gsage Documentation

Release 1.0

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TUTORIALS

1.1 Conan Build Instructions

It is possible to build the engine using Conan. It should be relatively simple, though it's necessary to have some prerequisites.

1.1.1 Before you start

Important: You should have Makefile, gcc/XCode/VS2015 and Conan installed

On Windows you can install Anaconda https://anaconda.org/anaconda/python . Then you can open Anaconda prompt and install conan:

```
conda install conan
```

Set up VC environment using `vcvarsall.bat` and you're all set.

1.1.2 Build And Run

To build the project run `make build` from the root directory.

Other convenient build targets:

1. `make run` starts the game.
2. `make editor` run editor.
3. `make unit` runs unit tests.
4. `make functional` runs lua functional tests.

If you do not want to use `make`, you can run several build commands manually:

```
# add gsage conan repository to Conan
conan remote add gsage https://api.bintray.com/conan/gsage/main --insert

# install Conan dependencies
conan install -g cmake -o gsage:with_ogre=1.9.0 -o gsage:with_librocket=True -o with_
↪lua_version:luajit-2.0.5 --build=outdated .

# build the project
conan build .
```

1.2 Introduction

This tutorial will teach you how to create some basic scene using Gsage engine.

If you have not built the engine yet, check out these build tutorials:

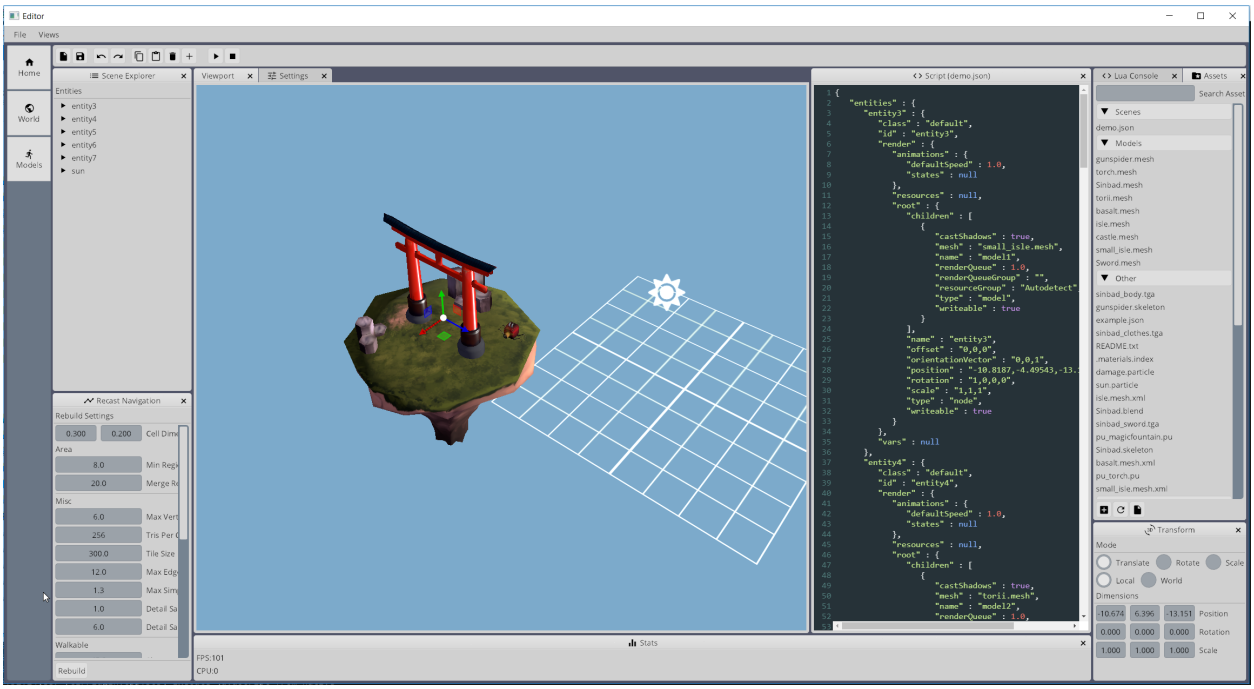
Conan Build Instructions

After you build the engine you will have the following file structure:

- `game/game.app/game.exe` executable file should be in the **build/bin** folder. This file is the main game executable.
- All resources are located in **./resources** folder. This folder is symlinked to **game.app/Contents/Resources** on the Mac OS X systems.
- `editor/editor.app/editor.exe` should also be in the game folder.

Old example of `game` executable in action:

`editor`:



1.2.1 Modifying Level

Note: Information below is outdated, use editor application instead. Manuals for editor will be available later.

If you open **resources/levels** folder, you will find the file named **exampleLevel.json** there. This file provides some basic level example.

You can modify it the way you want:

1. Add some model to **resources/models** folder (`world.mesh`).
2. Change entities list, and add this model to position `"x: 0, y: 0, z:0"`:

```
entities: [
...
{
  "id": "hello",
  "render": {
    "root": {
      "position": "0,0,0",
      "rotation": "1,0,-1,0",
      "scale": "1,1,1",
      "children": [{
        "type": "model",
        "mesh": "world.mesh",
        "castShadows": true
      }]
    }
  }
}
...
```

If you run **game**, you should see your model on the scene. MovementSystem should automatically calculate walkable areas for this mesh.

For more information about entities format refer to *Entity Format*.

Modifying level demo:

1.2.2 Creating Characters

If you open **resources/bundles/characters** folder, you will see couple entities defined there:

- **sinbad.json** which is controlled by player.
- **ninja.json** which are hostile NPC.

You can use these characters as a reference and create a new character:

1. Grab model with some animations and add it to models folder.
2. Create new `json` file in the **resources/characters** folder.
3. Now you should be able to configure the character:

   3.1. Write Render Component

```
"render":
{
  "resources":
  {
    "Mob":
    [
      "Zip:models/packs/mob.zip" // pack file
      // or you can do
      "FileSystem:models/mob/"
      // or you can omit this section and add resource folder in global settings
    ]
  },
  "root":
  {
    "scale":"1,1,1",
    "rotation":"1,0,1,0",
    "children":
    [
      {
        "type": "model",
        // this is important, otherwise this entity will be treated as part of␣
↪level
        "query": "dynamic",
        "name": "modelName",
        "mesh": "mob.mesh",
        "castShadows": true
      }
    ]
  },
  "animations":
  {
    "states":
    {
      // animation is configured as <model_name>.<animation_name>
      "walk": {"body": "modelName.WalkAnimation"},
```

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```
      "idle": {"body": "modelName.IdleAnimation"},
      "attack": {"top": "modelName.AttackAnimation"},
    },
    "defaultState": "idle",
    // animation speed. Adjust if necessary
    "defaultSpeed": 1
  }
}
```

3.2. Write Movement Component

```
"movement":
{
  // movement speed
  "speed": 10,
  // animation to use for movement
  "moveAnimation": "walk",
  // animation/speed ratio to apply
  "animSpeedRatio": 0.15
},
```

3.3. Write Stats Component

```
// stats component is not limited by param types at all
"stats": {
  "anything": 123
}
```

3.4. Write Script Component

Create script file **characters/scripts/mob.lua**. This file will be used as a setup script.

Startup script should return a function that accepts one parameter. This way the function will get subject entity as the first parameter.

