

Compose3D Wardrobe

Manages and edits Actors and Props [Beta test]

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INTRODUCTION

Wardrobe is designed to create and edit landscapes (height maps and splats) for 3D programs and games. It is part of a suite of tools from Compose3D (www.compose3d.com) that help to design 3D environments. The suite comprises:



Texture Manager - Manages and manipulates textures [Beta test]



World - Creates and edits landscapes and splats [Beta test]



Edifice - Edits buildings [Beta test]



WalkAbout - Allows you to walk full scale across your landscape and buildings [Beta test]



Scene - Edits complete scenes with textures, landscapes, buildings, things and actors [under development]



Wardrobe - Manages and edits Actors and Props [Beta test].

These tools are designed to work together but can be used independently.

3D Programming and Design

At present we are trialling 3D Engines, our current favourite being TrueVision3D (TV3D) which uses Microsoft DirectX as its engine. In general, one thing we have noticed is a lack of cohesive tools (at a reasonable price) so we have developed our own tool suite.

Some of our apps are in beta test and some are still being developed. Eventually we hope to offer these as shareware with email support.

System Requirements

These tools have been written in Microsoft Visual Basic using .NET Framework 4. They should not require super-fast PCs or Graphics Cards to run (although it helps). Basic requirements are:

- PC running Microsoft Windows 7 (or Windows Vista or Windows XP but we do not test on these)
- Microsoft .NET Framework 4
- TrueVision3D SDK 3.5
- DirectX (required by TrueVision3D)

Disclaimer

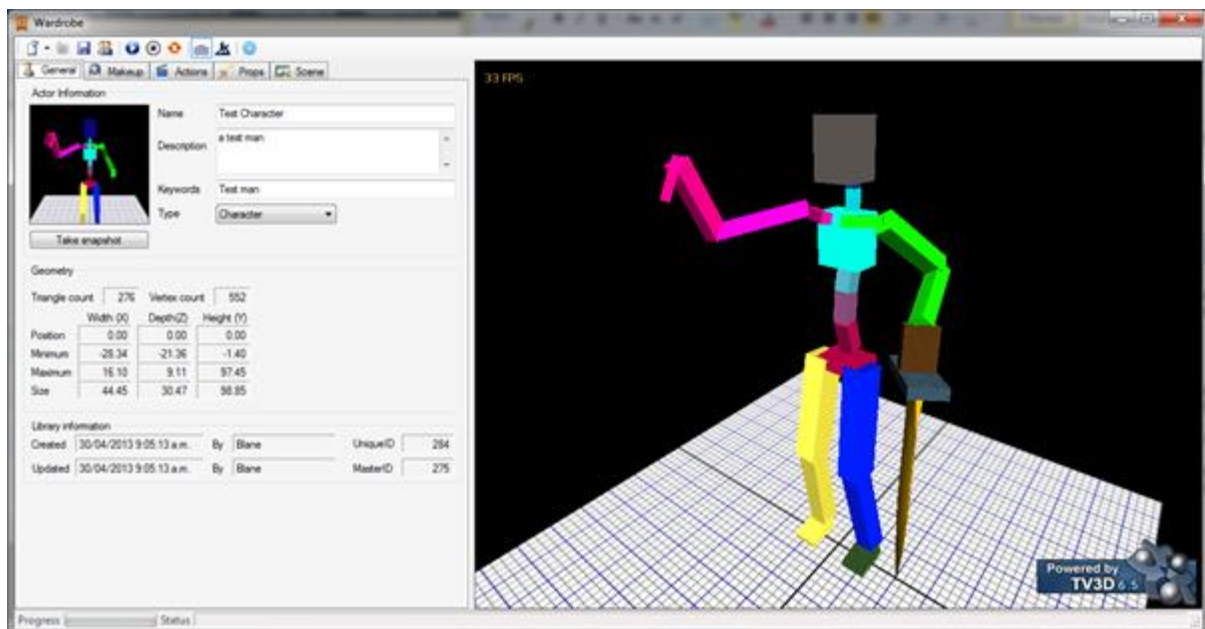
We would love your constructive feedback but please remember these tools are still being developed. There will be bugs!

PURPOSE

The purpose of Wardrobe is to provide a simple means of managing Actors and editing their characteristics like Makeup, Actions and Props.

Features

- Imports and views Actors in DirectX, TVA, MDL, MD2 and MD3 formats.
- Makeup (Textures and Materials) can be altered from the library.
- Actions (Animations) can be viewed and played.
- Actions can be assigned to standards and synced with motion on a treadmill.
- Props can be attached to bones in the Actor.
- Actors can be cloned in the library based on Master Actors and Master Props.
- Actors can be stored in the Media Library and browsed and viewed.



Concepts

Actors are complex meshes that can normally move by a series of animations. For our purposes we differentiate between an Actor (Johnny Depp) and Characters (Jack Sparrow). One Actor can play different parts and can be made-up differently and wear different props in different scenes. Wardrobe provides the environment for importing Actors and making new Characters from them including changing their makeup and props.

USING WARDROBE

The main form is the Wardrobe editor form that appears when you start. This form is made up of a series of tabs.

Import and Viewing

Wardrobe is designed to be used either standalone or with the Media Library Suite. In standalone mode you can import and view Actors with a limited ability to change their characteristics. Most functions only appear once the Actor is added to the media library.

Media Library

Wardrobe interacts with the Media Library which is a database containing Textures, Materials, Sounds, Landscapes, Structures, Scenes and of course Actors.

You can link Textures and Materials from your Media Library in order to:

- Makeup and change the appearance of your Actor.
- Attach props to limbs to give the Actor swords and the like.
- Assign common functions to animations such as Walk or Run.
- Synchronise animations with a treadmill so the Actor does not slide across a landscape while moving.

Coordinates

Coordinates referred to are in 3D, the convention is:

- X – the left right coordinate system
- Y – the up down coordinate (as if you are holding a piece of paper with a graph on it upright in front of your scene)
- Z – the depth looking into your scene

This is sometimes confusing as landscapes or plans are viewed from above and you expect X,Y but you are actually looking at X,Z.

