

First Person Shooter Game

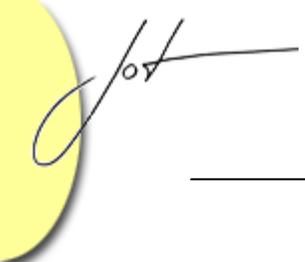
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Erik Larson
Jonathan Robertson
Jonathan Frisch
George Trice
Dr. Lakshmi Prayaga

Abstract

3D game development is an exciting activity for many students. But getting a handle on 3D game development for novices may be a daunting task. We take this opportunity to present a quick introduction to 3D game development through a few tutorials. For the next few columns a set of tutorials for a 3D first person shooter game developed by graduate and undergraduate students under the guidance of a faculty member from the University of West Florida will be presented. These tutorials were developed with **3D game Studio** by *Conitec*. To follow along, download the software from www.conitec.com. These tutorials include all elements of game development such as modeling and animation, lighting, collision detection, sound and scripting. Each tutorial will focus on one or more of these aspects. This issue we start out with creating a room and adding some objects to the room. The instructions for this are presented below.

DESIGNING A ROOM

This software package comes in three parts: the World Editor (WED for short), the Model Editor (or MED), and the Script Editor (or SED). The WED is responsible for the organization of your 3D world and the placement of Actions (which have to do with scripting and will be discussed in later entries) within entities. MED is a tool that allows the construction of 3D models (boxes, boats, etc.) that are used and oriented within the WED. The SED, on the other hand, is non-visual. This is where the programming takes place. The code developed in the SED is what allows your characters to move around, talk, or even explode. The bases of these three forms of programs are fundamental steps for developing a game. Anywhere you go in the world of Game Design; there will be a minimum of three environments that these programs represent: Level Development, Graphics Design, and Programming.



In this tutorial, we will be using the A6 version of Game Studio, but future versions of this tutorial section; we hope to be utilizing the new A7 engine.

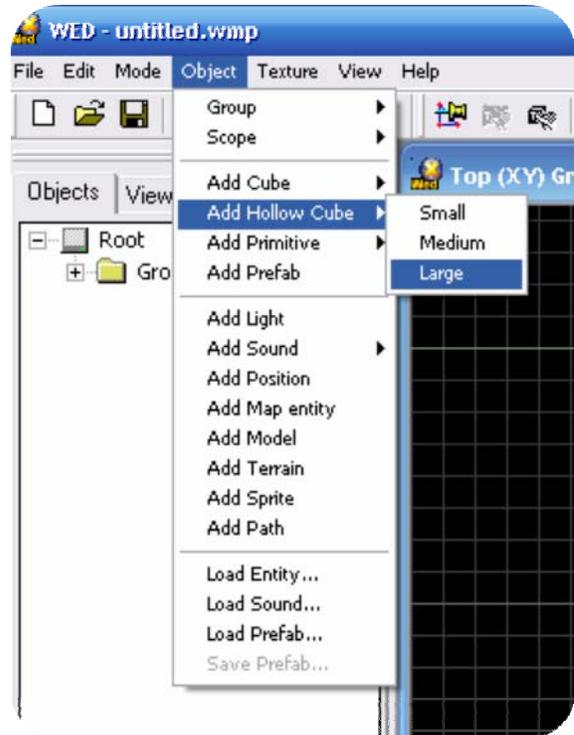
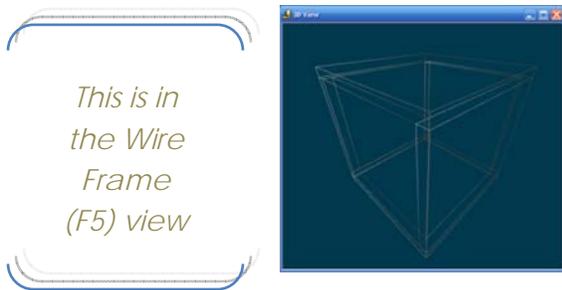
To start, let's begin with some basic level design. We will add more onto this room (and/or the concept of this room) in future tutorials, so be sure to store your work in a safe place. The entirety of this tutorial will take place in the WED.

