

Introduction to ShiVa

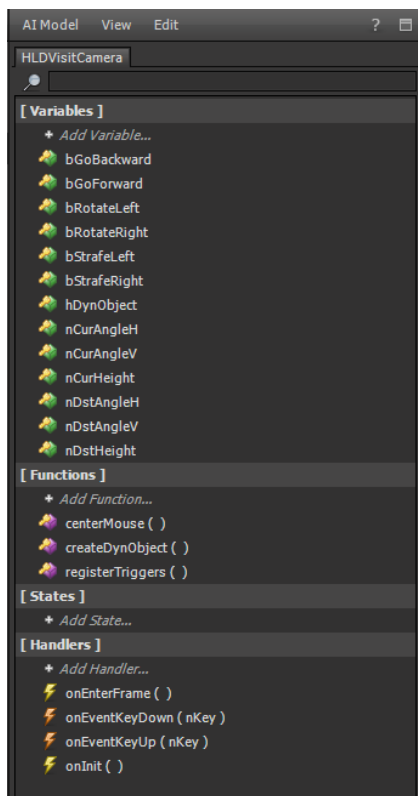
ShiVa is an ideal 3D environment to learn how to program 3D games, as it has a nice easy learning curve. The version of ShiVa that is included with this book is the Personal Learning Edition, which, whilst not as functional as the other two versions (Unlimited and Advanced), is more than adequate to learn how to create a 3D game. (To download the files required for this Book, please go to www.stonetrip.com, and follow the prompts.)

To install ShiVa, just double-click on the .exe file included in the download, and again follow the prompts. Once installed, you should have an icon on your desktop that you can double-click and ShiVa will launch.

ShiVa contains the following modules, and in the default 4 display setup you can have up to 16 of them available at any one time:

(NOTE: ShiVa can also be set up with 8 different desktop layouts, and each layout can be set up in 10 different ways!)

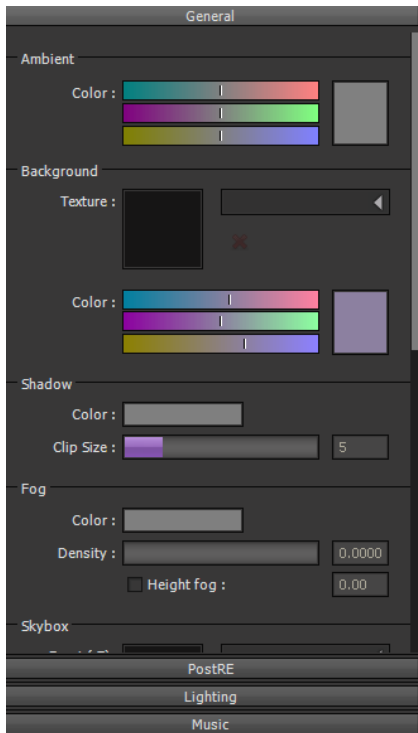
AIMODEL EDITOR:



The AIModel Editor module allows you to edit AIModel resources. An AIModel is a behavioural model that can be attached to an Object or to a User. Once attached to an Object, the initial values of the Variables of the AIModel can be overridden in the AI Attributes section of the Attributes Editor. As a result, different behaviours can be created using the same AIModel.

Basically, the AIModel Editor allows you to define Variables, Functions and Handlers, configure Variables for the designer view, search and compile.

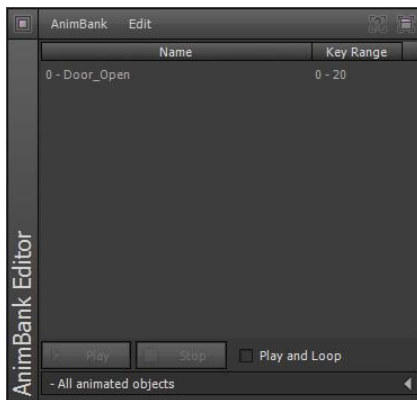
AMBIENCE EDITOR:



The Ambience Editor module manages the visual parameters of Scenes such as colour and dynamic shadows, intensity, precomputed static lighting, bloom effect, fog, colour saturation, ambient music, etc. This module is only available when a Scene is opened in the SceneViewer.