Actors

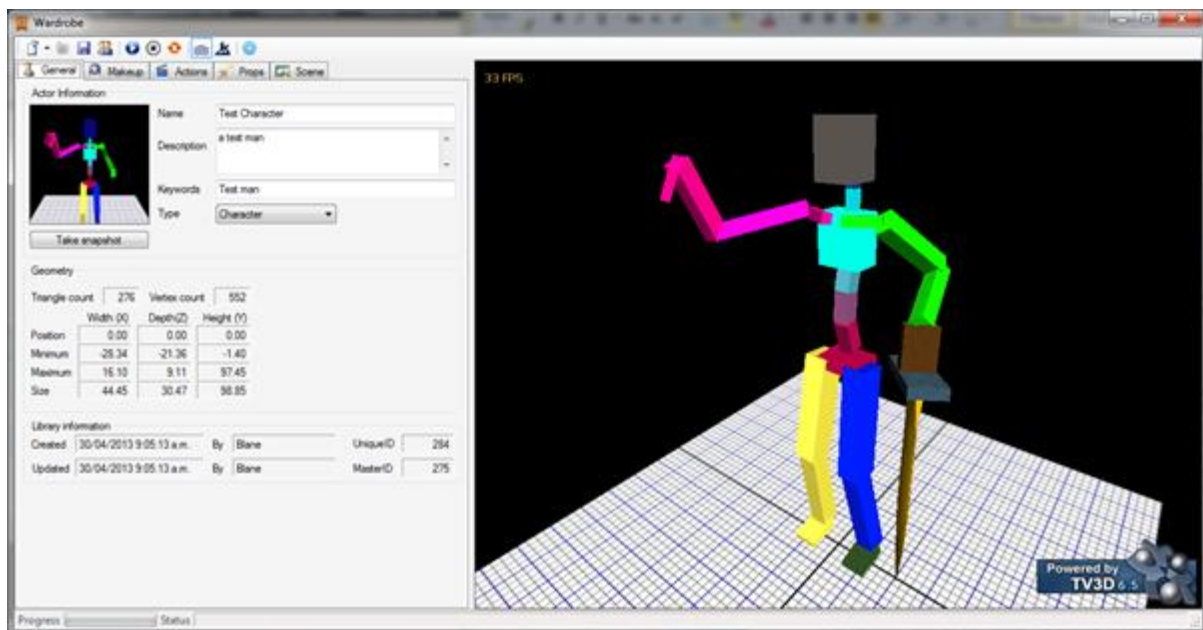
The Master Actors are created outside of Wardrobe. There are many products that do this well (although some are very expensive). Some of the products we have tried are 3DCrafter, AutoDesk 3DS Max, Blender, DeleD and gmax.

Most have their own formats and you need to export to a common one such as X (for DirectX). Every converter has its own idiosyncrasies as has every editor. The main things to consider are:

- Groups (or faces) – the ability to divide the Actor into areas that can have textures and materials applied to them. This gives you the ability to dress your Actor.
- Animations (Actions) – the ability to move the Actor in a series of movements, e.g. Walking or Jumping.
- Bones (Skeleton) – the ability to have bones means you can attach things (other Actors) to a bone. For example, attaching a sword to the right hand of an Actor.

Wardrobe (Main form)

This form consists of a Toolbar, Status bar, 3D Viewer and several tabs performing different functions.



Toolbar

- **Open Actor** – opens the Actor browser in the Media Library. The down arrow give more options:
 - **Recent Actors** – shows a list of recent Actors you have viewed.
 - Open previous file on start – when checked will automatically open your last editing session.
 - **Import Actor** – opens an Actor file (DirectX, TVA, MDL, MD2 and MD3 formats) in your file system.
 - **Recent Imports** – shows a list of recent imports.
 - **Import with materials** – when checked will load the Actor and also import any materials it can find associated with the Actor.
 - **Import with textures** – when checked will load the Actor and also import any textures it can find associated with the Actor.
- **Add to Media Library** – add the imported Actor to the Media Library.
- **Save** – save the current Actor
- **Duplicate item** – will make a copy of the current item. A Master Actor becomes a Character and a Master Prop becomes a Prop. Characters and Props are duplicated. All copies point to the original Actor model but other items may vary such as Makeup and Props.
- **Play 3D** – play the selected action (animation) in 3D.
- **Stop Playing** – shows the edit elevation map form. This maps the colours from the height map to the topographic map.
- **Repeat** – checked to repeat the action indefinitely in a loop.
- **Show Floor** – shows a floor for the Actor to stand on (hidden in Treadmill mode).
- **Treadmill** – show a treadmill. The treadmill panel is enabled on the Actions tab. This allows you to synchronise an action with movement (e.g. Walking).
- **Options** – shows and edits the options for the application.

- www.Compose3D.com – takes you to our website.
- Help – shows this manual.

General Tab

The screenshot shows the 'General' tab in a software interface. It contains three main sections: 'Actor Information', 'Geometry', and 'Library information'.

Actor Information: Includes a 2D thumbnail of a character, a 'Take snapshot' button, and fields for Name (Test Character), Description (a test man), Keywords (Test man), and Type (Character).

Geometry: A table showing technical details of the actor's mesh.

Triangle count	276	Vertex count	552
	Width (X)	Depth(Z)	Height (Y)
Position	0.00	0.00	0.00
Minimum	-28.34	-21.36	-1.40
Maximum	16.10	9.11	97.45
Size	44.45	30.47	98.85

Library information: A table showing creation and update details.

Created	30/04/2013 9:05:13 a.m.	By	Blane	UniqueID	284
Updated	30/04/2013 9:05:13 a.m.	By	Blane	MasterID	275

The general tab shows general information about the actor. In import mode only limited features will be available.

Actor Information

This area shows information about the actor from the Media Library or directly from the imported file.

- **Thumbnail** – shows a 2D thumbnail of the actor.
- **Take snapshot** – takes a picture of the 3D window and allows you to adjust it. This is stored in the Media Library to help you identify your characters while browsing.
- **Name** – the name for your actor.
- **Description** – more detail on the actor.
- **Keywords** – to help with searching.
- **Type** – the type of actor:
 - Master Actor – is the key base actor information off which a character is based (e.g. Johnny Depp).
 - Master Prop – is the key base information for a prop (e.g. Sword).

- Character – is a character based on a Master Actor (e.g. Jack Sparrow). This allows you to have the same base actor playing different roles.
- Prop – is a prop based on a Master Prop (e.g. Flame Sword). This could be based on Sword but with special textures.

Geometry

This area shows basic information about the geometry of the actor in 3D:

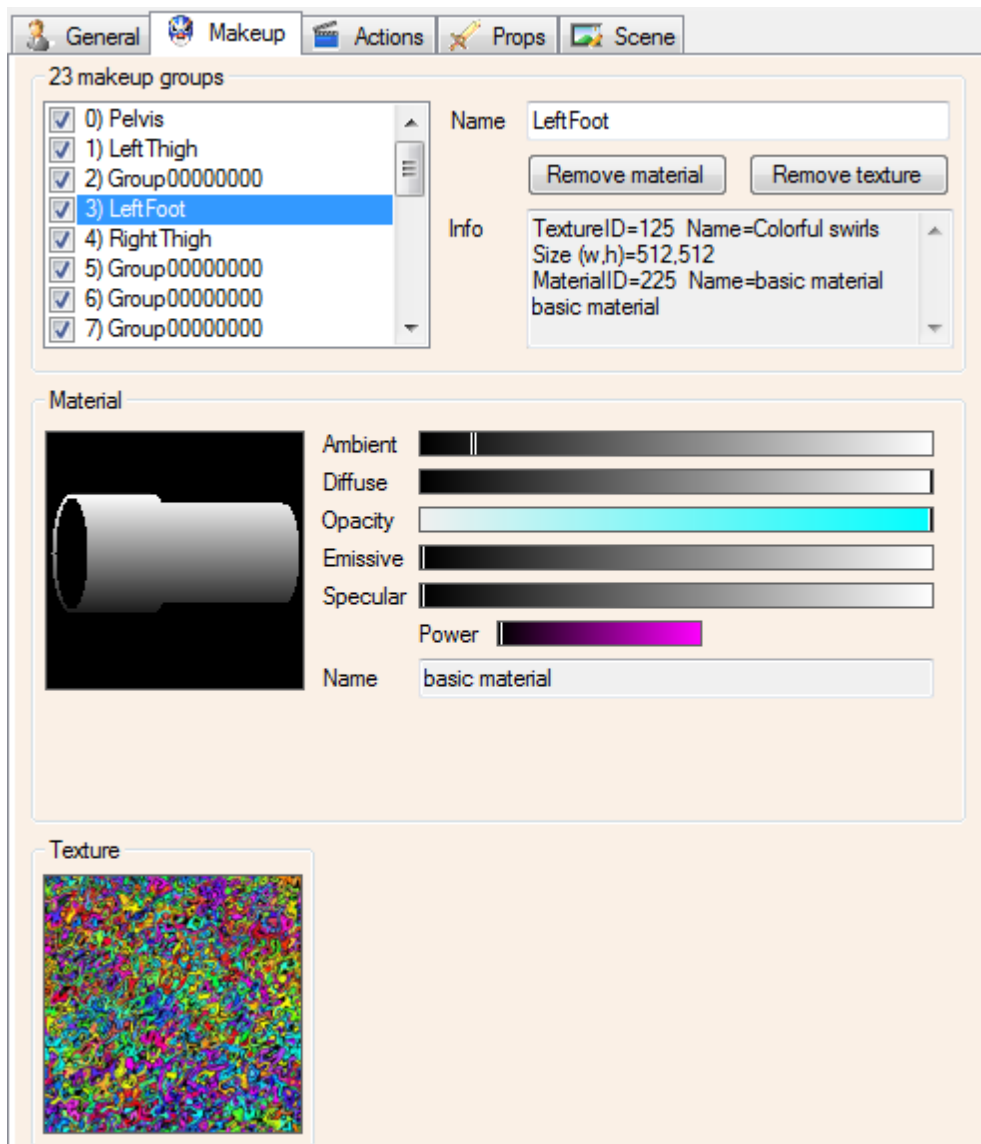
- **Triangle Count** – the number of triangles in the mesh.
- **Vertex count** – the number of vertices in the mesh.
- **Position** (xyz) – the position of the base of the actor in 3D space.
- **Minimum** (xyz) – is one corner of a box surrounding the actor.
- **Maximum** (xyz) – is the opposite corner of a box surrounding the actor.
- **Size** (xyz) – is the size of the box surrounding the actor (maximum – minimum).

Library Information

Shows reference information stored in the Media Library:

- **Created** – when the actor was created.
- **Created by** – who created the actor.
- **Updated** – when the actor was updated.
- **Updated by** – who last updated the actor.
- **UniqueID** – the unique identifier assigned by the Media Library.
- **MasterID** – the unique identifier of the master actor or prop (blank if this is a master).

Makeup Tab



Makeup groups are distinct areas of your actor where you can apply a material and/or a texture. Normally when the actor is created these make contextual sense, so a group may be Trousers, Shirt or Face.

Makeup Groups

This area shows the number of makeup groups and the details of the one selected:

- **Makeup groups** – changes to the group selected are reflected in the other areas.
- **Name** – the name of the group. This can be changed once in the library to something more meaningful (e.g. Group00000000 to Left Foot).
- **Remove material button** – will remove the link to the current material.
- **Remove texture button** – will remove the link to the current texture.
- **Info** – shows more detailed Media Library reference information to the material and texture.

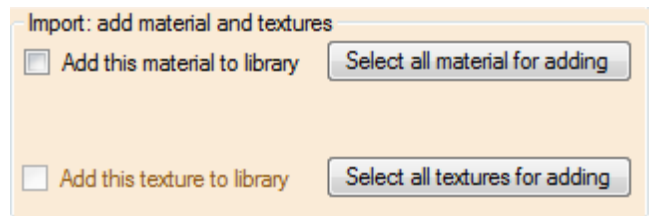
Material

The material area shows the material control editor. The control has two modes of operation:

- **Import mode** – each material loaded can be changed with the editor.
- **Library mode** – materials can be browsed for in the Media Library. Editing materials occurs within the Media Library.

Import: add materials and textures

If you are running in import mode this area is visible. It allows you to also import materials and textures along with the actor. Each group can be selected individually by checking the corresponding check box.



Use the two 'Select all ...' buttons to select all possible materials or textures. Once selected these are passed to the 'Add imported actor to media library' dialog.

