



## 3D GAME STUDIO – TUTORIAL EXERCISE #4 WEAPONS AND ENEMIES

In this exercise we will give the player a weapon and insert an enemy.

By the end of this exercise you will have a basic first person shooter game.

### GIVE THE PLAYER A WEAPON

1. Copy the entire contents of the C:\Program Files\Gstudio6\template\_6\models directory into your main game directory. (Do not copy the models folder itself, just the contents).
2. Open GameStudio. Go to File > Project Manager and add the Biped Player Weapons script. Also add fxa(01). This script should be added with Biped Player Weapons, but there is a bug in Project Manager. Close the Project Manager, go to the Resources tab, expand the scripts folder and open your main project .wdl file. Look at the “include” statements. Move fxa01.wdl to immediately after particle00.wdl. This is related to another bug documented on the GameStudio forums.
3. In Project Manager click on the Customize tab and select Biped Player Weapons. Change the “Starting weapon” to 1. Close the window.
4. Build  and run  the level. NOTE – to speed build time, click on the “Update Entities” option and move the “Visibility” slider to “low quality”. Some of the lighting may look poor quality, but you can do a full build later to fix this. When the level is run, you should see the muzzle of a cheesy laser weapon. When you fire you should see a laser beam fire and sear the whatever it hits.

NOTE: While in the game, press “Q” to cycle through the player’s available weapons.

7. Continue to customize Biped Player Weapons. Change the starting weapon number, build and run and the level. This will show you all the basic weapons available in 3DGS. See how bad they look when you use the 3<sup>rd</sup> person camera (press F7). This is because they all use the rather poor “tempgun” models supplied with 3DGS. To make this look good you either have to make a 3<sup>rd</sup> person view version yourself, or find a matching pair of 1<sup>st</sup> and 3<sup>rd</sup> view weapons on the internet.
8. Also experiment changing other customizable numbers.

The offset x (ahead), offset y (left) and offset z (up) changes the location of the gun relative to the player. 0,0,0 being at the center of the model.

Muzzle offset changes the location of the muzzle flash relative to the player. If you change the weapon offset you will need to change the muzzle offset.

Reflectivity and Ambient do not have large effects on the appearance of the gun model.

You can restore the script defaults at any time by clicking on “Restore” at the bottom of the Project Manager Customize tab.

9. Experiment with changing attributes of the actual weapons by customizing Weapons through Project Manager.. For each weapon you can select items such as accuracy, amount of starting ammo, and effects such as tracer, eject bullets, muzzle flash, creating holes in the wall, etc. Again, you can restore defaults, by clicking on “Restore” at the bottom of the Project Manager Customize tab.

To change weapon sounds, customize Weaponsfx through Project Manager. Make sure the sound file you reference is in your main game folder.

## **INTRODUCE AN ENEMY**

NOTE: Enemy models must include a weapon which is part of the model. If an enemy has no weapon, bullets, flashes, etc will fly from it's body. 3DGS includes no models with weapons built in. Download badguy\_gun.mdl from the class website and save it to your main game folder

1. Go to Object > Add Model and navigate to your models directory and select badguy\_gun.mdl.
2. Scale and move the model as needed, so he's about the same size as the player and standing on the floor.
3. Build and run the level. The bare-chested bad guy will be cycling through his animation sequence. Nothing will happen if you shoot at him, because we have not given him an action.
4. Go to Project Manager and add the Simple FPS AIs (first person shooter artificial intelligence script).
5. Right click on the bad guy in your level, select Behavior, and assign the AIFPS01\_Guard.wdl behavior.
6. Build and run the level. When you come into the bad guy's view he will start blasting at you. If you shoot him enough times he will die and fall to the floor.



7. You can change the behavior of the bad guy by right clicking on him in the level and selecting behavior. Here's an explanation of each property that can be changed:

Health – number of times you can shoot him before he dies (default 25)

Armor – amount of protection (default 0)

#### Movement

ForceX – controls AI forward speed

ForceY – side-step speed

Pan – turning speed

#### Limits

MinMoveZ – controls upward sliding

Jump – jump height

#### Animation

All of the following are used to control of the speed of the animation cycle (not the speed of movement). For example, if it looks like his legs are moving too fast for the speed he his covering, you can adjust animation speed here.

WalkSwimDist

RunCrawlDist

StandJumpTime

DeathDamageTime

RunThreshold

### Weapon

ID – weapon used by the enemy. Note that the AI's weapon takes on the attributes of the corresponding weapon ID in the weapons00.wdl file. Since the enemy model already has a weapon there is no need to specify a model file like we do for the player.  
Vertex – the height from which the weapon fire appears to come from the entity. The default is -1 which is the center of the entity. If your model is not holding its weapon at its center you can adjust this value, until the fire lines up with the muzzle of its weapon.  
AccReload – never used it. Check the manual

### Senses

FOV – range of hearing and field of view in degrees. Number before the decimal point is the range, the number after is the angle in degrees. For example, 2000.090 (the default) is a range of 2000 quants and an angle of 90 degrees. This controls how easy it is for the enemy to see the player in an open space with no obstructions.

Hearing – hearing range (in quants?). This controls the enemy's detection of the player when the player is not visible to the enemy. Increase this number if you want the enemy to be able to start chasing you from a faraway distance

NOTE: definitions for any item can be accessed by right clicking on the attribute, e.g. ForceX.

8. You can change some global attributes for all enemy AI by right clicking on aifps01.wdl in the Resource tab.

Display AI health – displays what the AI doing and its health on the screen. Good for developing a game but a bit clunky.

Minimum close range – the distance in quants AI will maintain from the player.

Alert range - The max distance between enemies that they can alert each other to the presence of the player

9. Add a few more bad guys and customize each one by right clicking on it and selecting behavior.

## **HUD (HEADS UP DISPLAY)**

This simple heads up display shows player's remaining ammunition. Just add the plBipedWeapHUD01.wdl. Not a great panel, and not much customization available. The code, however, is short and could easily be changed.