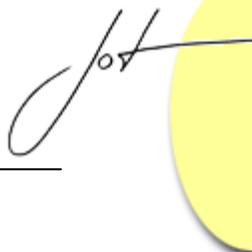
Even if you're not sure how you want your room to look, it's generally best to begin by adding a hollow cube (Notice Image to the Right)

To change the view of the pane, use the F5, F6, and F7 Keys

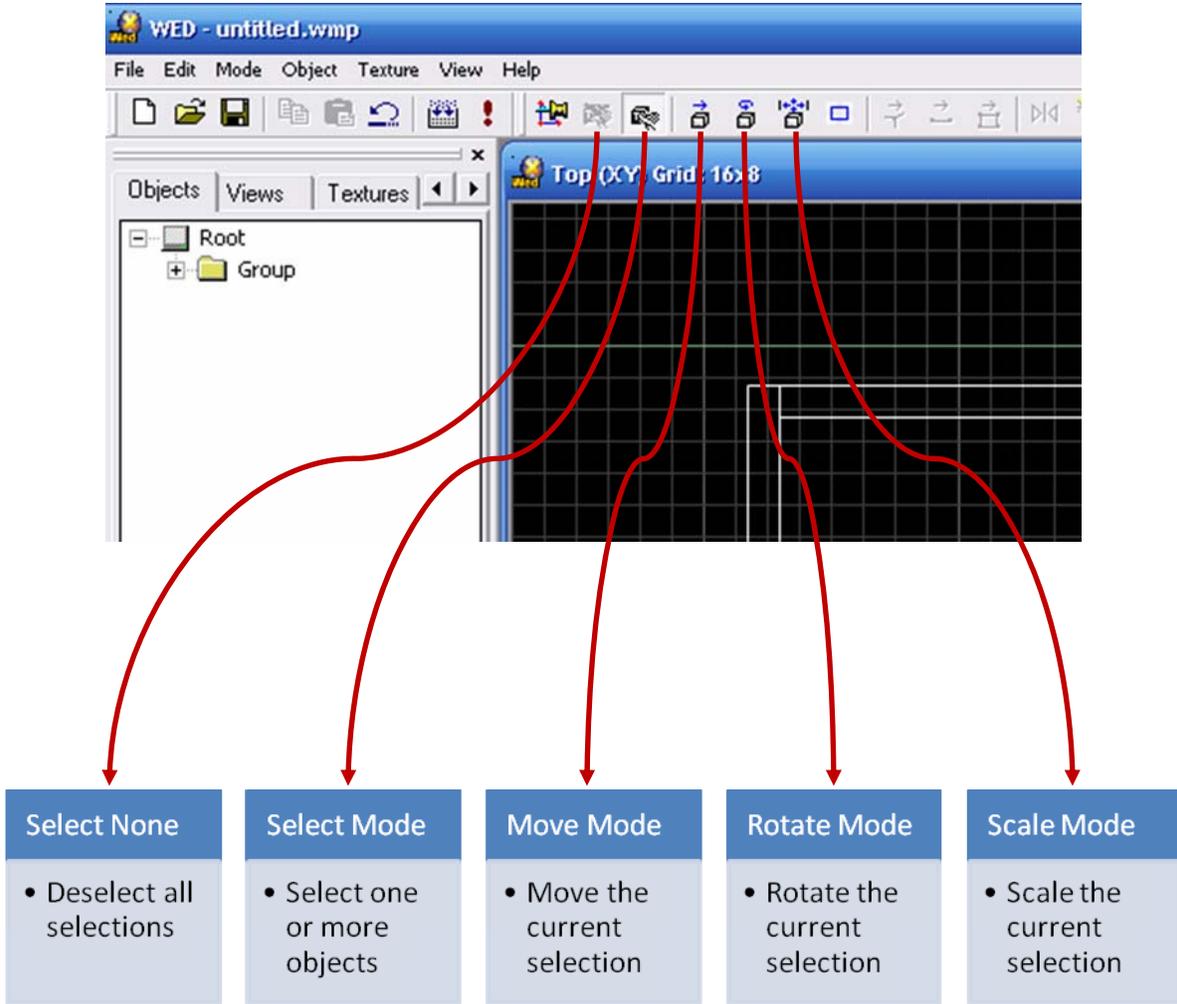
Wire Frame	F5
Solid	F6
✓ Textured	F7

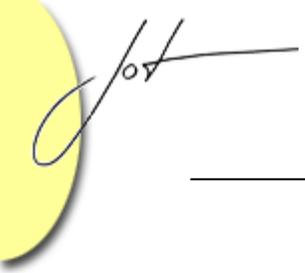
Your cube should look something like this...