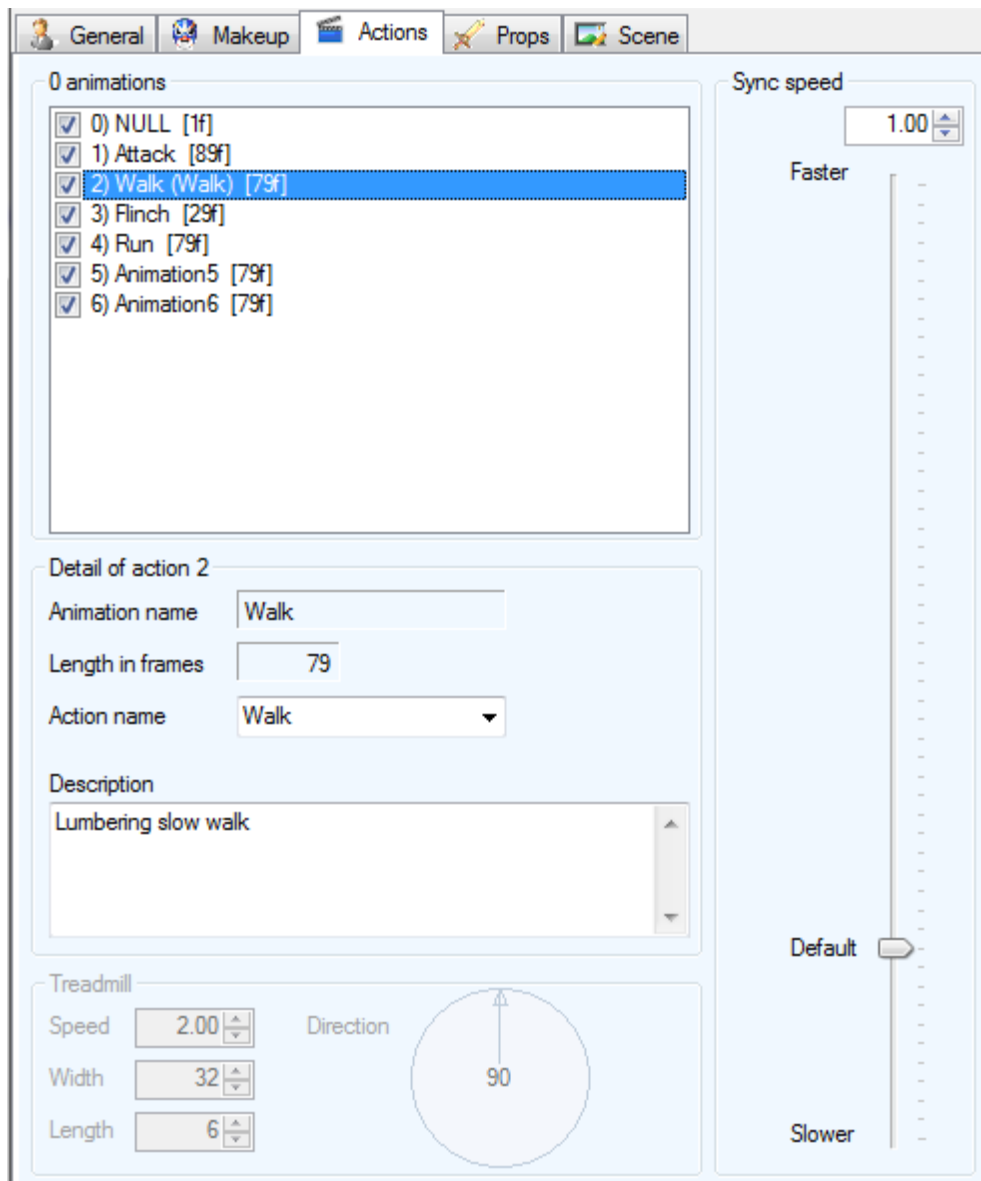
Texture

The texture area shows a thumbnail of the texture applied to the surface. In import mode the texture refers to a file associated with the actor. In library mode it refers to a texture in the Media Library, clicking on the texture allows you to browse for another.

This is how you can drastically change the appearance of both actors and props that have the same underlying mesh.

Actions Tab

The actions tab lets you view the animations of the actor. These can also be played in 3D using the play button on the toolbar.



Animations list

This list shows all the animations for the actor. In library mode you can change details for each action.

Detail of action

This area shows details for the selected action:

- **Name** – the stored animation name (fixed in the actor).
- **Length in frames** – of the animation (fixed in the actor).

- **Action name** – allows you to choose a standard action name or add your own (many default action names do not make much sense). If you do the Animations list will display your name first and the animation name in brackets ().
- **Description** – you can input a more detailed description.

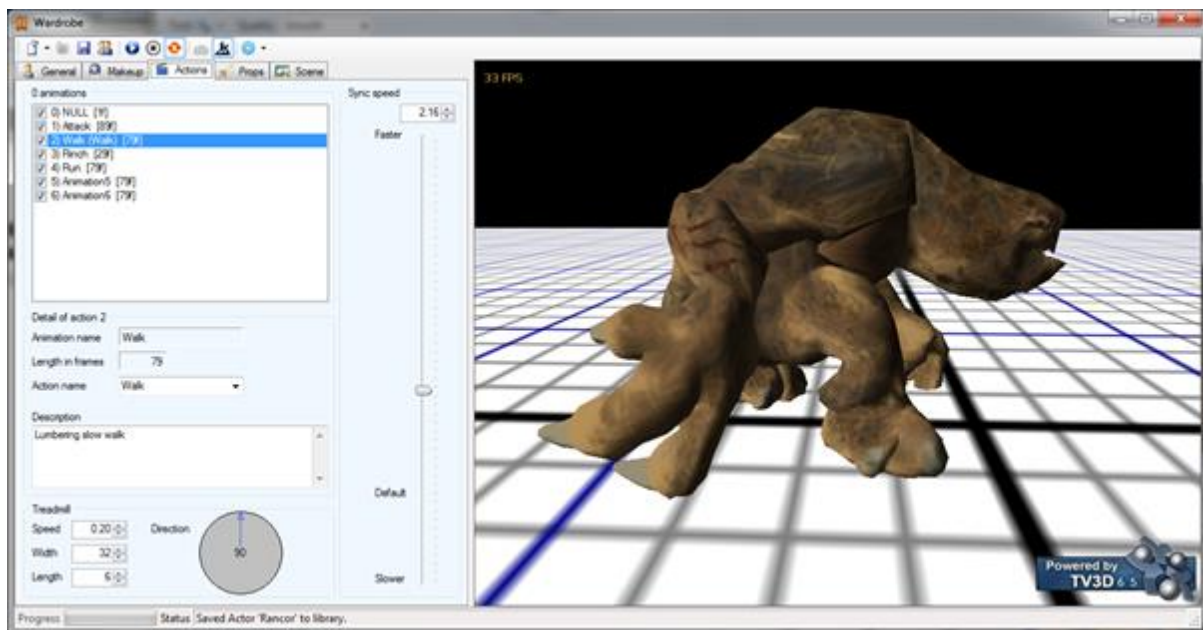
Sync Speed

This area is also linked to the animation selected. It shows the sync speed variable used to synchronise the forward (or backward etc.) speed of the actor with the animation. If this is too fast or slow the actor appears to 'moon walk' over the ground, their feet sliding when placed.

To alter the value, use the slider or the numeric value. Note: the slider is for fine tuning below a factor of 5X, however the numeric can be larger (the slider just stays at its maximum).

The treadmill option is designed to make this process easy.

Treadmill



Choosing the treadmill option from the toolbar hides the floor (if showing) and enables the treadmill area:

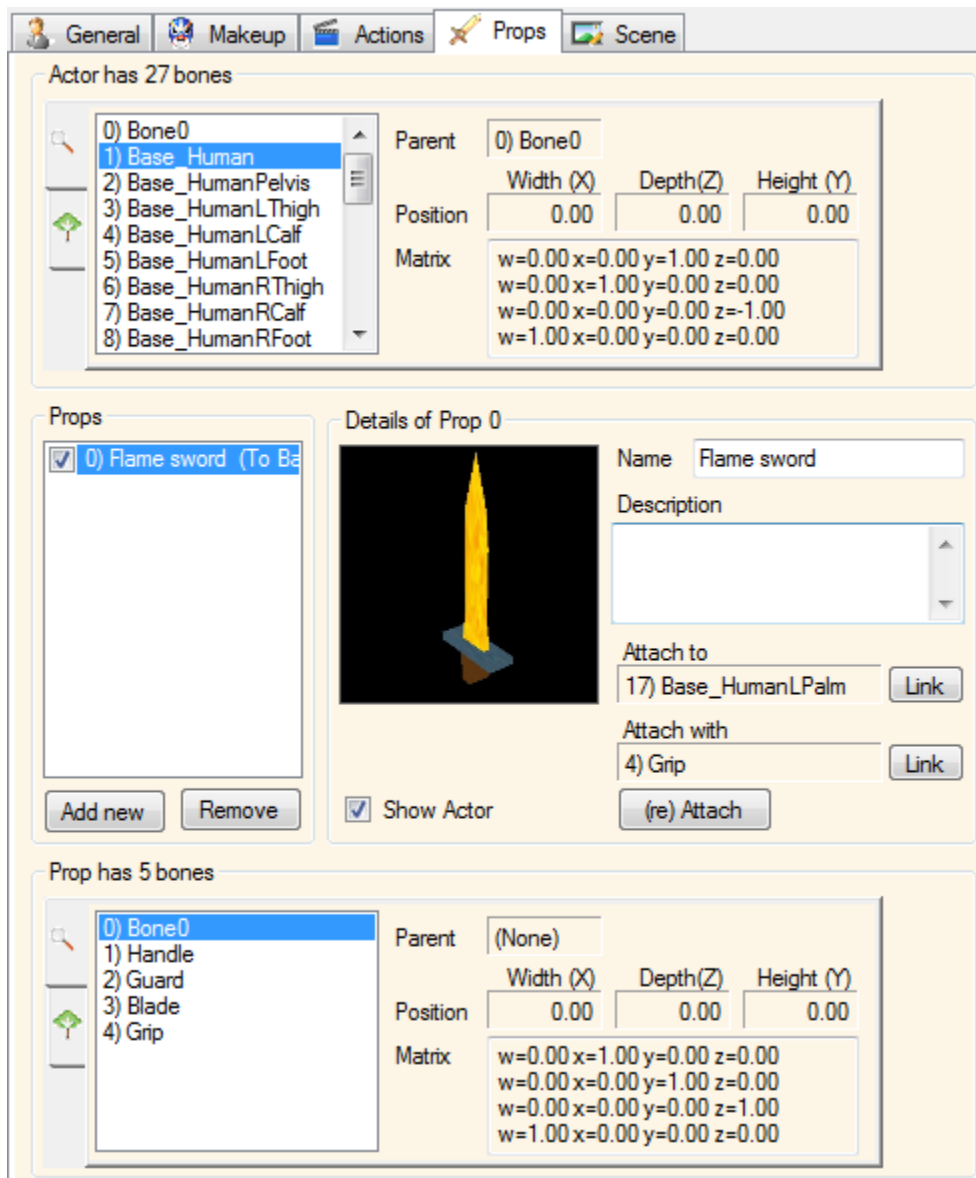
- **Speed** – the speed of the treadmill. Set this to your actor's full speed across ground.
- **Width** – the width of the treadmill.
- **Length** – the length of the treadmill in squares of length width.
- **Direction** – the direction the treadmill will move in. Left-click on the circle will move the direction finely, right-click will snap to 45 degree angles.