Basically, the Ambience Editor allows you to define the Scene background, configure bloom, fog & shadows and compute lightmaps etc.

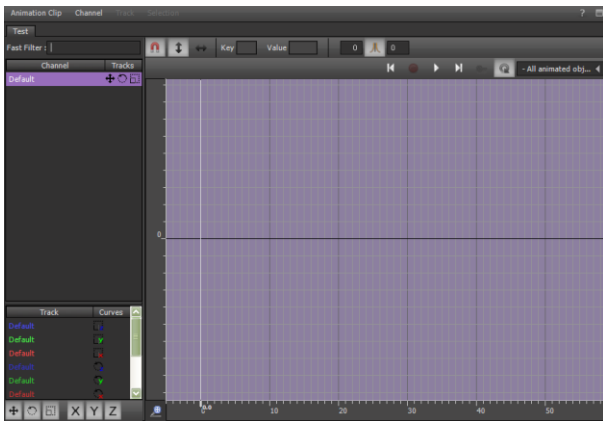
ANIMBANK EDITOR:



The AnimBank Editor module allows you to edit the contents of an AnimBank. An AnimBank is a set of animations called an “AnimClip”. AnimClips can be imported as-is with 3D Models from a DCC tool (such as 3DSMax, XSI, etc.) or can be built from scratch in the AnimClip Editor.

Basically, the AnimBank Editor allows you to create a bank of indexed animation.

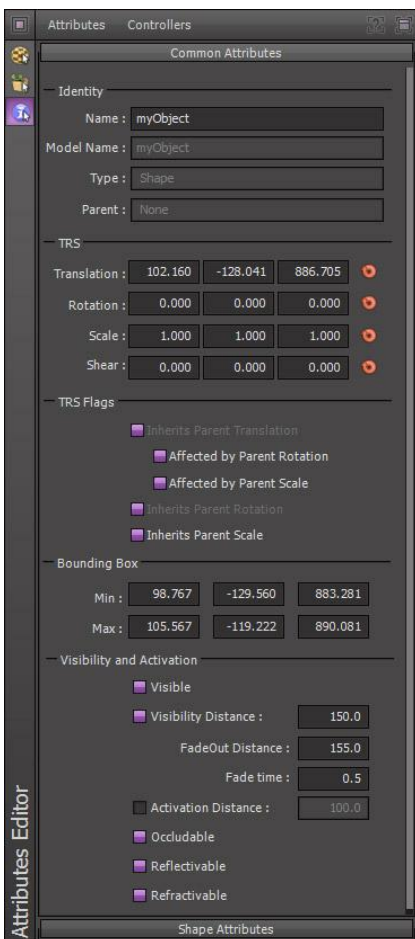
ANIMCLIP EDITOR:



The AnimClip Editor module allows you to create or modify animations for your Objects. AnimClips are the description of the way your Objects move. They are made up of channels which control the TRS (Translation Rotation Scale) of each part of your Object.

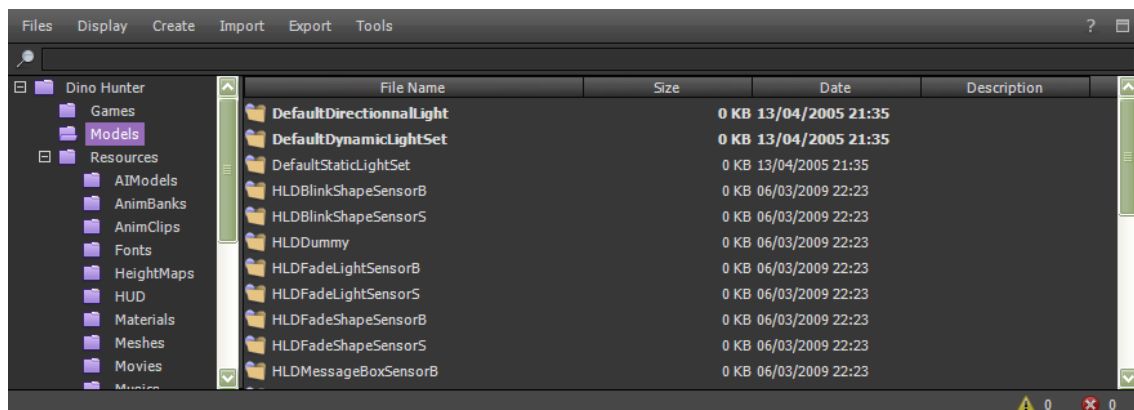
Basically, the AnimClip Editor allows you to create and edit key frame animation.