```
-- log information on startup
return function(self) print("I am alive! (" .. self.id .. ")") end
```

Then write behaviour:

```
local function moveRandomly(self, context)
  local position = Vector3:new(
    self:render().position.x + math.random(30) - 15,
    0,
    self:render().position.z + math.random(30) - 15
  )
  self:movement():go(position)
end

local function createTree()
  return Repeat(
      Delay(Leaf(moveRandomly), function() return math.random(700)/100 + 3 end)
    )
  )
end

btree.register("walker", createTree)
```

Saving it as **behaviours/trees/walker.lua**.

Then you will be able to define script component:

```
"script":
{
   "setupScript": "@File:characters/scripts/mob.lua",
   "behavior": "walker"
}
```

4. Add character to scene. Edit **scripts/start.lua** file, add:

```
entity.create("mob")
```

This will create NPC. Or you can use lua console in GsageExe.

Console can be invoked by `F9` key. Type the same line there, and NPC will appear.

1.2.3 Modifying UI

UI integration is managed by classes, derived from `Gsage::UIManager` interface. Engine can have several UI libraries running at the same time.

LibRocket

`RocketUI` plugIn should be installed.

LibRocket looks like a dead project, but it can be configured very nicely using rml and rcss files.

And also it supports lua bindings out of the box, so can have very organic connection with other parts of the engine.

All librocket ui files are stored in the `resources/ui` folder. Currently it's in the mess, but it will be cleaned up very soon.

Imgui

`ImGUI` plugIn should be installed.

Imgui views can be registered in lua using:

```
-- render method
function render()
imgui.ShowTestDialog()
end

-- render view class for stateful UI
View = class(function()
end)

function view:__call()
imgui.ShowTestDialog()
end

local view = View()

imgui.manager:addView("viewID", view)
```

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```
imgui.manager:addView("viewID2", render)

-- remove
success = imgui.manager:removeView("viewID")
```

1.3 Game Configuration

Gsage engine has one global configuration file. It is loaded by `Gsage::GsageFacade::initialize()`.

This file has initial configs for all engine systems, plugins list, startup script path and data manager configuration.

It can be encoded in json and msgpack and can look like this:

```
{
  "dataManager":
  {
    "extension": "json",
    "charactersFolder": "characters",
    "levelsFolder": "levels",
    "savesFolder": "templates"
  },
  "startupScript": "scripts/start.lua",
  "inputHandler": "ois",
  "systems": ["ogre"],

  "plugins":
  [
    "PlugIns/Plugin_ParticleUniverseFactory"
  ],

  "packager": {
    "deps": [
      "tween"
    ]
  },

  "windowManager": {
    "type": "SDL"
  },

  "render":
  {
    "pluginsFile": "plugins.cfg",
    "configFile": "ogreConfig.cfg",
    "globalResources":
    {
      "General":
      [
        "FileSystem:materials/",
        "FileSystem:programs/",
        "FileSystem:particles/PU",
        "FileSystem:particles/Ogre"
      ],
      "Rocket":
      [
```

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```
        "FileSystem:fonts/",
        "FileSystem:ui/"
      ]
    },

    "window":
    {
      "name": "Game",
      "width": 1280,
      "height": 800,
      "params":
      {
        "FSAA": 4,
        "displayFrequency": 50,
        "vsync": false
      }
    }
  }
}
```

1.3.1 `Gsage::GameDataManager` Config

`Gsage::GameDataManager` settings are stored in `"dataManager"` section. There can be 4 kinds of variables:

- `"extension"` extension of all data files. `"json"` is recommended.
- `"charactersFolder"` folder where to search characters construction data.
- `"levelsFolder"` folder where to search levels data.
- `"savesFolder"` folder where to keep saves.

1.3.2 Plugins List

`"plugins"` stores list of plugins to be loaded on engine startup. Plugins are c++ dynamic libraries: `*.so/*.dylib/*.dll`.

Note: Plugin should be specified without extension. Engine will add appropriate extension for each platform itself.

Each defined plugin will be installed in the order defined in the list.

1.3.3 Systems Configs

Systems can be either registered statically, by calling `Gsage::GsageFacade::addSystem()` or they can be created by `SystemFactory` in the runtime in `GsageFacade::initialize` function.

`SystemFactory` reads `systems` array in the configration file. For example:

```
...
"systems": ["ogre", "lua", "dynamicStats"]
...
```

- `lua` and `dynamicStats` are preinstalled systems.

- `ogre` and `recast` are registered by the OgrePlugin.

Each system has two identifiers:

- **implementation** id.
- **functional** id.

Implementation id is used by `SystemFactory` to create a system. **Functional** id defines system purpose and is used to identify it's components.

For example, there is `render` system that is using `ogre` underneath.

When the system is added to the engine it can read the configuration from the global configuration file. System configuration must be stored on the root level of global configuration file or scene file under **functional** id.

For example:

```
{
...
  "movement": {
    "cacheFolder": "./"
  }
  "coolSystem": {
    "setMeUP": 1
  }
...
}
```

Engine will inject each system configuration placed under system **functional** id. The system will get a `Gsage::DataProxy` object and will get all system specific parameters from it.

See *Custom Systems* for more information how to add new types of systems into Gsage engine.

1.3.4 Input

Input is configured by `inputHandler` field. It should have string identifier of input factory, which is installed into the Gsage Facade.

Currently it supports two kinds of inputHandlers:

- `SDL` (preferred).
- `ois` (may be removed in future releases).

You can implement your own input handler and install it into the Gsage Facade. See *Custom Input Handler* to get more info how to implement your own input handler.

1.3.5 Window Management

`windowManager` section can be used to configure window management system. It has one mandatory field and one optional:

`"type"` is mandatory and defines window manager type to use. `"windows"` is optional and may contain the list of windows that should be created by the window manager.

Elements of this list should be objects and may vary depending on the implementation fo the window manager.

1.3.6 Log Config

`logConfig` can be used to define path to log configuration file. Refer to easylogging++ documentation for more details.

1.3.7 Packager

This packager can install any lua dependencies using luarocks. `deps` array should contain the list of dependencies. Each entry of this array support version pinning and version query operators.

1.3.8 Plug-Ins

Global config file can contain any additional configuration, which are relevant to installed plugins.

1.4 Saving and Loading Game State

1.4.1 Level File Format

Static scene objects are defined by `render` component of an entity. Only difference for static object is the **static** flag, defined in the entity. Static scene object can have any other components defined as well, such as script or sound.

Level is described by simple json or msgpack:

```
{
  "settings": {
    "render": {
      "resources": {
        "levelID": [
          "Zip:models/packs/levelResourcePack.zip"
        ]
      },
      "colourBackground": "0xc0c0c",
      "colourAmbient": "0x7F7F7F",
      "colourDiffuse": "0xc0c0c"
    },
    "script": {
      "hooks": {
        "camera": "setOrbitalCam()",
        "damageEmitter": "emitter.create('damage')"
      }
    }
  },
  "entities": [{
      "id": "castle",
      "render": {
        "root": {
          "position": "0,0,0",
          "rotation": "1,0,-1,0",
          "scale": "1,1,1",
          "children": [{
            "type": "model",
            "mesh": "castle.mesh",
            "name": "castle",
```

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```
            "castShadows": true
          }]
        }
      }
    }
  ]
}
```

"settings" section is used to reconfigure all engine systems for the particular level. It works in the similar way as the global config. In this example, "render" and script systems are configured, and have the following settings:

- "resources" contains list of resources, that are required for the level. Each resource list is identified by unique id to make shared resources reusable between different levels.
- "script" has some level startup script hooks defined.

"entities" section describes entity list to be used as static scene elements.

1.4.2 Loading Levels

All levels are stored in the same folder. Level can be loaded by calling Gsage::GameDataManager::loadArea(). This will initialize all static entities and reconfigure systems.

By default, level folder path is resources/levels. Game data manager is configured in the *gameConfig.json* file, see *Gsage::GameDataManager Config* for more information.