Once the treadmill is moving your actor stays in place and you can rotate and zoom with the viewer as normal.

Props Tab

The props tab allows you to attach props to an actor. For example a sword can be attached to our stick man. This is done using bones in both the actor and prop.

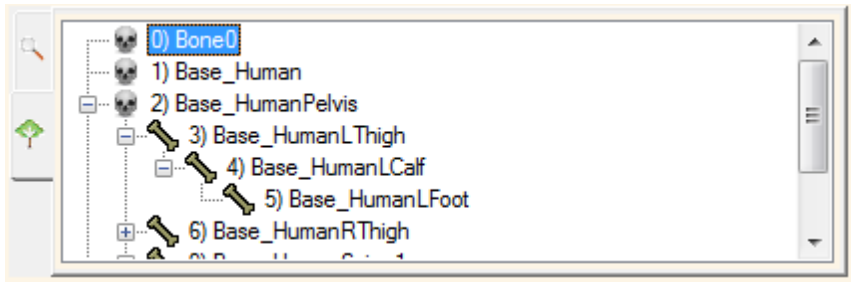
The purpose of this tab is to allow you to connect as many props to different parts of the actor and see what they look and behave like. The sword, once attached, will become an extension of the bone in any animation. So a run will swing the sword as an appendage attached to the hand.



Actor bones

This shows the actor bones for reference using the bone control. The bone control has two tabs:

- **Detail view** – shows the detail of each bone when selected in the list.
- **Tree view** – shows a hierarchal view of the bone attachments.



Any of these bones can be selected and linked to the prop, however, normally the first bone seems to be a dummy bone.

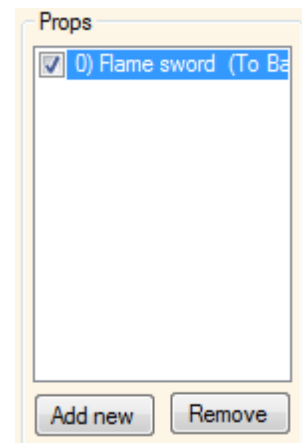
Props

The props area shows a list of known props. These can be added using the Add new button that browses for props in the Media Library.

Remove will remove the link to the prop.

Ticking the checkbox will attach the prop using the bones linkage. Unchecking will detach the prop.

You can add as many props as needed and props can be added more than once and linked to different bones.



Details of Prop

Any number of props can be attached, the idea being to load and attach them to you satisfaction. Detach them for later reattachment in your game.

That way most of the work is done here at design time.

You can also load the same prop more than once and attach to different places e.g. Left and right hands.



This area shows the details of the selected prop:

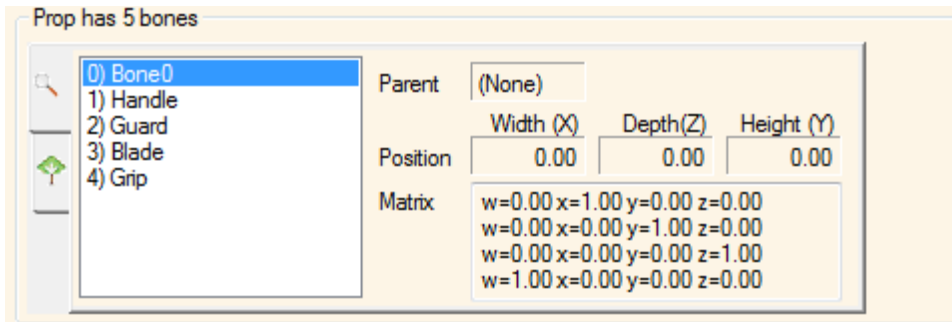
- **Thumbnail** – shows a thumbnail of the prop.
- **Name** – the name for the prop. Defaults to the prop name but can be overridden.
- **Description** – description of the prop if required.
- **Attach to** – this is the bone in the actor that the prop is attached to. Clicking the Link button will use the bone currently selected in the actor bone control.
- **Attach with** – this is the bone in the prop that is attached with. Clicking the Link button will use the bone currently selected in the prop bone control.

- **Show actor** – the checkbox will show or hide the actor if needed to get a better view of the props.
- **(Re)Attach** – will attach the bone using the current settings.