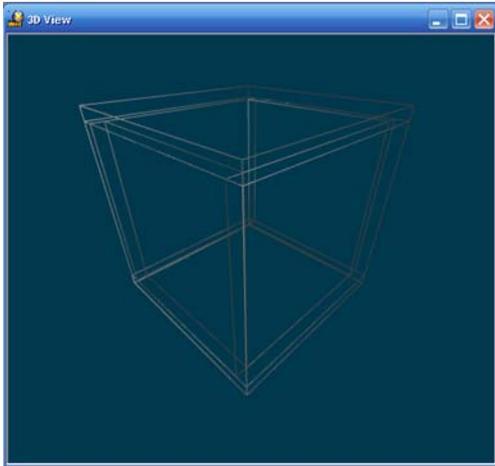


There are a few toolbar buttons that are good to know about...

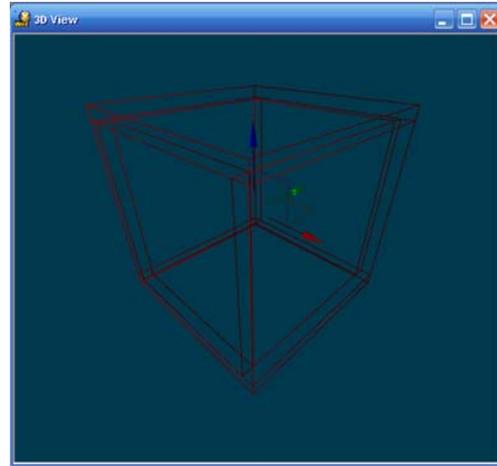




→Enter Move Mode and click on the cube you just made...



Before



After

Notice how the frame of the cube changes to **red**! This is the color used to indicate if a shape is selected. It will be represented in this way when anything is selected within the object panes

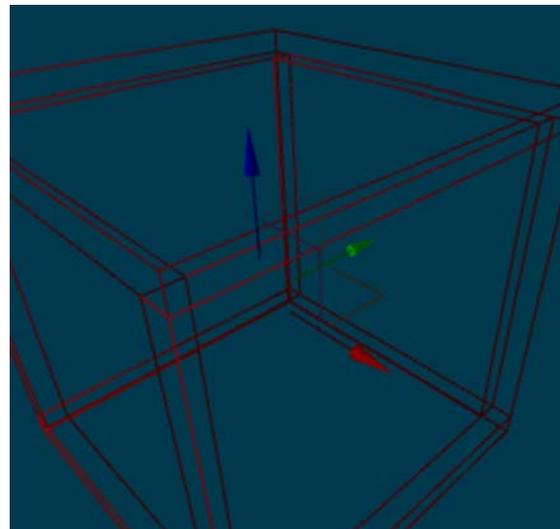
Also, notice the **different colored arrows...**

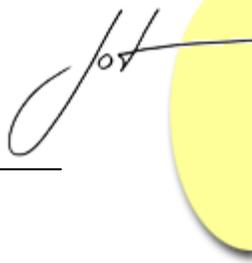
The **Green Arrow** controls the **y-axis** movement

The **Red Arrow** controls the **x-axis** movement

The **Blue Arrow** controls the **z-axis** movement

These arrows apply for scaling and rotating as well!