ATTRIBUTES EDITOR:



The Attributes Editor module manages the properties of the Object currently selected in the SceneViewer. These properties include Translation, Rotation, Scale, Shear, Bounding Box etc.

Basically, the Attributes Editor allows you to define position, visibility, animation, mesh opacity, compute LOD (Level of Detail), edit Dynamics, Sensors, Reflection, Variables etc.

DATA EXPLORER:

The Data Explorer module is the control centre of your Project, and provides resource manipulation such as creation, duplication, deletion, import and export.

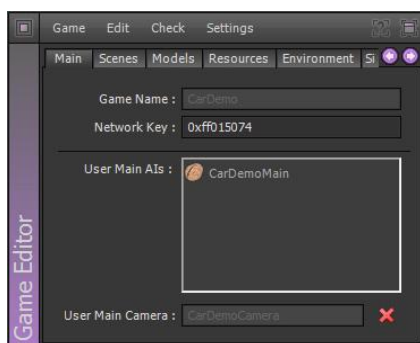
Basically, the Data Explorer allows you to browse your Project directory, import, duplicate, create & delete resources, export and synchronise with a database.

Just a quick word on the organization of Data within ShiVa:

Data is organized in Projects, with a Project being a directory (with sub-directories where required) containing all the files needed by your Game:

- Games Folder This folder contains the root of your Project (the Game).
- Scenes Folder This folder contains the Scenes used by your Project.
- Models Folder This folder contains the Models used by your Project.
- Resources Folders These folders contain all the other resources used by your Project, split between the various sub-folders as shown above.

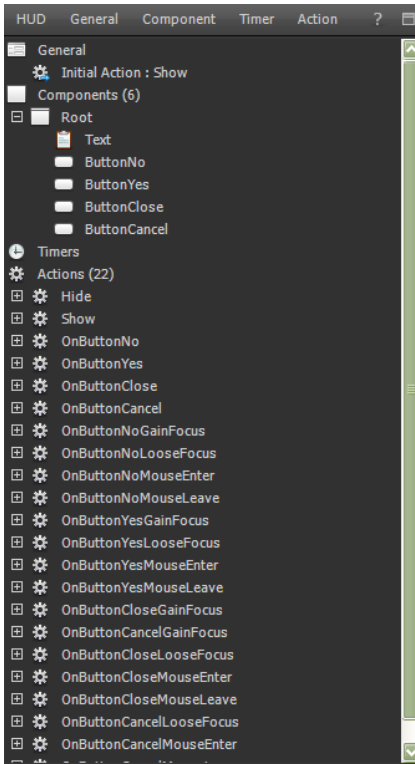
Resource files are shared files, which means that they are loaded into memory just once. So, if you change something (e.g.: a Material), then ALL Objects that use that Material will also be changed, so BE CAREFUL! since the majority of Project files are resources.

GAME EDITOR:

The Game Editor is the main module of your application, and it is where you manage the particular Game resource that is to be the entry point of the application. In it, you can set the user AIModel, add referenced Scenes and other resources, set up the initial content of Game environment, and simulate interactions with external commands.

Basically, the Game Editor allows you to define the main AI, the Scene, Cameras, Models, Textures, simulate a network, create & edit diffuse maps etc.