Prop bones

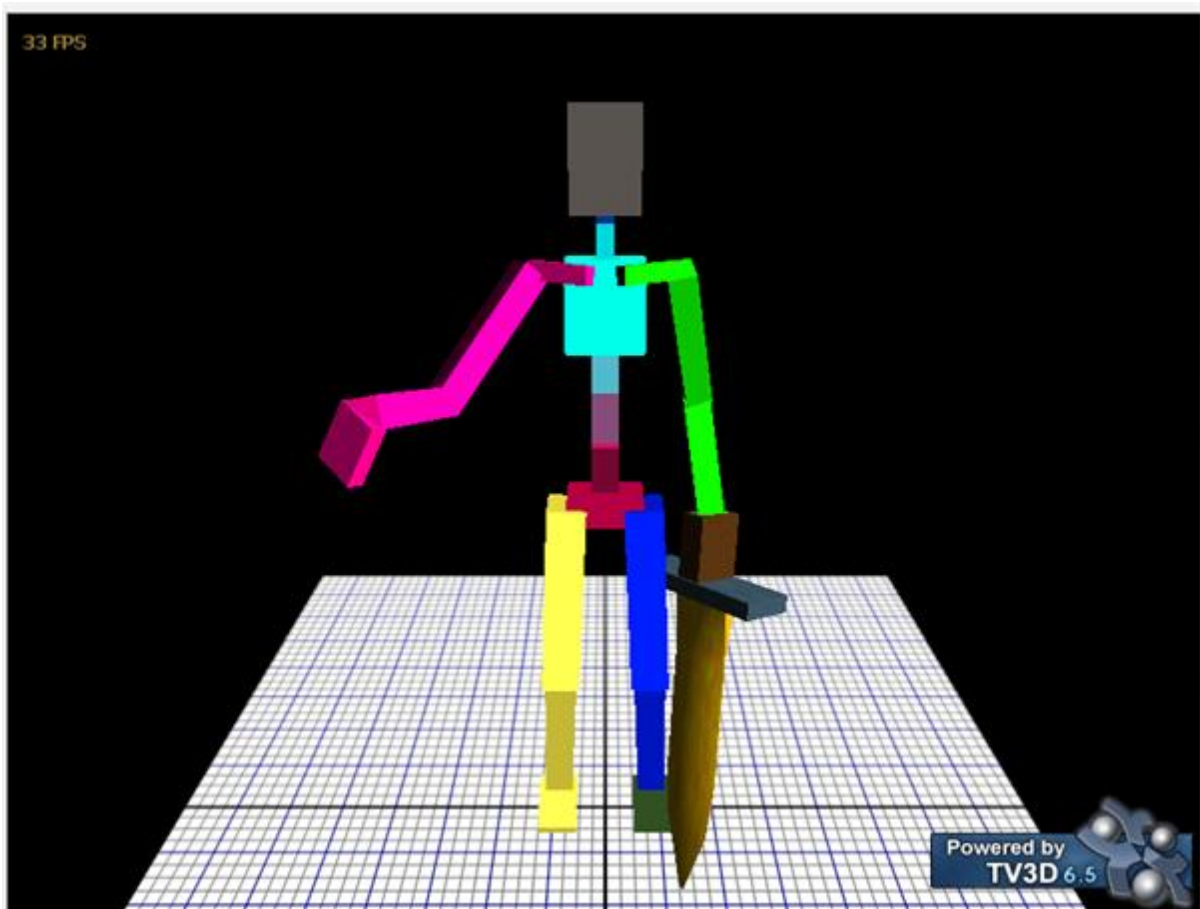
This shows the prop bones for reference using the bone control. The bone control has two tabs:

- The first shows the detail of each bone when selected in the list.
- The second view shows a tree view of the bone attachments.



Viewing window

The viewing window shows the 3D view of the actor.



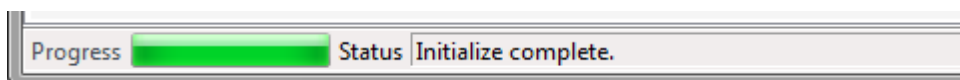
You can move about the actor with:

- Click and hold the left mouse button on the 3D window;
 - Drag it left and right to rotate the camera about the actor.
 - Drag it up and down to swing the camera above or below the actor.
- Use the mouse wheel;
 - Forwards will zoom in towards the actor.
 - Backwards will pan away from the actor.

The camera will always point towards the actor.

When the actor is loaded the camera is repositioned a little away from the actor in relation to the size of the actor.

Status bar



The status bar at the bottom shows:

- **Progress** – for a long operation the bar will indicate progress.

- **Status** – will show a status message about the operation:
 - **Black text** – indicates an informational message.
 - **Orange text** – indicates a warning message.
 - **Red text** – indicates an error message.

Clicking on any new tab will clear the status message.

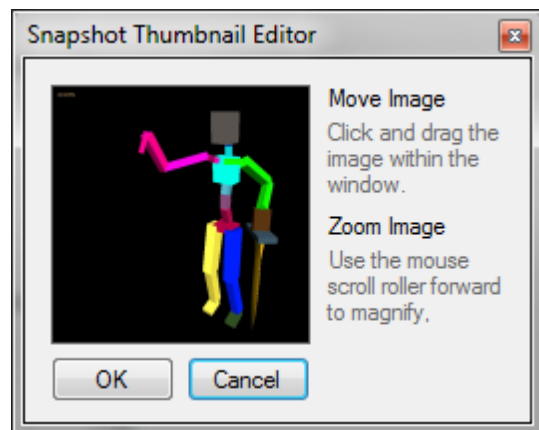
Take snapshot

When you click on the Take snapshot button on the General tab this dialog form appears.

It allows you to manipulate the image in 2D.

For best results rotate the camera to a good position in 3D first then turn off the floor.

The idea here is to get a thumbnail that represents your actor when browsing the library.



Use the following controls to manipulate the thumbnail:

- Click and hold the left mouse button on the 3D window;
 - Drag it left, right, up and down to move the snapshot about the thumbnail.
- Use the mouse wheel;
 - Forwards will zoom the image.
 - Backwards will pan out of the image.

Add Imported Actor To Library

This dialog is show to add an imported actor to the Media Library. Textures and materials can also be added for selection on the main wardrobe form (see Import: add materials and textures).

Add Imported Actor To Library

Import core actor

Name Type

Group Theme

1 textures to import

Group

E:\TV3D\AutoCad\Actors\Rancor\rancorD.BMP

1 materials to import

Group

Ambient

Diffuse

Opacity

Emissive

Specular

Power

Name

Progress

Import core actor

This allows you to set the library attributes for your import. These fields can be changed later within the Media Library:

- **Name** – the name for the Master Actor or Master Prop.
- **Type** – can be either a Master Actor or Master Prop.
- **Group** – the group within the actors section in the library.
- **Theme** – the theme used for the import (this also applies to all textures and materials imported).

Textures to import

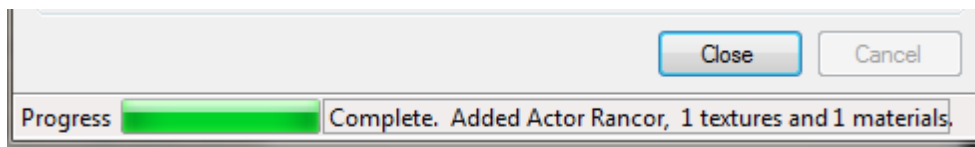
Shows a list of the textures you chose that were associated with the actor. These are also added to the media library but in the textures section group you specify.

Materials to import

This simply shows the count of textures to import and a material editor control. This is used later to add the materials by parameters.

Buttons

Add will initiate the conversion of the actor, materials and textures specified into the Media Library. This process may take a few seconds so a status and bar at the bottom of the form shows progress.



Once complete, the add button changes into a Close button. Click this and you return to the main form but you are now editing the Master Actor or Prop in the Media Library.

Cancel will cancel the operation and return to the main Wardrobe form.