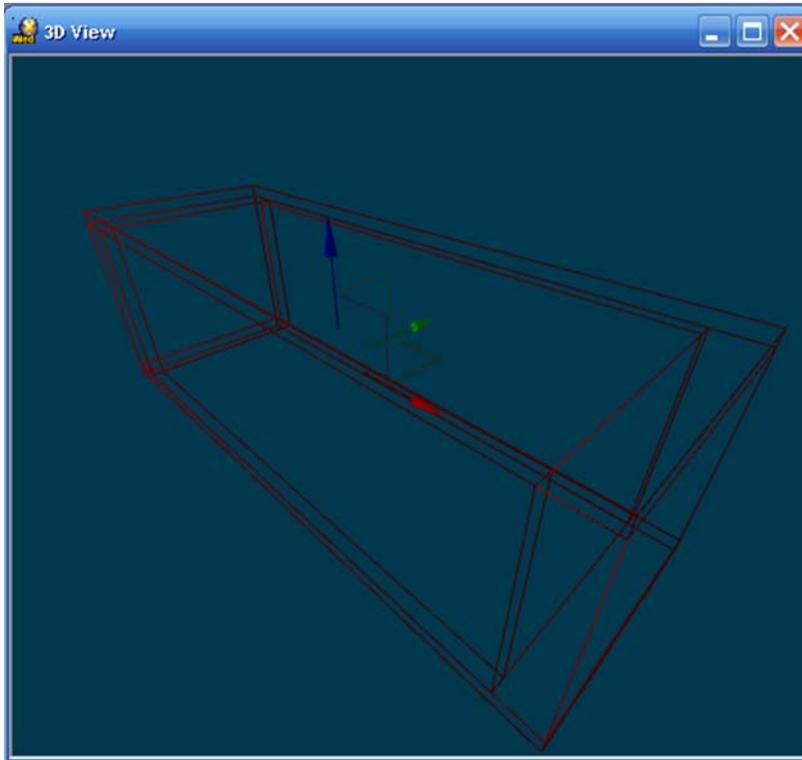




→ Now enter Scale Mode

Notice that the arrows remain – But now the arrows have a different function

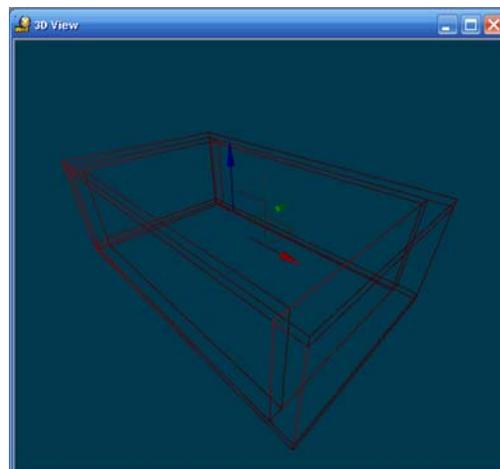
For example; if you select the **Red Arrow** and move the mouse, then the x-axis will scale – but not the other axes

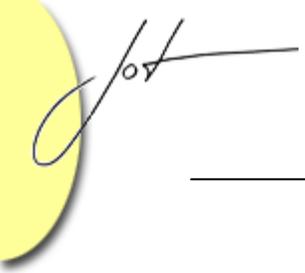


We just scaled along the x-axis!

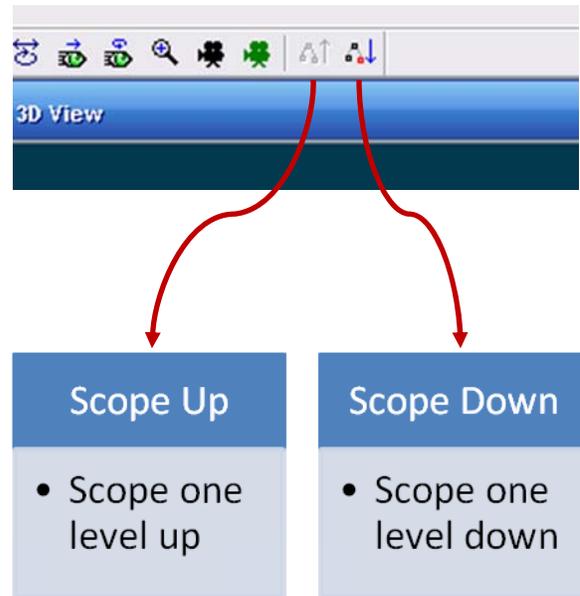
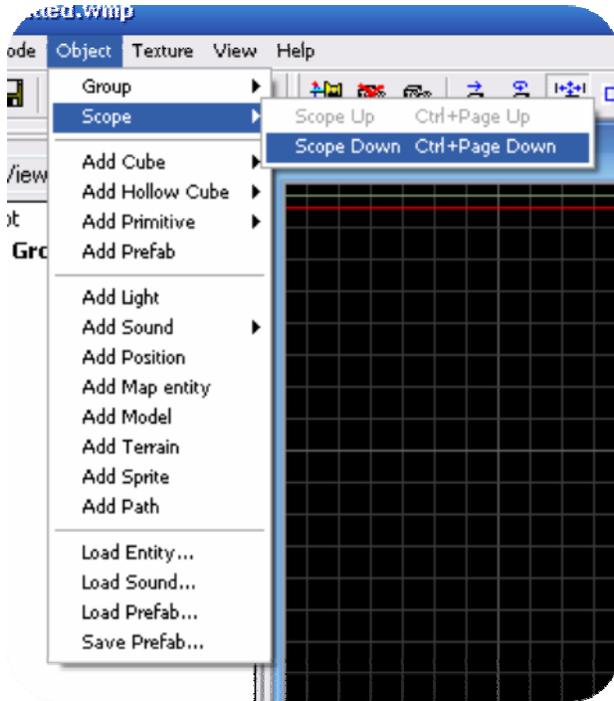
The shorter walls have also increased in thickness. This is because the entire object was scaled – not just the floor, ceiling, and the now elongated walls

