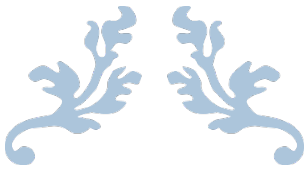


VG ENGINE 101

Tutorial

16.10.2015

Contents

GameObjects

Include
#include “engine/game/gameObject.h”

Creation
Example of creating a GameObject named “Foo”:

```
GameObject *Foo = new GameObject(“Foo”);          // Creating GameObject
Scene mScene = new Scene();                       // Creating Scene (if not already created)
mScene->getObjectPool()->addGameObject(test);     // Adding GameObject to the scene
```

See “Components” section on how to add components for your GameObject.

Components

Drawable component

Include

```
#include “engine/game/quadrangleComponent.h”      // For drawable quadrangles
#include “engine/game/triangleComponent.h”        // For drawable triangles
```

Creation

With texture:

```
// Creating quadrangleComponent    with the texture “test.png”
QuadrangleComponent *quadre = Game::getInstance()->getFactory()-
>createRenderComponent<QuadrangleComponent>(“test.png”);

// Creating triangleComponent with the texture “test.png”
TriangleComponent *triangle = Game::getInstance()->getFactory()-
>createRenderComponent<TriangleComponent>(“test.png);
```

Without texture: Coming Soon™

Remember!
If you create drawable component with texture it is loaded from Asset folder set in game project!

Text Component

Include

#include “engine/game/textComponent.h”

Creation

```
// Creating text component with font & size
TextComponent* Text = game->getFactory()->create(“arial.ttf”, 16u);
Text->setText(“test”);                    // Optional: Modify the text
Text->setColour(0, 0, 255);               // Optional: Modify the color (numbers between 0 and 255)
MyTextObject->addComponent(Text);         // Add textComponent to your GameObject
```

Animation Component

Include

#include “engine/game/animationcomponent.h”

Creation

Example of creating an animated GameObject named “animationObject”.

```
// Create a new GameObject
GameObject *animationObject = new GameObject(“Animation”);

// Create QuadrangleComponent spritesheet for the animated GameObject
QuadrangleComponent *animationComponent = game->getFactory()-
>createRenderComponent<QuadrangleComponent>(“spritesheet.png”);

// Add the QuadrangleComponent to the GameObject
animationObject->addComponent(animationComponent);

// Add TransformComponent for the GameObject so it will be placed somewhere later
TransformComponent *animationTransform = new TransformComponent(Vector2<int>(int positionX, int
positionY), Vector2<int>(int sizeX, int sizeY), float rotation);

// Add the transformComponent to your GameObject
animationObject->addComponent(animationTransform);

// Create and add the animationComponent for your GameObject so it will be animated
animationObject->addComponent(new AnimationComponent(float animationInterval, int rowCount, int
columnCount, int total frameCount));

IMPORTANT!!
// Create and add AnimationSystem for animationComponents to work!
AnimationSystem *animationSystem = new AnimationSystem();
game->addComponentSystem(scene, animationSystem);

// Add the animated GameObject to the scene
scene->addGameObject(animationObject);
```

Physics Component

Include

```
#include "engine/game/physicsSystem.h"
#include "engine/game/physicsPolygonComponent.h"

// Create transform component for physics component
TransformComponent *physicsTransform = new TransformComponent(Vector2<float>(80, 64), Vector2<float>(64, 64), 0.0f);

// Create QuadrangleComponent
QuadrangleComponent *physicsQuadrangle = new QuadrangleComponent("sample.png");

// Create new physics polygon component with dynamic body
PhysicsPolygonComponent *physicsComponent = new PhysicsPolygonComponent(physicsTransform, PhysicsComponent::DYNAMIC, PhysicsSystem::world, 64, 64);
```

NOTE Last 2 parameters are optional, if you don't pass them, physics objects collision will be the same size as its defined in the transform component (same size as texture)

```
// Add physics component to physics gameobject physicsTestObject ->addComponent(physicsComponent);

// Add transform to physics gameobject
physicsTestObject ->addComponent(physicsTransform);

// Add QuadrangleComponent to physics gameobject physicsTestObject->addComponent(physicsQuadrangle);
```