HUD EDITOR:

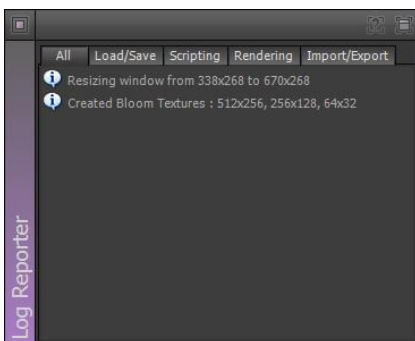


A HUD (Heds Up Display), according to Wikipedia, is “A template used in data processing to indicate a Model of design of software or presentation of data.” It is the 2D “cover” over your 3D world that displays data such as health, ammo etc.

In the case of ShiVa, templates make it possible to define a whole range of HUD components which can then be used multiple times in your application.

Basically, the HUD Editor allows you to define your Graphical User Interface (GUI), using Containers, Sliders, Labels, Buttons etc.

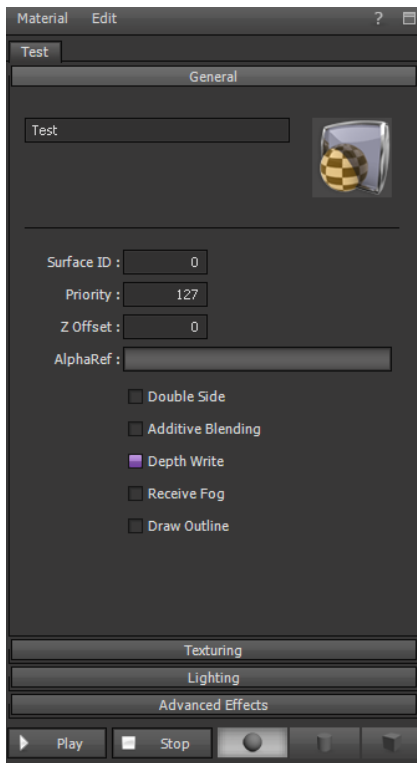
LOG REPORTER:



The Log Reporter displays all Messages, Warnings and Errors created either by the ShiVa engine, or by yourself from within your Scripts (very useful for debugging).

Basically, the Log Reporter displays system & Script information.

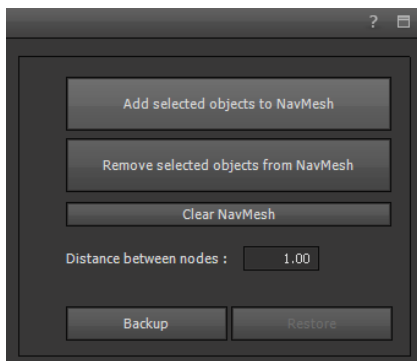
MATERIAL EDITOR:



The Material Editor is used to create and edit Materials (similar to Shaders). In ShiVa you don't have to Script your Materials, as the Material Editor is WYSIWYG.

Basically, the Material Editor allows you to define lighting methods, configure ambient, diffuse & specular colours, activate shadows, input normal & diffuse maps etc.

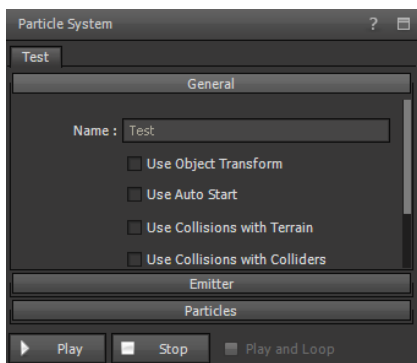
NAVMESH EDITOR:



The NavMesh Editor makes it possible to create of grids of navigation points (NavMeshes). Its role is to indicate which parts of a 3D scene are “navigable” (also known as “path finding”). The grid of navigation points is a regular grid in which each point can have to 8 neighbours. This module allows you to create your own sequence of navigation points by adding point to, or removing points from, the initial empty grid.

Basically, the NavMesh Editor allows you to create & edit mesh navigation points for automatic pathfinding.

