The Rigging Toolbox | (c) Joshua Buck | cgartistry.com

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Installation

1. Copy The Rigging Toolbox file (.pyc file) to your Maya user directory:

   Windows: User\Documents\Maya\version\scripts
   Mac: /users/*user*/Library/Preferences/Autodesk/maya/version/scripts

   *Make sure to choose the correct version of RTB for your version of Maya -- the functionality of all versions is identical.

2. Start Maya
3. Set Maya to the project you would like to work in
4. Open the script editor and type or copy the following text into the Python window:

```
import TheRiggingToolbox
TheRiggingToolbox.jbRiggingToolboxUI()
```

   *Please note that the name of the script (.pyc file) must match the name in the text above (TheRiggingToolbox). The Python file (.pyc) you received may have a different name or contain the version number.

5. To run the script, use the "Execute All" button in the script editor OR make a shelf button by selecting the text in the Python window and going to File -> Save Script to Shelf

IMPORTANT: RTB creates a folder and a skeleton configuration file in your active project when the script is first run. Set your Maya project before running The Rigging Toolbox.

The Rigging Toolbox has been tested in Maya 2011, 2012, 2013 and 2014 on both Windows and Mac platforms.

Getting Help

- Questions/support: cgartist@cgartistry.com
- Tutorials and workflow: YouTube
- Online help document (also available through the help menu in The Rigging Toolbox): RTB Help

About The Rigging Toolbox

The Rigging Toolbox is a set of tools designed to aid in the process of rigging articulated characters for animation. Use individual tools from The Toolbox to aid in your personal rigging process or use the auto-rig tools to rig full characters with features including IK/FK switching or blending and foot-roll attributes.

Unlike other "auto-riggers", The Rigging Toolbox allows for the creation of custom controls and includes many control shapes, control shape positioning and naming options, the ability to create rigs with 'zeroed-out' controls and the ability to set custom control colors. The result is a simple, fun to use - yet powerful, game- engine friendly custom rig with immediate user familiarity.

The Rigging Toolbox is an excellent choice for creating animator friendly single skeleton rigs for game engines. Rig an entire character in under 15 minutes, export to Unity in seconds.

RTB is production tested and was designed out of necessity for smaller, independent studios and animators who don't have the luxury of a full-time rigger or TD.

Tools and Workflow

RTB was designed to take the user through the process of building controls for a kinematic character in phases. The toolbox consist of four main menus: Joints, Controls, Rigging and Utilities.

Joints:

The 'Joints' menu contains tools for creating and positioning joints, setting joint orientation and saving skeletons in a proprietary format (independent of Maya version) for later use.

Controls:

The 'Controls' menu contains tools for creating the controls the animator will use to position the character and set keyframes. All controls are single node NURBS curves and can be quickly created and aligned to their respective joints.

Rigging:

The 'Rigging' menu contains the auto-rig functions of the rigging toolbox. The auto-rig operations are broken out by function: IK/FK Arm, IK Leg with Foot Roll, Hips and Spine. When rigging a character in RTB you may use these functions individually, or use them in order and the apply the Connect Rigged operation to tie the entire rig together along with floating control tethering and a master control.

Utilities:

The 'Utilities' menu contains common rigging utilities like constraints, align (rotation and position) a powerful Scene Editor and game engine exporters. The Scene Editor allows you to quickly and easily
edit, rename and color elements in your scene. Also available in the Utilities menu are two exporters for

the Unity game engine -- one for skinned meshes and one for animations.

RTB can be used to rig individual arms, legs, hips or spine, but is most commonly used as a full auto-rig solution. It is possible to rig symmetrical and asymmetrical characters with RTB.

Workflow:

The common workflow is as follows (please see the video tutorials for specifics):

- Build a skeleton using the standard Maya joint tools or the joint tools in RTB.
  - Suggestion: Many animators and game engines prefer joints to contain 'zero rotations.' To achieve this in RTB, build your skeleton as desired, select the root of the skeleton and activate the 'Break Joint Hierarchy' toggle button in the 'Joints' menu. This will break the hierarchy apart temporarily. Zero out the rotations or freeze transformations for each joint (try all at once). Select a single joint and toggle off the 'Break Joint Hierarchy' button. The joint hierarchy will be rebuilt.
- Set joint orientation for each joint using the 'Edit Joint Orientation' tool. This may be used in combination with the 'Break Joint Hierarchy' tool. You may also wish to use the Maya 'Orient Joint' tool.
- Build controls for the arms, spine and legs using the 'Controls' tools.
  - Suggestion: Use the options to align and automatically name controls as they are created. Use the 'Z-Node' option to create an additional transform node for each control -- this will allow the animator to keep all controls 'zeroed-out'. Use the tools in the 'Transform Controls' menu to rotate and scale your controls into an animator friendly position while maintaining pivot alignment.
- Build a 'master control' and position it under your character. This can be any one of the control shapes or a separate object of your choice.
- Use the IK/FK Arm tool to rig and mirror an arm with an IK/FK switch or blend.
  - Suggestion: Making sure all of your joints and controls (including z-nodes) contain a unique text string (like 'Left') before mirroring will allow you to rename mirrored joints and controls during the arm and leg rigging processes.
- Use the IK Leg with Foot Roll tool to mirror and rig IK legs with foot roll attributes.
- Use the Hips tool to build a simple yet functional (and groovy) hip rig.
- Use the Spine tool to rig an FK spine with any number of joints.
- Use the Connect Rigged tool to connect all individually rigged elements together. This process will also connect all rigged elements to a master control as well as tether (with options) floating elements like switches and pole vectors to other rig controls.
  - Note: If all individual rigging processes were successful, the Connect Rigged window, when opened, will be pre-populated with everything but the master control. You can add the master control and any missing elements manually.
- Use the 'Control Chains' tool to create controls for fingers, ears, tails or other joint chains.
- Use the Connect Fingers tool to tie the individual fingers to the IK/FK switch/blend system.
- Start animating!
- Use the FBX Export 'Unity Skinned Mesh' to export a skinned mesh to the Unity game engine.
  - Select the root of the skeleton, then each mesh skinned to the skeleton.
- Use the FBX Export 'Unity Animation' to export an animated skeleton without a skinned mesh to the Unity game engine.
  - Select just the root of the skeleton.
  - Note: a good production workflow is to keep animations and skinned meshes in separate files. The export options in RTB are in support of this workflow: Export a skinned mesh, then each animation as a separate file. If you name your animation exports as 'nameOfSkinnedMesh@animationName' Unity will automatically add them to the skinned mesh with that name in your Unity project.