Levels information should be considered as constant. Game data loader is designed with thoughts that levels information will be stored in the single archive, which won't be changed.

To provide ability to modify levels information and save dynamic entities states, save files are used.

Note: Currently save file copies the whole level information. There is plan to save only difference between initial data and save

---

To load save file Gsage::GameDataManager::loadSave() function can be used. Save file format differs from level file format a bit:

- save file saves level information in the field area.

Several new Fields:

- characters saves all characters information.
- placement saves positions of all characters on all locations.
- settings saves global configs for systems (can be used for render system settings customizations).

Note: Save file format might change in the future. settings is likely to be removed.

1.4.3 Saving Levels

Each engine component and system supports serialization. All settings, that can be read from configs also can be dumped to config files.

This allows Gsage::GameDataManager to iterate all systems and entities and dump their state to file.

Save file can be created by calling `Gsage::GameDataManager::dumpSave()`.

Note: There is no method to modify level file itself yet. It will be created for editor purposes later.

1.4.4 Lua Bindings

- `game:loadSave("save1234")`
- `game:dumpSave("save1234")`

1.5 Custom Start Script

Note: Start scripts are still in a mess. Common code parts will be bundled in some module later.

It is possible to write any kind of code in the start script. But it should be set up properly.

Firstly, it is required add other lua scripts folders to `package.path`.

```
package.path = package.path .. ';' .. getResourcePath('scripts/?.lua') ..          --␣
↪main scripts folder, contains generic core logic
                               ';' .. getResourcePath('behaviors/trees/?.lua') .. --␣
↪behavior trees folder
                               ";" .. getResourcePath('behaviors/?.lua') .. ";"
```

1.5.1 Setting Up ImGUI

Check if ImGUI UI manager is installed and register a view:

```
local imguiInterface = require 'imgui.base'

if imguiInterface:available() then

  -- simple function
  imguiInterface:addView("window", function()
    imgui.TextWrapped("Hello world")
  end, true)
end
```

Refer to *Creating ImGUI Views in Lua* for more details about registering ImGui views in Lua.

1.5.2 Setting Up LibRocket

Librocket support can be checked by verifying if there is `onRocketContext` event handler. Then it is possible to subscribe to that callback:

```
-- librocket initialization
if event.onRocketContext ~= nil then
  event:onRocketContext(core, RocketContextEvent.CREATE, initLibrocket)
end
```

Librocket views, fonts loading should be done in `initLibrocket`:

```
function initLibrocket(event)
  local ctx = rocket.contexts[event.name]
  if not rocketInitialized then
    local fonts =
    {
      "Delicious-Roman.otf",
      "Delicious-BoldItalic.otf",
      "Delicious-Bold.otf",
      "Delicious-Italic.otf",
      "lucida.ttf"
    }
    for _, font in pairs(fonts) do
      resource.loadFont(font)
    end
  end

  main = resource.loadDocument(ctx, "minimal.rml")
  cursor = resource.loadCursor(ctx, "cursor.rml")

  main:Show()
end
```

`initLibrocket` will be called for each context initialized.
`event.name` can be used to distinguish different contexts and render different set of views for each of them.

1.5.3 Subscribing For Key Events

```
function handleKeyEvent(e)
  if e.type == KeyboardEvent.KEY_UP then
    -- handle any key up
  end

  if e.key == Keys.KC_T and e.type == KeyboardEvent.KEY_DOWN then
    -- handle pressing T key
  end
end

event:onKeyboard(core, KeyboardEvent.KEY_DOWN, handleKeyEvent)
event:onKeyboard(core, KeyboardEvent.KEY_UP, handleKeyEvent)
```

1.5.4 Handling Scene Object Selection

```
local function onSelect(e)
  local target = eal:getEntity(e.entity)
  if not target then
    return
  end

  ogreView:setGizmoTarget(target)
```

