FBX

Reference

Category:
  Import-Export
Menu:
  File ‣ Import/Export ‣ FBX (.fbx)

Enabling Add-on

This add-on is enabled by default, in case it is not:

1. Open Blender and go to Add-ons section of the Preferences.
2. Search "FBX" and check the *Enable Extension* checkbox.

Usage

This format is mainly use for interchanging character animations between applications and is supported by applications such as Cinema4D, Maya, Autodesk 3ds Max, Wings3D and engines such as Unity3D, Unreal Engine 3/UDK and Unreal Engine 4.

The exporter can bake mesh modifiers and animation into the FBX so the final result looks the same as in Blender.

> Note
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> - Bones would need to get a correction to their orientation (FBX bones seems to be -X aligned, Blender's are Y aligned), this does not affect skinning or animation, but imported bones in other applications will look wrong.
> - Animations (FBX AnimStacks, Blender actions) **are not linked** to their object, because there is no real way to know which stack to use as 'active' action for a given object, mesh or bone. This may be enhanced to be smarter in the future, but it's not really considered urgent, so for now you'll have to link actions to objects manually.
> - Armature instances **are not supported**.

> Note
>
> - Bones' orientation importing is complex, you may have to play a bit with related settings until you get the expected results.
> - Animation support is minimal currently, we read all curves as if they were 'baked' ones (i.e. a set of close keyframes with linear interpolation).
> - Imported actions are linked to their related object, bone or shape key, on a 'first one wins' basis. If you export a set of them for a single object, you'll have to reassign them yourself.

> Note
>
> Saving Just Animations
>
> The FBX file format supports files that only contain takes. It is up to you to keep track of which animation belongs to which model. The animation that will be exported is the currently selected action within the Action editor. To reduce the file size, turn off the exporting of any parts you do not want and disable *All Actions*. For armature animations typically you just leave the armature enabled which is necessary for that type of animation. Reducing what is output makes the export and future import much faster. Normally each action will have its own name but the current or only take can be forced to be named "Default Take". Typically, this option can remain off.

> Note
>
> Blender now only supports complex node-based shading. FBX having a fixed pipeline-like support of materials, this add-on converts between them.

Properties

Import

Include

Import Normals

> TODO
>
> Add this information.

Import Subdivision Surface

> TODO
>
> Add this information.

Import User Properties

> TODO
>
> Add this information.

Import Enums as Strings

> TODO
>
> Add this information.

Image Search

> TODO
>
> Add this information.

Transform

Scale

> TODO
>
> Add this information.

Decal Offset

> TODO
>
> Add this information.

Manual Orientation

> TODO
>
> Add this information.

Forward / Up Axis

Since many applications use a different axis for 'Up', these are axis conversion for these settings, Forward and Up axes – By mapping these to different axes you can convert rotations between applications default up and forward axes.

Blender uses Y Forward, Z Up (since the front view looks along the +Y direction). For example, its common for applications to use Y as the up axis, in that case -Z Forward, Y Up is needed.

Apply Transform

> TODO

Add this information.

Use Pre/Post Rotation

> TODO
>
> Add this information.

Animation

> TODO
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> Add this information.

Animation Offset

> TODO
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> Add this information.

Armature

Ignore Leaf Bones

> TODO
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> Add this information.

Force Connect Children

> TODO
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> Add this information.

Automatic Bone Orientation

> TODO
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> Add this information.

Primary/Secondary Bone Axis

> TODO
>
> Add this information.

Export

Path Mode

When referencing paths in exported files you may want some control as to the method used since absolute paths may only be correct on your own system. Relative paths, on the other hand, are more portable but mean that you have to keep your files grouped when moving about on your local file system. In some cases, the path doesn't matter since the target application will search a set of predefined paths anyway so you have the option to strip the path too.

Auto:

Uses relative paths for files which are in a subdirectory of the exported location, absolute for any directories outside that.

Absolute:

Uses full paths.

Relative:

Uses relative paths in every case (except when on a different drive on Windows).

Match:

Uses relative / absolute paths based on the paths used in Blender.

Strip Path:

Only write the filename and omit the path component.

Copy:

Copy the file on exporting and reference it with a relative path.

Embed Textures

> TODO
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> Add this information.

Batch Mode

When enabled, export each group or scene to a file.

Group/Scene

Choose whether to batch export groups or scenes to files. Note, when Group/Scene is enabled, you cannot use the animation option *Current Action* since it uses scene data and groups are not attached to any scenes. Also note, when Group/Scene is enabled you must include the armature objects in the group for animated actions to work.

Batch Own Directory

When enabled, each file is exported into its own directory, this is useful when using the *Copy Images* option. So each directory contains on model with all the images it uses. Note, this requires a full Python installation. If you do not have a full Python installation, this button will not be shown.

Include

Selected Objects

Only export the selected objects. Otherwise export all objects in the scene. Note, this does not apply when batch exporting.

Active Collection

> TODO
>
> Add this information.

Object Types

Enable/Disable exporting of respective object types.

Custom Properties

> TODO
>
> Add this information.

Transform

Scale

Scale the exported data by this value. 10 is the default because this fits best with the scale most applications import FBX to.

Apply Scaling

> TODO
>
> Add this information.

Forward / Up

Since many applications use a different axis for 'Up', these are axis conversions for Forward and Up axes – By mapping these to different axes you can convert rotations between applications default up and forward axes.

Blender uses Y Forward, Z Up (since the front view looks along the +Y direction). For example, its common for applications to use Y as the up axis, in that case -Z Forward, Y Up is needed.

Apply Unit

> TODO
>
> Add this information.

Apply Transform

> TODO
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> Add this information.

Geometry

Smoothing

> TODO
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> Add this information.

Export Subdivision Surface

> TODO
>
> Add this information.

Apply Modifiers

Export objects using the evaluated mesh, meaning the resulting mesh after all Modifiers have been calculated.

Loose Edges

> TODO
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> Add this information.

Tangent Space

> TODO
>
> Add this information.

Armatures

Primary/Secondary Bone Axis

> TODO
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> Add this information.

Armature FBXNode Type

> TODO
>
> Add this information.

Only Deform Bones

> TODO
>
> Add this information.

Add Leaf Bones

> TODO

TODO

Add this information.

Bake Animation

TODO

Add this information.

Key All Bones

TODO

Add this information.

NLA Strips

TODO

Add this information.

All Actions

Export all actions compatible with the selected armatures start/end times which are derived from the keyframe range of each action. When disable only the currently assigned action is exported.

Force Start/End Keying

TODO

Add this information.

Sampling Rate

TODO

Add this information.

Simplify

TODO

Add this information.

Compatibility

Import

Note that the importer is a new addition and lacks many features the exporter supports.

- binary FBX files only.
- Version 7.1 or newer.

Missing

- Mesh: shape keys.

Export

NURBS surfaces, text3D and metaballs are converted to meshes at export time.

Missing

Some of the following features are missing because they are not supported by the FBX format, others may be added later.

- Object instancing – exported objects do not share data, instanced objects will each be written with their own data.
- Material textures
- Vertex shape keys – FBX supports them but this exporter does not write them yet.
- Animated fluid simulation – FBX does not support this kind of animation. You can however use the OBJ exporter to write a sequence of files.
- Constraints – The result of using constraints is exported as a keyframe animation however the constraints themselves are not saved in the FBX.
- Instanced objects – At the moment instanced objects are only written in static scenes (when animation is disabled).