Your Own Components

Example of creating a component called "MyComponent"

MyComponent.h

```
#include <engine/game/component.h>                    //Include the base header
class MyComponent :public vg::Component               //Public to vg::Component
{
public:
        TestComponent();
        ~TestComponent();
};
```

Example of creating a System called "MySystem"

MySystem.h

```
#include "engine/game/system.h"

using namespace vg;
class MySystem : public System
{
ShipSystem();
~ShipSystem();
void update(
};
```

MySystem.cpp

```
#include “MySystem.h”
#include “engine/game/game.h”

using namespace vg;

MySystem::MySystem() :System()
{
// Add your own code here
}

void MySystem::update(std::vector<vg::gameObject*> *gameObjects, float deltaTime)
{
		if ((*it)->getName() == “mygameobject”)
		{
		// Add your own logic here

		}
}
```

Usage

Example of calling your own component in main.cpp

```
MyComponent *myComponent = new MyComponent();
object->addComponent(myComponent);

MySystem *system = new MySystem();     // Remember to include
```

Sound

Include

#include “engine/sound/AudioManager.h”

Creation

```
vg::sound::Sound* testSound = new vg::sound::Sound(“shoot.mp3”);   // Creating a new sound
```

Usage

```
Game::getInstance()->getAudioManager()->addSound(*testSound);    // Playing the made sound object
```

Custom Shader

Creation

Place the shader soure files to “ProjectFolder/assets/shaders”.

Usage

```
Game::getInstance()->getGraphics()->switchShader(“vertex.glsl”, “fragment.glsl”);
```

Input

Include

```
#include “engine/input/keyboard.h”      // For keyboard
#include “engine/input/mouse.h”         // For mouse
#include “engine/input/sensor.h”        // For android sensors
#include “engine/input/touch.h”         // For android touch
```

Usage

```
vg::input::Keyboard::                  // For keyboard
vg::input::Mouse::                     // For mouse
vg::input::Sensor::                    // For android sensors
vg::input::Touch::                      // For android touch
```

For example:

```
vg::input::Touch::getIsReleased()      // Returns whether touch is being released from the screen
```

Camera

Include

```
#include "engine/graphics/camera.h"
```

Usage

```
// Move camera focus position
vg::graphics::Camera::move(Vector2<float> value);
vg::graphics::Camera::setPosition(Vector2<float> value);
vg::graphics::getPosition();
```

```
// Zoom the camera
vg::graphics::Camera::zoom(float value);
vg::graphics::Camera::setZoom(float value);
vg::graphics::Camera::getZoom();
```

For example:

```
using namespace vg::graphics;
Camera::zoom(0,5f);                          // Zoom in 50%
Camera::move(Vector2<float>(100, 0));    // Move camera 100 units right
```

Screen

Screen class has two sizes. Real size is actual screen or window resolution in pixels. Virtual size is the resolution in TransformComponent coordinate units. If you want your game look same on all resolutions use virtual resolution instead of the real one.

Include

```
#include "engine/graphics/screen.h"
```

Usage

```
// Virtual resolution in TransformComponent coordinate units
vg::graphics::Screen::getSize();
vg::graphics::Screen::getX();
vg::graphics::Screen::getY();
vg::graphics::Screen::setSize(Vector2<int>(width, height));

// Actual resolution in pixels
vg::graphics::Screen::getSize();
```