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```
end

-- generic approach
event:bind(core, SelectEvent.OBJECT_SELECTED, onSelect)
```

1.5.5 Pipeline Setup

TBD: when ogre 2.1 support is added

1.6 Entity

1.6.1 Entity Format

Each entity consists of several components.

Each component can communicate with adjacent component through entity. Each component belongs to one system and stores state of the entity for that system.

For example, for render system:

```
"render": {
  "root": {
    "position": "0,0,0",
    "rotation": "1,0,-1,0",
    "scale": "1,1,1",
    "children": [{
      "type": "model",
      "mesh": "castle.mesh",
      "name": "castle",
      "castShadows": true
    }]
  }
}
```

The component stores information about nodes: `"root"` is always root node of the component. It has `"position"`, `"rotation"` and other props, typical for render system. `"children"` here can store the list of various visual children:

- models.
- billboards.
- particle systems.
- and others.

There are different kinds of systems. Script component data can look like this:

```
"script":
{
  "setupScript": "@File:characters/scripts/ninja.lua",
  "behavior": "dumbMonster"
}
```

The engine is highly extensible, so it's easy to add any new kind of system. Each system is installed in the engine with the unique string id. The same id is used to match the system where the entity should be created.

That way, engine will find system by the name `"script"` and will create new component there using parameters, which are defined for it in the entity description.

For example for the **script** component type it will call `Gsage::Engine::createComponent()` with `type = "script"` and dict:

```
{
  "setupScript": "@File:characters/scripts/ninja.lua",
  "behavior": "dumbMonster"
}
```

Then it will add the pointer to the created component to the entity object.

1.6.2 Lifecycle

On each update, each component state can be updated. Engine iterates and updates all the systems and each system iterates and updates each component it owns.

Each component can be altered during engine operation. For example, render component can update it's position or change model. Movement can change speed.

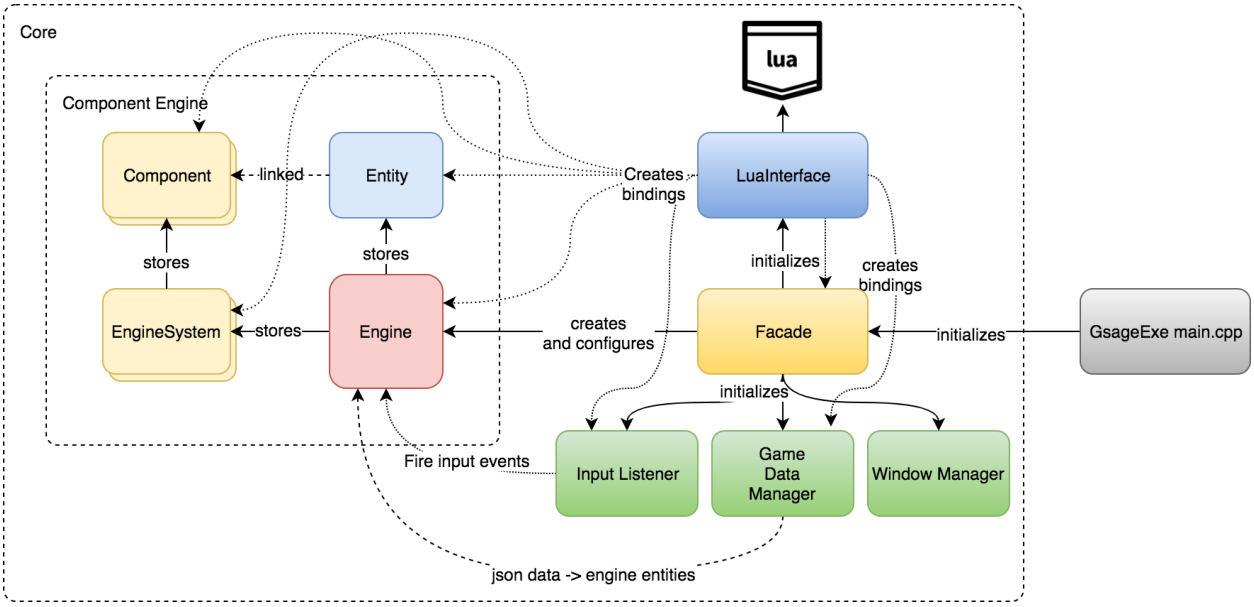
1.6.3 Entity Add Flow

1. `Gsage::Engine` creates `Gsage::Entity` in the pool of entities. All entities are stored in the `Gsage::Engine`.
2. Engine iterates through the list of keys of `Gsage::Entity`, finds appropriate system by string `id` and allocates a component there.
3. Each system allocates the component in the pool and configures created component with `Gsage::DataProxy` that came from `Gsage::Engine`.

1.6.4 Entity Remove Flow

1. `Gsage::Engine` finds `Gsage::Entity` by id and iterates through all it's components.
2. `Gsage::Engine` removes each component by pointer it got from `Gsage::Entity`.
3. `Gsage::ComponentStorage` deallocates component.
4. `Gsage::Engine` removes entity from pool when all components are deleted.

1.7 Internals



1.7.1 Terminology

- **component** — building block for the `Gsage::Entity`. Constructing `Entity` from different components will make it have different features.
- **system** — part of the `Gsage::Engine`. Implements some gaming logic, manages corresponding **component** pool.
- **manager** — logic, that goes out of **system** boundary, is wrapped into a **manager**. For example: UI, Input, Windowing.

1.8 Custom Systems

1.8.1 Writing a Component

You should create a new class, which is derived from `Gsage::EntityComponent`, then define static `SYSTEM` field in the created component class. This field will define the id which will be used for this component and the system.

The component is derived from the `Gsage::Serializable`, so it can be easily configured to read and write it's state into `json/mspack`. More information about serialization *Serialize Classes*.

If everything is defined properly, `Gsage::GameDataManager` will handle state saving and restoring for the newly created component.

1.8.2 Engine System

Each Gsage Engine system should implement at least `Gsage::EngineSystem` interface.

To make system work, you should implement several methods.

Abstract Methods

- `Gsage::EngineSystem::update()` - called on each engine update.
- `Gsage::EngineSystem::createComponent()` - create component in the system.
- `Gsage::EngineSystem::removeComponent()` - remove component from the system.
- `Gsage::EngineSystem::unloadComponents()` - unload all components from the system.

This interface should be convenient to use for all systems that have components. It's not if you want system without components.

For that, you can use `Gsage::UpdateListener` interface.

If you want to add which does not need `update` but has components, then you'll have to make stub implementation for the `Gsage::EngineSystem::update()` method.

It would be nice to have a separate interface & pool for such systems so there is a task for that.

Also, each system must have static field `ID`, which defines it's string identifier for the `Gsage::SystemManager`.

Optional Methods

- `Gsage::EngineSystem::initialize()` - handle initial configs in this method.
- `Gsage::EngineSystem::configure()` - can be called if any level has different configs.

Don't forget to call base class implementation in each override, otherwise `Gsage::EngineSystem::mConfig` will be unset.

Fields

- `Gsage::EngineSystem::mEngine` - engine instance.
- `Gsage::EngineSystem::mConfig` - dictionary the current system configs.

1.8.3 Component Storage

There is also another class, which can be used as a base class for the system: `ComponentStorage`.

This class helps you to handle component allocation, iteration, initialization.

It has only one pure virtual method `Gsage::ComponentStorage::updateComponent()`. This method is called for each component in the system.

Optional Methods

- `Gsage::ComponentStorage::prepareComponent()` - call it for some precondition logic handling.
- `Gsage::ComponentStorage::fillComponentData()` - this method can be used to configure the component.

1.8.4 Registering a New System

Newly created system can be registered in the facade by a simple call. Just call `Gsage::GsageFacade::addSystem()` with the new system. You can do it at any time and engine will initialize this system properly.

Example:

```
facade.addSystem<Gsage::LuaScriptSystem>();
```

There is also another way to register new type of the system by using *Gsage::GsageFacade::registerSystemFactory*.