Now feel free to scale the object along the y-axis (**Green Arrow**)



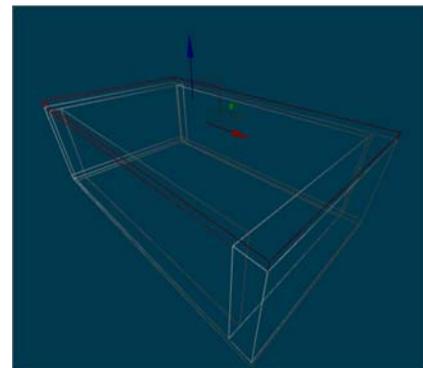


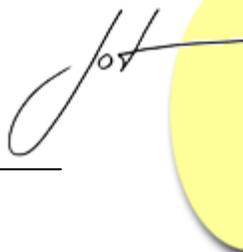
But what if we want to change the shape of only *one* of the walls?



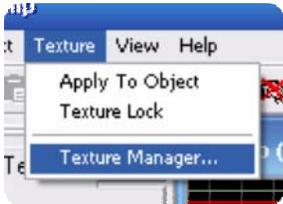
The solution is to Scope Down. This is a process in which an object that is made of multiple shapes is broken down into its individual shapes! In this way, the object (or prefabrication) can be modified on the fly!

When an object is Scoped Down, only that object comes into view. (i.e. enemies, objects, furniture, etc will all disappear until the object is Scoped Up to its original configuration)





Now we need Textures.
Click the Textures tab to see
the available textures.
However; there don't seem
to be many of them...

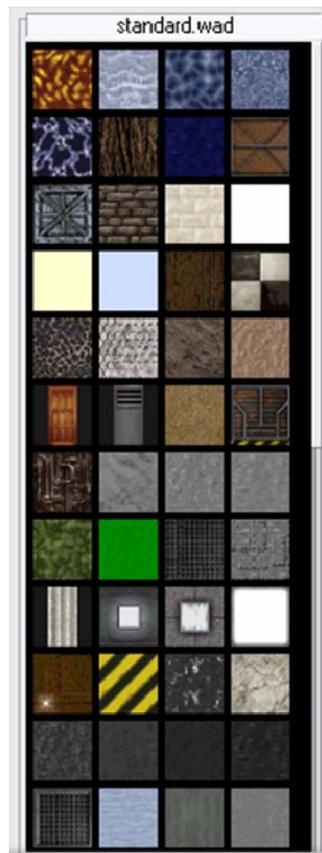
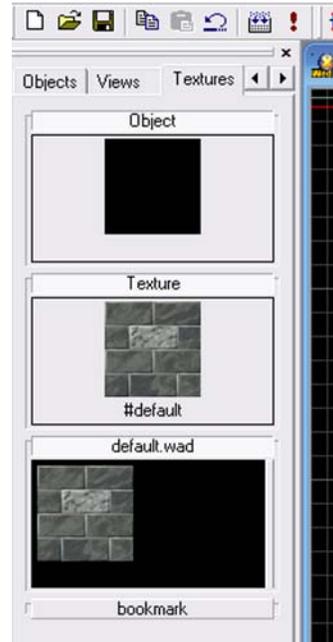


The way to solve
this is to enter the
Texture Manager

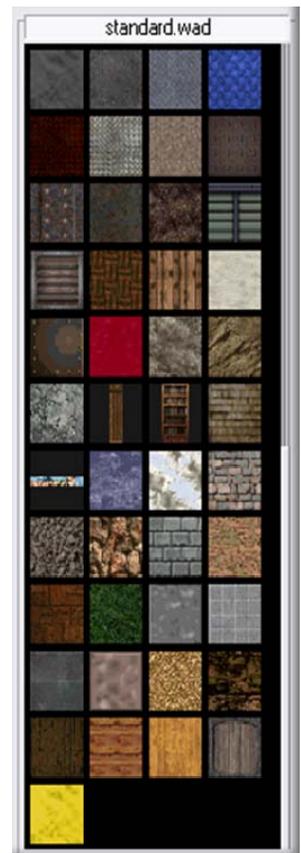
Select Add WAD
and then open
"standard.wad"
from the list



Notice that
there's a new
section in
your Textures
tab!