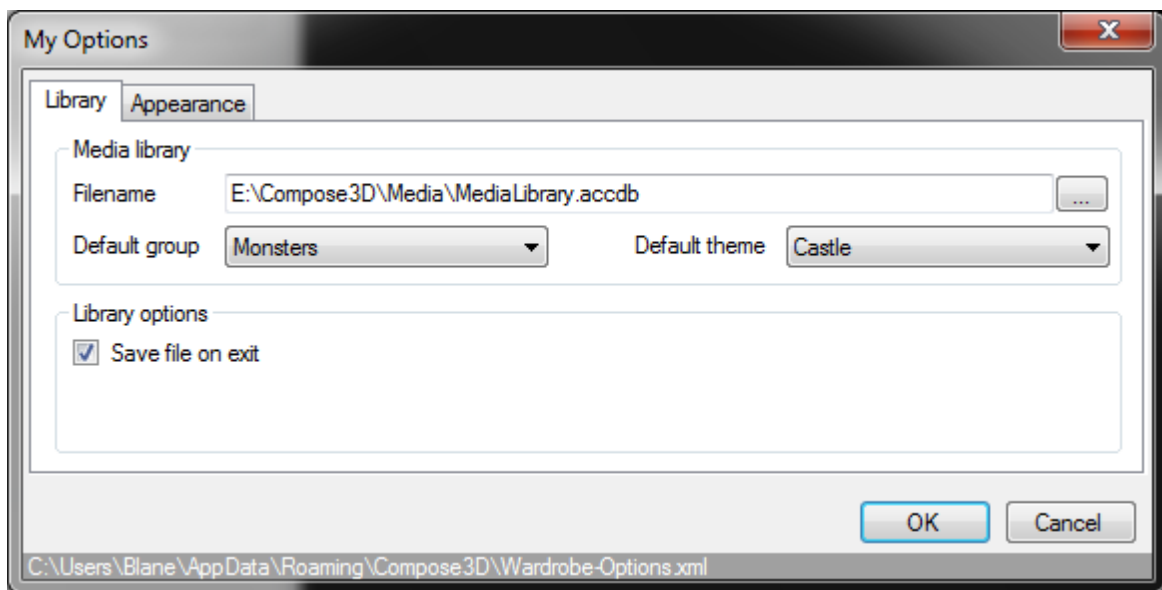
Options

There are many user settable options to select. These have been grouped onto separate forms:

- **Editor options** – edits library paths and editor options.
- **Compose3D.com** – takes you to our web site.
- **Help** – shows this help document.

Editor options

The editor options screen lets you select options for the application.



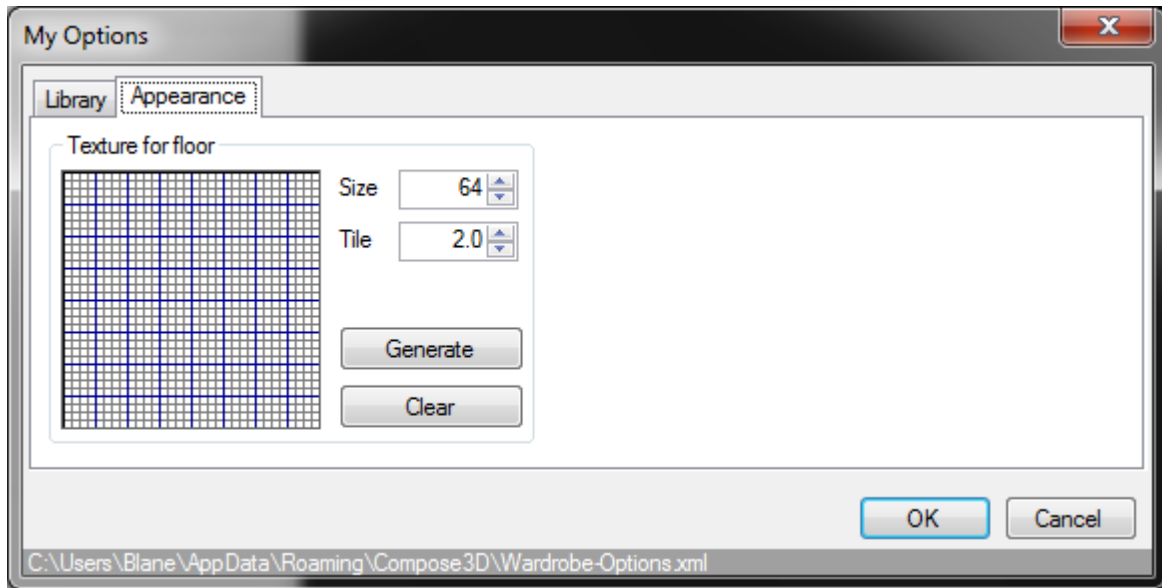
Your options are stored in an XML file shown on the bottom of the options screen.

Library

This allows you to link to a Media Library, which is a database and a set of folders. This will store your Actors including any associated materials and textures. The texture library is created and managed with Media Library Manager.

- **Filename** – full path to the media library (extension accdb).
- **Default Group** – once the texture library is opened you can choose a default group for your actor browser.
- **Default theme** – similarly you can choose a default theme.

Appearance

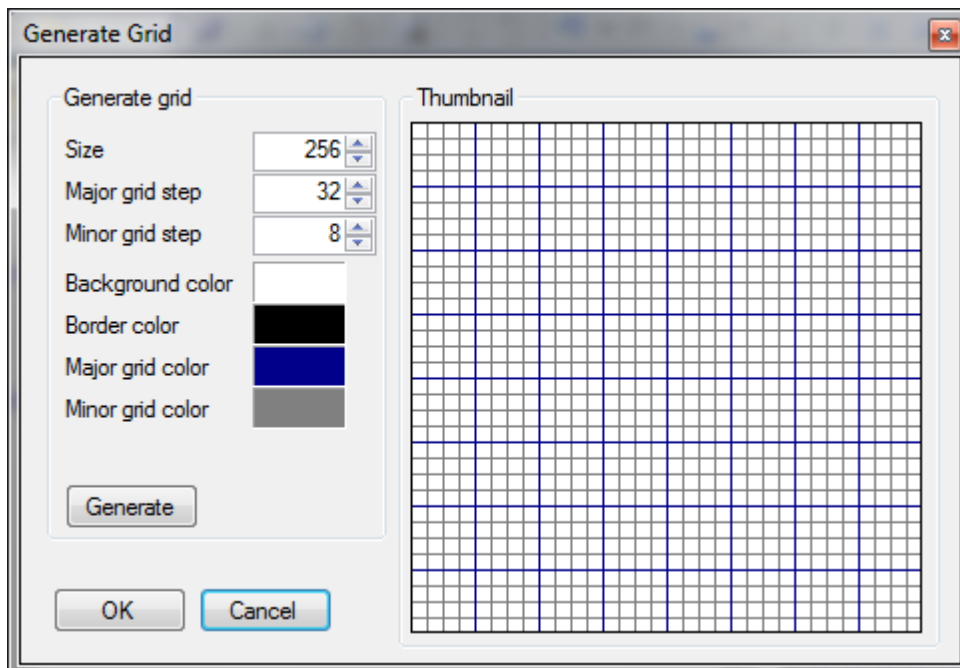


Appearance options include:

- **Texture for floor** – click on the image to browse for a texture in the Media Library.
- **Size** – is the size of the floor.
- **Tile** – is the number of times the textures is tiled across the floor.
- **Generate** – will generate a floor as a grid (see Generate Grid).
- **Clear** – will clear the texture.