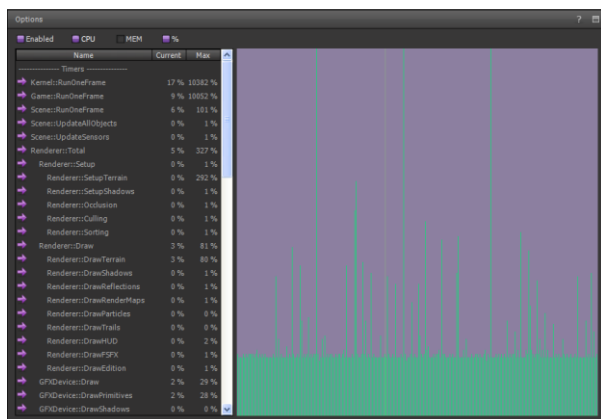
PARTICLE EDITOR:



The Particle Editor module allows you to edit your Particles resources, which are used to define your Particle system. These Particle systems must be attached to Objects.

Basically, the Particle Editor allows you to create & edit Particles for effects such as fire, snow & water.

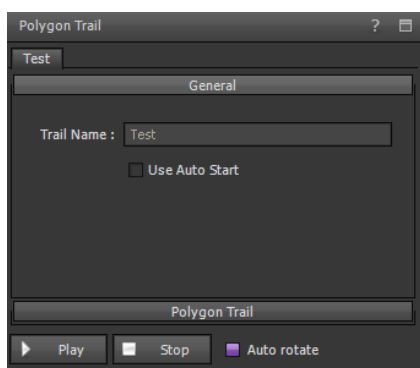
PERFORMANCE REPORTER:



The Performance Reporter is used to visualise the performance of your Project, and enables you to check its optimization, and help you make it more efficient.

Basically, the Performance Reporter allows you to check your Game's performance, display timers, counters etc.

POLYTRAIL EDITOR:



The PolyTrail Editor allows you to create and edit polygonal trails that emanate from your Objects (think jet engine trails, missile trails etc.).

Basically, the PolyTrail Editor allows you to create & edit effects such as tyre tracks, missile trails etc.

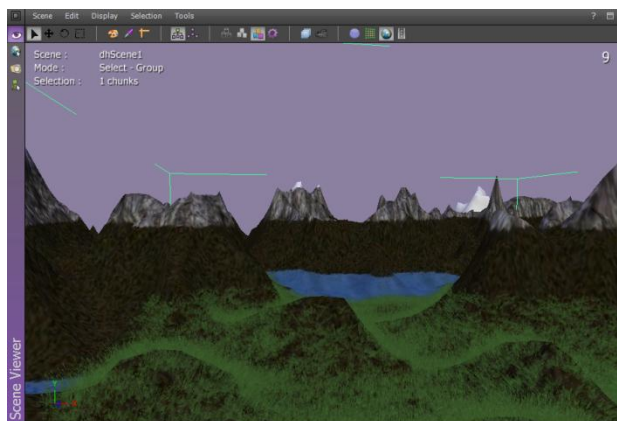
SCENE EXPLORER:



The SceneExplorer module manages all the Objects used in the Scene currently loaded in the SceneViewer. It allows you to find Objects in the Scene, view them using advanced filters, view their dependence, and manage groups of Objects.

Basically, the Scene Explorer is your window onto your Scene. You can copy & duplicate elements, create groups, manage your Models, take screenshots and the like.

SCENE VIEWER:



The Scene Viewer is the main module used to manage and visualize all Scenes and Models. All Objects are set up using this module.

NOTE: the following modules are disabled if any scene is open in the Scene Viewer: Ambience Editor, Attributes Editor, Scene Explorer and NavMesh Editor.

At any time you can edit the loaded Scene by right-clicking in the Scene Viewer.