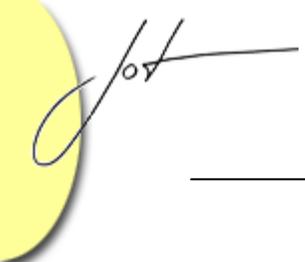


Standard.wad p1



Standard.wad p2

As can be perceived,
there are plenty
more textures to
work with now!



Let's quickly apply a "wood" texture to our entire room. We can achieve this by going into Select Mode and dragging the mouse over the entirety of the room

For my example, I'm using "woodflhori" texture



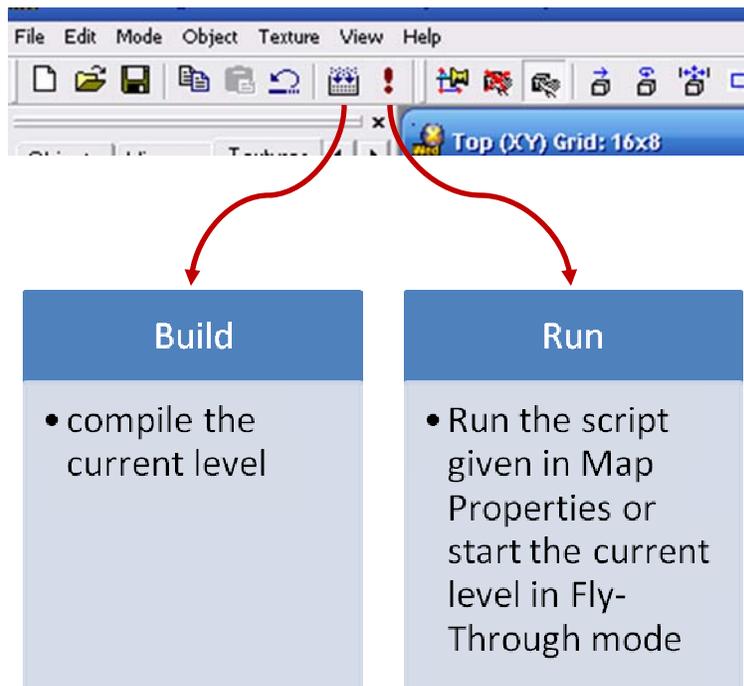
But we also need a sky! So this time, select only the ceiling part of the room, and find a sky texture

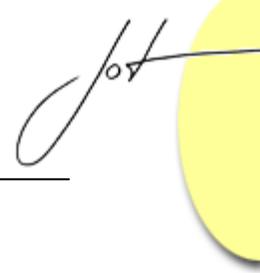
For this example, I'm using the "skywhite" texture



Now, Scope Up so you can treat the room's infrastructure as one object again

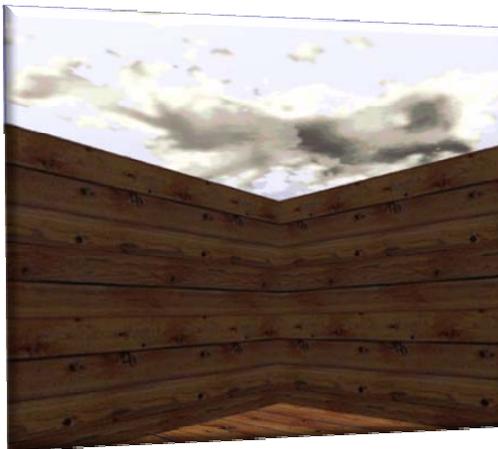
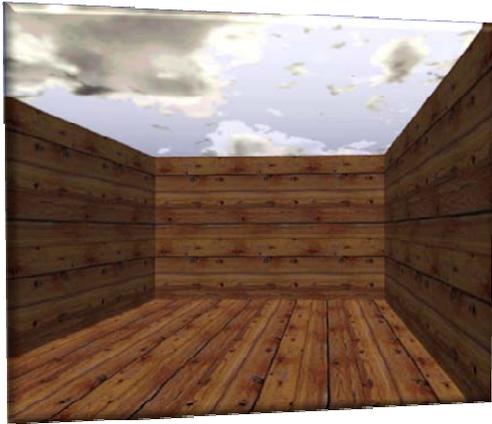
Save your game!