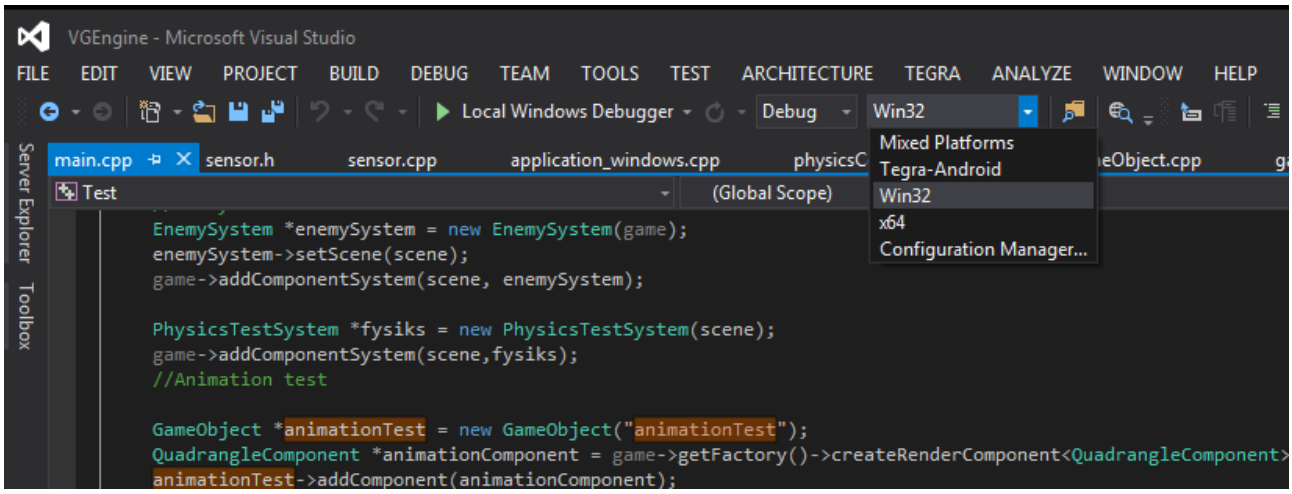
For example:

```
using namespace vg::graphics;
Vector2<int> resolution = Screen::getSize();                // Get the virtual screen size
```

Windows Version

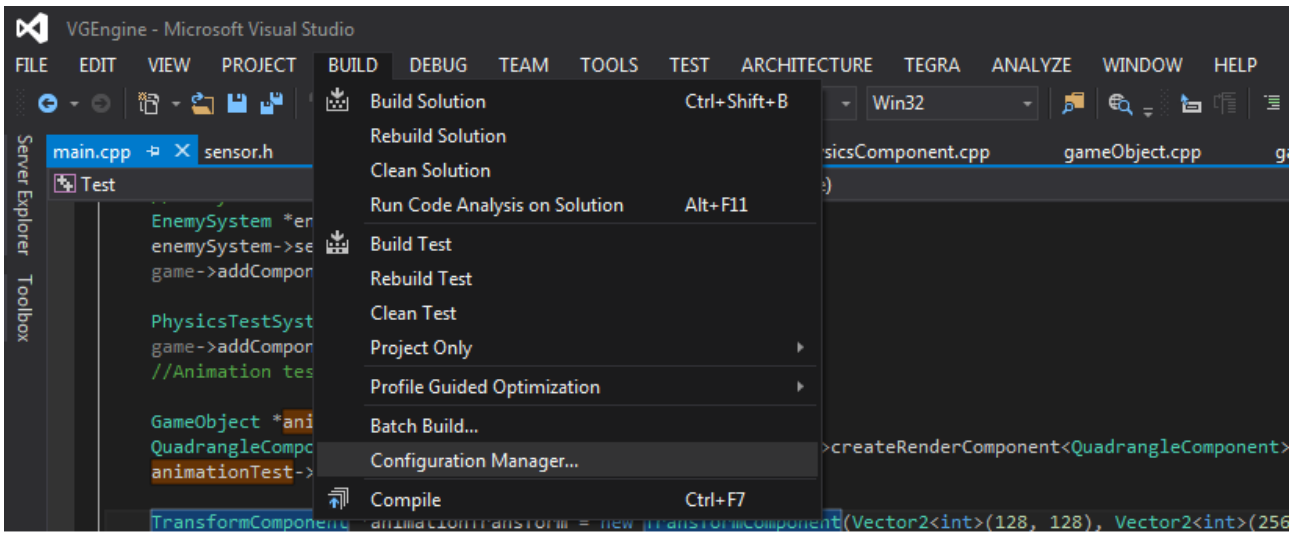
Usage

Select Win32 as solution platform.



If Win32 doesn't appear, do the following:

Build -> Configuration Manager



Active solution platform -> Choose "Win32" and then Press Close