Two new scripting commands have been added:

Scripting option	Function
KeepFrameRate [true|false]	Imports the frame rate from the FBX file and overwrites the rate used in 3ds Max.
ImportBoneAsDummy [true|false]	Converts Joint nodes in the FBX file to Dummy objects that display as bone objects but without true bone constraints.

Bug fixes

- Sub-materials now keep their sub-material name (if one is defined) when you export them.
- Errors with imported cameras using the Focal Length parameter instead of the Field of View parameter have been corrected.
- Removed support for Physique modifier import as it was never fully supported. The SkinModifier scripting option has also been removed.

Known limitations

The following is a list of known limitations for this version of the 3ds Max FBX plug-in:

- To correctly export NURBS curves, the "Enable In Viewport" option in 3ds Max must be active. If this option is disabled, the object will not be exported.
- Geometry tips, such as Cones, have a known issue with normals.
- You may encounter memory issues when using large architectural scenes.

- There are known issues with diffuse Texture maps and NURBS and Patch models.
- Layered textures from Maya do not import in 3ds Max.
- Specular values on standard materials have known limitations.
- Not all basic Lights are currently supported, and Fall off and Cone angle lights may not re-import.
- Morphs on Nurbs & Patch models do not export.
- The AutomaticUVW operator is not correctly supported and should be avoided.
- The 3ds Max FBX plug-in destroys wire connections to Position, Rotation and Scale controllers. These connections should be re-created after importing.
- While import and export of the ambient light color is supported, this applies only to 3ds Max's Ambient light, not to the Environment Tint and Level fields.

  The color of this ambient light is Set/Get at time 0.
- Because of differences between 3ds Max and MotionBuilder, keyframe animation set on controllers with TCB interpolation or tangent slopes set to Fast, Slow or User are systematically resampled.
- Polygon (faces) may be flipped during import. To fix this problem, access the stack, select the Faces sub-object, select all the faces of the object, and flip them back using the Flip and Unify functions.

3 Scripting the 3ds Max FBX plug-in

This chapter contains the commands for scripting 3ds Max FBX plug-ins.

FBXExporterGetParam [arg]

Queries the export plug-in parameters where [arg] is a recognized export parameter.

FBXExporterGetParam returns the value of the named parameter. If the parameter is unrecognized or the wrong number of arguments are provided, the value “unsupported” is returned.

For a list of supported parameters, see "FBXExporterSetParam [arg] [value]" on page 37.

FBXExporterSetParam [arg] [value]

Sets the specified argument for export where [arg] is a recognized export parameter and [value] is an appropriate value for the supported parameter. For example, to prevent the export of cameras:

```
FBXExporterSetParam "Cameras" false
```

FBXExporterSetParam returns “OK” if successful or if it is sent an unrecognized parameter.

FBXExporterSetParam returns “unsupplied” if the wrong number of arguments are passed.

FBXExporterSetParam [arg] [value]

FBXExporterSetParam recognizes the following parameter and values:

Name	Value
Animation	True or false
Cameras	True or false
Convert2Tiff	True or false
EmbedTextures	True or false
FilterKeyReducer	True or false
GeomAsBone	True or false
Geometry	True or false
Lights	True or false
NormalsPerPoly	True or false
PointCache	True or false
Resampling	Float
SelectionSet	Name of the selection set to use
Shape	True or false
Skin	True or false
ShowWarnings	True or false

For example, to query the export camera's state:

```
FBXExporterGetParam "Cameras"
```

FBXImporterGetParam [arg]

Queries the import plug-in parameters where [arg] is a recognized import parameter.

FBXImporterGetParam returns the value of the named parameter. If the parameter is unrecognized or the wrong number of arguments are provided, the value “unsupported” is returned.

For example, to query the import Mode’s state:

```
FBXImporterGetParam "Mode"
```

Returns either *#create*, *#merge*, or *#exmerge*.

The one exception to this is the TakeCount argument, where you must specify the full file name of the *.fbx* file that you want to query. For example:

```
FBXImporterGetParam “TakeCount” “C:\\temp\\myfile.fbx”
```

For a list of supported parameters, see "FbxImporterSetParam [arg] [value]" on page 39.

FbxImporterSetParam [arg] [value]

Sets the specified argument for import where [arg] is a recognized import parameter and [value] is an appropriate value for the supported parameter.

- FBXImporterSetParam returns “OK” if successful or if it is sent an unrecognized parameter.
- FBXImporterSetParam returns “unsupplied” if the wrong number of arguments are passed.

FBXImporterSetParam recognizes the following parameter and values:

Name	Value
Animation	True or false

FbxImporterSetParam [arg] [value]

Name	Value
Cameras	True or false
FilterKeyReducer	True or false
FilterKeySync	True or false
FilterUnroll	True or false
Geometry	True or false
HumanIK	True or false The HumanIK option is available only if a compatible HumanIK product is installed.
Lights	True or false
Markers	True or false
Mode	“Create” or “merge” or “exmerge” When queried using FBXImportGetParm, this parameter returns #create, #merge, or #exmerge
PointCache	True or false
Resampling	Float
Shape	True or false
Skin	True or false
TakeIndex	An integer number from 1 to the number of takes in the fbx file. This parameter is only available for setting.

For example, to import an fbx file using the “Add to new scene” mode and the skin modifier, but without loading animation fcurves:

```
FBXImporterSetParam "Mode" "create"
FBXImporterSetParam "skin" true
```

```
FBXImporterSetParam "Animation" false
```

ImportBoneAsDummy [true|false]

Converts Joint nodes in the FBX file to Dummy objects that display as bone objects but without true bone constraints.

KeepFrameRate [true|false]

Imports the frame rate from the FBX file and overwrites the rate used in 3ds Max.

KeepFrameRate [true|false]