Blender Software

What is Blender Software?

Blender is a free and open-source 3D computer graphics software toolset used for creating animated films, visual effects, art, 3D-printed models, motion graphics, interactive 3D applications, virtual reality, and, formerly, video games. Blender's features include 3D modelling, UV mapping, texturing, digital drawing, raster graphics editing, rigging and skinning, fluid and smoke simulation, particle simulation, soft body simulation, sculpting, animation, match moving, rendering, motion graphics, video editing, and compositing.

Features

1. Modeling

Forensic facial reconstruction of a mummy by Cícero Moraes

Blender has support for a variety of geometric primitives, including polygon meshes, Bézier curves, NURBS surfaces, metaballs, icospheres, text, and an n-gon modeling system called B-mesh. There is also an advanced polygonal modelling system which can be accessed through an edit mode. It supports features such as extrusion, bevelling, and subdividing.

1.1 Modifiers

Modifiers apply non-destructive effects which can be applied upon rendering or exporting, such as subdivision surfaces.

1.2 Sculpting

Blender has multi-resolution digital sculpting, which includes dynamic topology, "baking", remeshing, re-symmetrization, and decimation. The latter is used to simplify models for exporting purposes (an example being game assets).

2. Animation

Blender's keyframed animation capabilities include inverse kinematics, armatures, hooks, curve- and lattice-based deformations, shape keys, non-linear animation, constraints, and vertex weighting. In addition, its Grease Pencil tools allow for 2D animation within a full 3D pipeline.

3. Rendering

Rendering of different materials using the Cycles render engine.

Internal render engine with scanline rendering, indirect lighting, and ambient occlusion that can export in a wide variety of formats; A path tracer render engine called Cycles, which can take advantage of the GPU for rendering. Cycles supports the Open Shading Language since Blender 2.65.

Cycles Hybrid Rendering is possible in Version 2.92 with Optix. Tiles are calculated with GPU in combination with cpu.

EEVEE is a new physically based real-time renderer. It works both as a renderer for final frames, and as the engine driving Blender's real-time viewport for creating assets.

3.1 Texturing and shading

Blender allows procedural and node-based textures, as well as texture painting, projective painting, vertex painting, weight painting and dynamic painting.

Why use Blender Software?

* Its open-source software
* Blender is always free
* No registration or license key is required to use
* You can change the source code however you want
* There is always more than 1 way to perform a task in Blender
* You can import and export many different file formats
* Not only can you animate in 3D but 2D as well
* Almost every creative task can be performed using one software application

1. Do Almost Everything You Need To On A Single Application

Many applications are built to perform a specific type of task or a small selection of tasks that are similar to each other. With Blender 3D you have access to almost all the tools that you could require to create what you want in a single application.

For example, you can follow the entire workflow of creating a character model in Blender. With the grease pencil, you can create 2D concept art of your soon-to-be 3D model. Then you can begin the actual modeling stage of the project in the 3D viewport, able to create your model in a variety of ways.

You can use modeling methods in Blender to create the base shape, and then use the sculpting toolkit to create the finer details of your model. Then you can move on to the next stage of the project and add materials and textures to your character and the character clothes with blenders UV mapping tools and a superb node system for material application.

Then you can move onto the rigging stage of the process where you can prep your character to move in ways natural to humans and prep it for animation, which becomes the next step in the process where you can create animated motions for the character model.

And all of this you are able to do inside of Blender without the need for any other software. If you are following a pure animation workflow your entire project can easily be done in Blender without the need for any other software.

In fact, you can even edit the rendered animations that you created by using the applications video editing suite. Yes, it even has one of those! and you can add effects, filters, and overlays to your animations using Blenders node compositor.

This does not mean that Blender cannot do everything, however, and there are some things that are currently beyond its reach.

You cannot 3D print models for example directly from Blender, as it does not have built-in splicing software. Although it can be used to create the models used for 3D printing. Likewise, it cannot be used to create video games but can be used to create all the assets for those games.

That’s why we say Blender can do almost everything, as it can perform many tasks normally performed by various software and reduce the number of applications that you may need to learn.

2. Shape Blender How You Want With Access To The Source Code

The reason why Blender is referred to as open-source is that you have full access to the application, including the source code that is used to run the software. If you go to the download page of the blender website, you will be able to access a menu just below the blue download button.

In this menu, you can choose how to install your Blender software, including the operating system that you are downloading the software to as well as if you want to download from a third-party marketplace like steam. And on this list is the option to download the source code along with the Blender libraries.

If are a programmer, and are able to use Python script, then downloading the source code will allow you to change your downloaded version of Blender however you see fit.

This goes far beyond what you are able to do in the text editor in Blender itself, which is used to improve existing functionality through scripts that may also become add-ons in the future. With access to the source code, you can change anything that you want, from the UI to the way the node editor works, anything is possible.