To move around your Scene in edit mode, use the following key/mouse combinations:

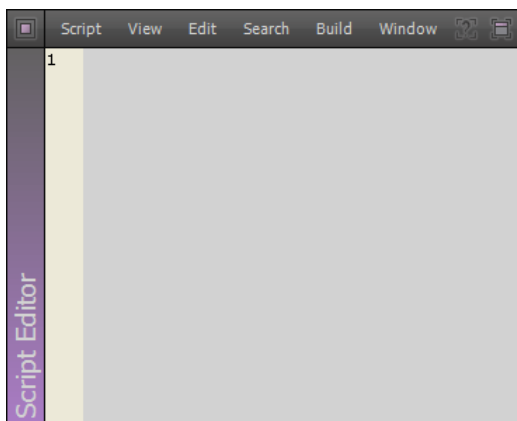
ALT + Right-Click	-	Zoom
ALT + Left-Click	-	Rotate
ALT + Middle-Click	-	Move Camera

I took me a while to figure these out, so I thought it best to share this with you as soon as possible.

Also, one last thing on the Scene Viewer.....

1 ShiVa unit is approximately equal to 1 metre.

SCRIPT EDITOR:



The Script Editor allows you to edit the Scripts created in the AIModel Editor, using the Lua programming language. This editor will always be used in conjunction with the AIModel Editor. Editing functions, states and handlers of AIModels in the AIModel Editor will open the Script in the Script Editor.

The Script Editor comes with the following features:

auto-completion & suggestion, direct access to Help, Function listings, search facilities etc.

Tip!

I would suggest setting the “Show Line Number” Attribute, so that each line of your Script will have a line number next to it. Much easier to follow IMHO. Also, the Scripts are available in the “Resources\Scripts” folder of your Project if you want to print them out.

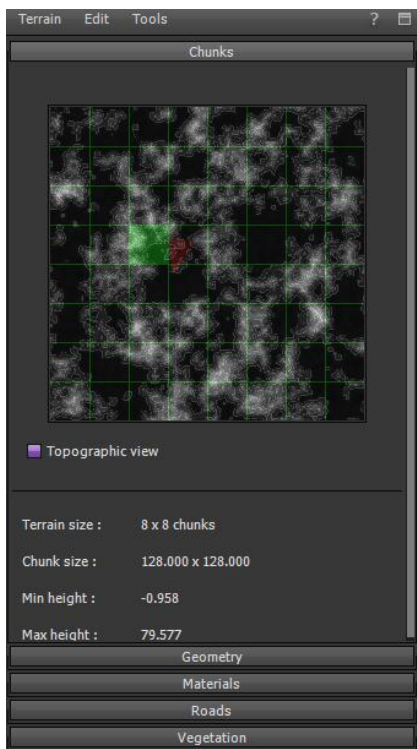
SOUNDBANK EDITOR:



The SoundBank Editor module enables you to edit the contents of a SoundBank. A SoundBank is a set of Sounds, which must be quite short (usually less than 10 seconds). They are normally used to create event Sound effects.

Basically, the SoundBank Editor allows you to create & edit a bank of indexed Sounds.

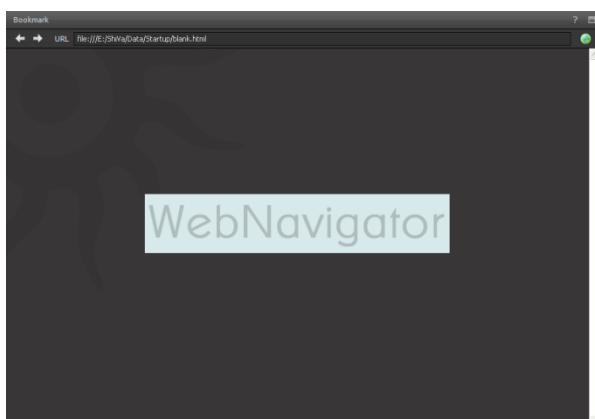
TERRAIN EDITOR:



The Terrain Editor module allows you to create and edit a Terrain for the currently opened Scene. The created Terrain is composed of multiple square Chunks.

Basically, the Terrain Editor allows you to create & edit huge Terrains, define the elevation, noise, vegetation etc. and also to add roads.

WEB NAVIGATOR:



The Web Navigator module enables you to view the most up-to-date ShiVa documentation on-line on the StoneTrip developers website. It will also allow you to access the ShiVa forum without opening a separate window (useful if you get stuck and need some assistance from the knowledgeable inhabitants of the forum!)