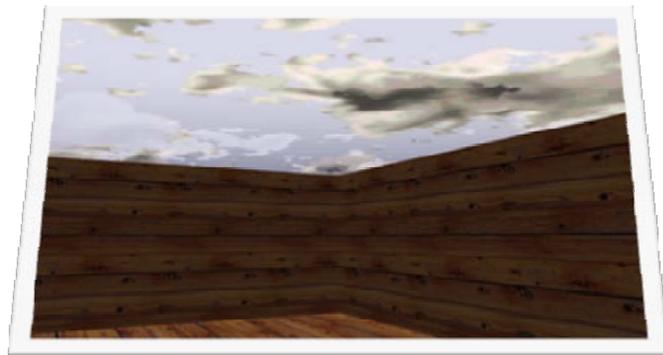


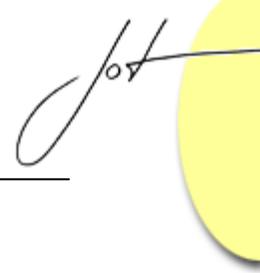
Now, **Build** your level, and **Run** your level! (**Build** should work correctly with just the default settings)

When the dialogue boxes come up, just click OK



When you run the level, you may have to look for your building... The game places the initial camera at the origin of the level and looking to the right (direction of +x). To fix this, simply re-align your level to be centered in the origin





About the authors

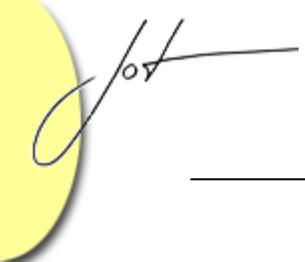
Rex Cason II has been working with Dr. Prayaga in the UWF Game Department for the past few semesters. He currently possesses a Bachelor's degree in Computer Science and is working towards a Master's degree in Software Engineering at the University of West Florida. Rex is also an active member in the Association of Information Technology Professionals (AITP). In addition to his studies, Rex works part time at the Institute for Human and Machine Cognition (IHMC), where he is currently working on developing software to coordinate the actions of semi-autonomous robotic vehicles.

Erik Larson has been working with computers since he had purchased a cheap 386 IBM Compatible in 1995. In 1999, he entered the United States Marine Corps and pursued a specialization in computers. Today he is working towards a Master's degree in Software Engineering with the University of West Florida. He currently possesses Bachelor's degrees in Information Technology and Computer Information Systems with minors in Computer Science, Internet Technologies and e-Business also from the University of West Florida. He is a member of the Phi Kappa Phi, Gamma Beta Phi, and Upsilon Pi Epsilon Honors Societies.

Jonathan Robertson currently works at the Game Design Department of the University of West Florida. A student of UWF as well, his studies is focused on the field of Information Technology and Computer Science. His experience, though not without focus, is spread out over most if not all areas of Game Design (including but not limited to game development programming, art primarily limited to character design, music, story development, statistical balancing, gameplay enhancement, and minimal project management).

Jonathan Frisch is working for a degree in Digital Media and studying animation/modeling itself and in games and movies. He hopes to get into the animation/modeling field of game development or movie production. His ultimate future goal is to be an independent film writer/director.

George Trice III is an Honors student double-majoring in Interdisciplinary Information Technology: Digital Media and Art with a Digital Specialization. His minor is in Communication Arts. He's been a gamer since age 5. Favorite game of all time: Super Mario World



Dr. Lakshmi Prayaga has recently completed her ED.d program from the University of West Florida. She has been actively working on the influence of games in education. In partnership with Escambia county in Florida, she was awarded a \$1.5 million grant from the Florida department of education to develop serious games for 7th and 8th graders for mathematics and its relation to real life careers. These games will be implemented during this fall (2007). She is starting a gaming curriculum at the University of West Florida, and some of her students are working on the tutorials for a first person shooter game that will appear in the next few columns.