Use OK to save your settings, cancel to exit without saving.

Generate Grid



This form gives you the ability to generate a grid from a set of parameters. A grid like this is helpful as it gives your actor perspective and you can detect movement with the treadmill.

The parameters you can choose are:

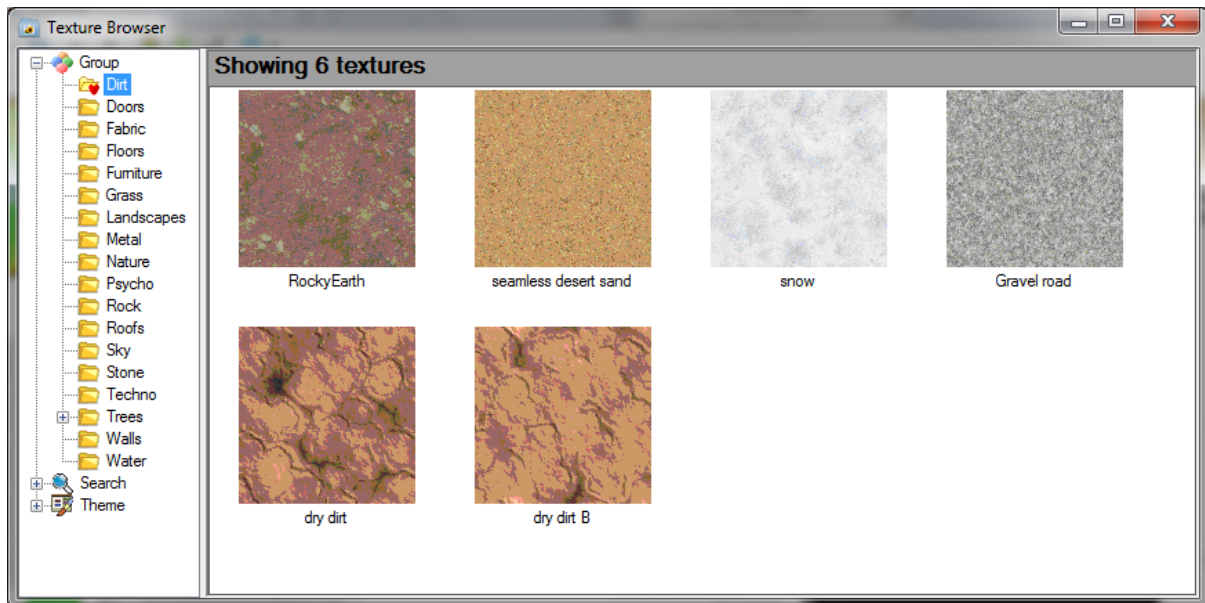
- **Size** – the size of the image in pixels.
- **Major grid step** – is the number of pixels between major grid lines. Set it to 0 to not draw the lines.
- **Minor grid step** – is the number of pixels between minor grid lines. Set it to 0 to not draw the lines.
- **Background color** – click on the box to choose a color for the background.
- **Border color** – click on the box to choose a color for the border around the grid.
- **Major grid color** – click on the box to choose a color for the major grid lines.
- **Minor grid color** – click on the box to choose a color for the minor grid lines.
- **Generate** – click the button to generate a new grid.

The thumbnail shows the resulting grid.

Click OK to save the grid, Cancel to exit without saving.

Texture Browser

Clicking on an image from the Media Library will start the Texture Browser.



Here you can browse Groups and Themes or search for a texture in your library. Once you have found the texture you want, double click it to use it. The browser will exit and you will have linked to the texture. If you want to cancel selection simple exit the browser using x.

More details can be found in the Texture Manager manual. To summarise:

Groups

Groups are like folders in a file system. Create a new group by right click on a folder or the root Group folder and Add New Group. Folders can have sub-folders.

Search

Click on the search root to show the search screen. Leaving a field blank will not filter that field. Folders below the search root contain some pre-set searches. You can add your own by clicking Save Search As with a name.

Theme

Themes are similar to Groups as they allow you another way to organise textures. Textures can be in a group and a theme. This allows you to organise your textures by function (e.g. Group Dirt) and by theme (e.g. Theme Desert).

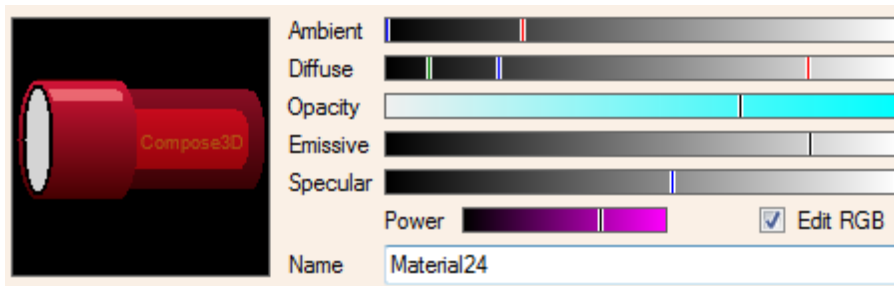
Material Editor

The material editor has two modes of operation:

- Browse mode – where it works in similar fashion to the Texture Browser.
- Editor mode – where individual parameters of the material can be changed

Browse Mode

Editor Mode



The picture of a torch on the left is indicative of the material parameters (but rendering be differ in 3D).

- **Ambient** – the general amount of light in RGB reflected by the material (shown on the top of the torch).
- **Diffuse** – the background light given off by the material when in shadow (shown on the bottom of the torch).
- **Opacity** – how opaque or transparent a material is (shown by how visible the Compose3D batter is within the torch barrel).
- **Emissive** – how much light the material emits without an external light source (shown by the torch bulb area shining).
- **Specular** – how shiny or glossy the material is (shown by a highlight on top of the torch head).
- **Power** – the power for the specular setting (shown by how bright the highlight on top of the torch head is).
- **Edit RGB** – if checked means the individual RGB (Red, Green and Blue) components can be edited.
- **Name** – the name for the material.

Edit RGB

When Edit RGB is checked, if a bar is clicked a popup RGB editor becomes visible. Here individual Red, Green and Blue components can be selected.



The resulting color is shown above Accept or Cancel buttons. Make the changes by clicking or dragging on each bar and the clicking either Accept or Cancel.

RELEASE NOTES

Release Beta v2.0.0

New Features

- Ability to view Actors in DirectX, TVA, MDL, MD2 and MD3 formats.
- Integrated with the Media Library.
- Can makeup actors with different textures and materials.
- Can play animations and assign to standard actions.
- Treadmill features allows easy synchronisation between animation and movement.
- Props can be attached to the actor bones (for example Sword to Right Hand).
- Import actors and associated textures and materials to the library.

ToDo

- Add scene parameters for the actor (e.g. Health, Weight etc)

BUGS

- None known at present.