The Web Navigator also allows you to test your web-based application from within the ShiVa environment.

SETTING UP YOUR WORKSPACE

How you set up your workspace is entirely up to you, but you should take a few minutes to think about which modules you will use most often, and set these as your defaults.

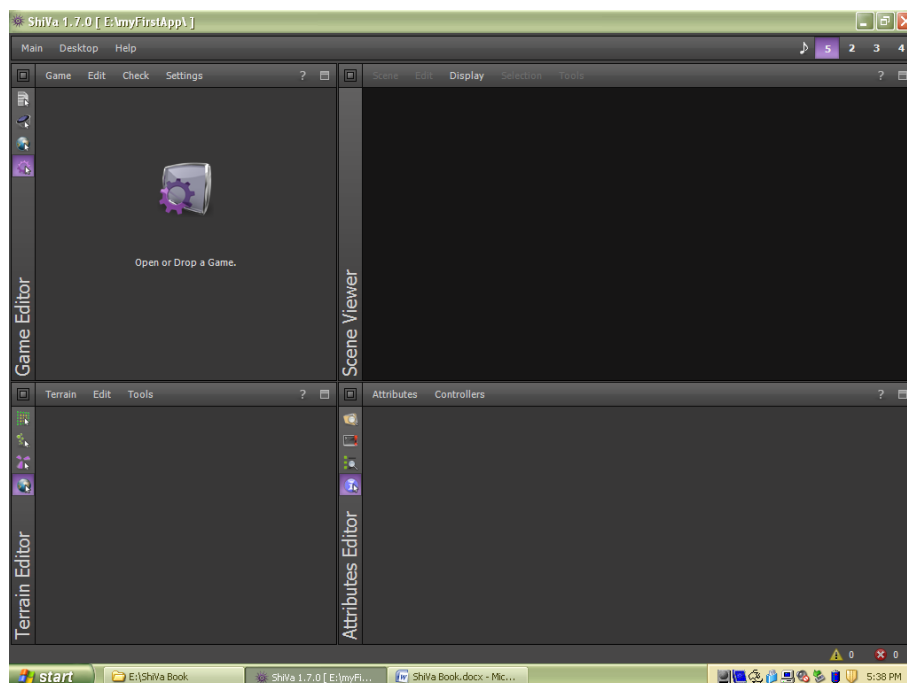
Tip!

All of the displays in the ShiVa User Interface (UI) can be maximised and restored using the buttons at the top right of the relevant display.

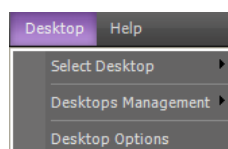
As I have previously said, ShiVa can have up to 8 different desktops, accessed by the numbers 1 to 8 in the top right of the screen. As you can see below, I have renamed one of my desktops (no. 3) to “My Desktop”.

Tip!

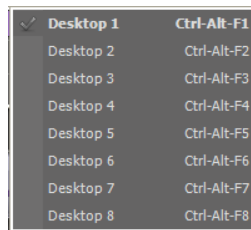
Renaming is a great way of remembering which workspace you need for a particular task!



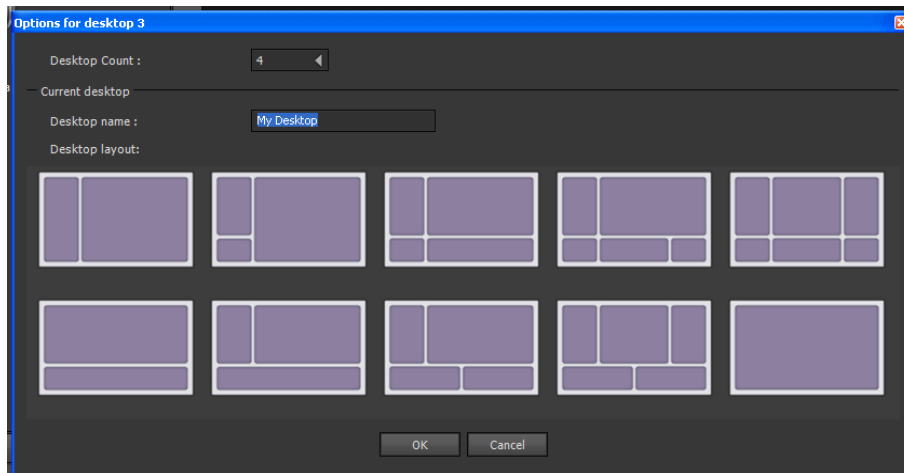
To be able to see all 8 available desktops, click on the “Desktop” menu at the top left of the screen and you will see the following menu:



If you now click on the “Select Desktop” option, you will see a listing of them, along with the relevant shortcut key combination:



Unfortunately, ShiVa only shows the numbers 1 to 8, and not the names! However, to display all 8 on the screen, click on the “Desktop” menu, and then on the “Desktop Options” option. This will give you the following dialog box, where you can set the “Desktop Count” to any number between 1 and 8:

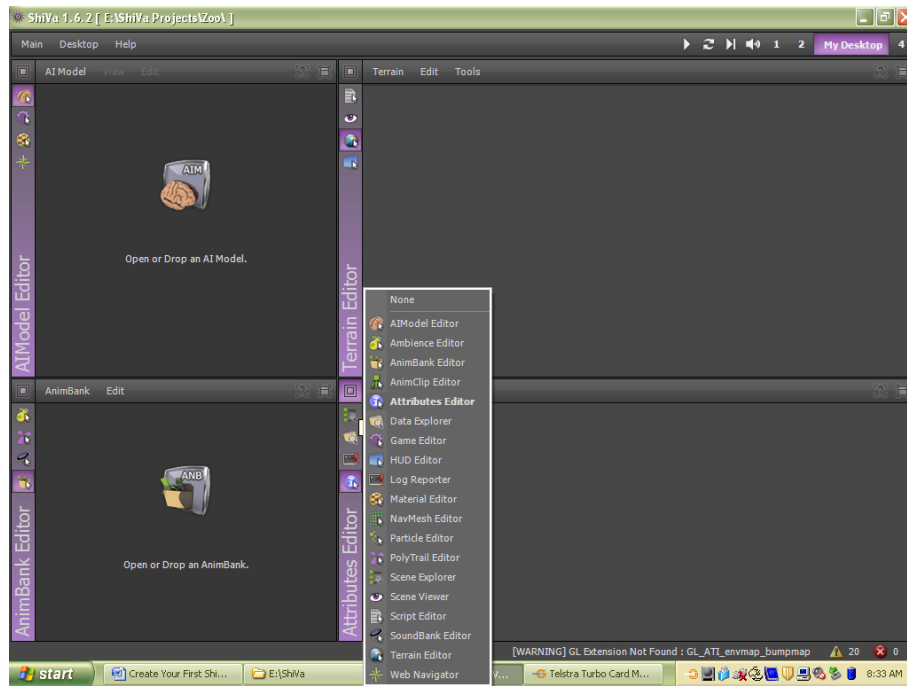


In this dialog, you can select your preferred layouts from the 10 options, and also rename them to something useful that you will remember.

NB: This dialog works off the currently selected Desktop in the main UI, so, if you are currently in Desktop 3, then any changes made will apply to Desktop 3.

To set up your chosen modules, left-click on the square button (🗖) at the top left of the selected display, and you will see a drop-down list of all of the available modules. Simply select the one you want, and hey presto! Your module will now be available to you. Each of the displays of the UI retains icons showing the last 4 modules accessed on that display. By left-clicking on the corresponding icon, you can retrieve your previously used module (see below). How simple is that?

INTRODUCTION TO SHIVA



Tip!

As can be seen above, ShiVa also shows you the latest errors/warnings that you have received, and also the total number of both in the bottom right of the display. To see the last five, move your mouse cursor over the warning or error icon, and a pop-up box will appear. To see all of the errors/warnings, you will have to open the Log Reporter Module.

OK, so that's enough of the ShiVa overview, let's move on to actually creating your first ShiVa application.