```
facade.registerSystemFactory<Gsage::LuaScriptSystem>("luaSystem");
```

After registering system this way, it will be possible to tell engine to create it using game config `systems` field:

```
...
"systems": ["luaSystem"]
...
```

Important: This solution is more flexible as it allows engine to create such systems at the runtime.

1.8.5 Further steps

- After you've created the new system, you may want to expose some methods to the lua. See *Lua Bindings*, *Bind Engine Systems* and *Bind Entity Components* for more details.
- You may also want to wrap this new system into a plugin. See *Plugin System* for more details.

1.9 Lua Bindings

`Gsage::GsageFacade::initialize()` initializes Lua state in the engine. This is a single global Lua state for the whole engine (At least for now it's single).

`Gsage::LuaInterface` binds the Core bindings:

- bindings for entity and engine wrappers.
- `Gsage::GsageFacade` bindings like `Gsage::GsageFacade::shutdown()`.
- `Gsage::GameDataManager` bindings.
- and others.

Sol2 library is used for Lua bindings.

Besides bindings, `LuaInterface` initializes global variables:

- `core` - `Gsage::Engine` instance.
- `game` - `Gsage::GsageFacade` instance.
- `data` - `Gsage::GameDataManager` instance.
- `log` - provides easylogging++ API to lua.

Any script can be executed by calling `Gsage::LuaInterface::runScript()`. `startupScript` configuration variable can be used to define script which will be executed after `Gsage::GsageFacade` initialization.

`LuaInterface` also runs packager script.

1.9.1 Bindings Guidelines

All Core bindings are located in the `LuaInterface` file. If any plug-in needs to add some Lua bindings, it should override `Gsage::IPlugin::setupLuaBindings` method. Plug-in can access Lua state by using `mLuaInterface->getSolState()` function. It will return pointer to `sol::state_view`.

Note: Note that the pointer to Sol2 state can be `0` if the `LuaInterface` was not initialized by calling `Gsage::LuaInterface::initialize()`.

Bind Engine Systems

If you create a new engine system, you may want to access it from Lua. Systems can be added dynamically at any point and `Gsage::Engine` functions should be updated in the runtime:

```
lua["Engine"]["script"] = &Engine::getSystem<LuaScriptSystem>;
```

This way, when a plugin registers a new system, it will also update `Gsage::Engine` to have getter for this system: `core:script()`.

So, if you add a new system, you will need to create a new binding like this:

```
lua.new_usertype<KittySystem>("KittySystem"
  "getKitten", &KittySystem::getKitten
);

lua["Engine"]["kitty"] = &Engine::getSystem<KittySystem>;
```

After you make this binding, you will be able to get the system instance:

```
s = core:kitty()
s:getKitten()
```

Bind Entity Components

When registering a new Component, you should also update `Gsage::Entity` functions and add the getter for the new Component in the same way as for the new System, but instead of `Engine` binding, you should use `Entity`:

```
lua.new_usertype<KittyComponent>("KittyComponent"
  "meow", &KittyComponent::meow
);

lua["Entity"]["kitty"] = &Entity::getComponent<KittyComponent>;
```

After that it will be possible to get Component from Entity instance by using newly registered getter:

```
e = eal:getEntity("cat")
cat.kitty:meow()
```

Bind Events

Events can be handled in Lua script in two ways:

- `event:bind(...)` will bind generic callback. You can use it if you do not need upcasting from `Gsage::Event` to derived event type.
- `event:<handlerID>(...)` will bind callback specifically for some concrete type of event.

If you use bind, you will not be able to access derived class methods or variables:

```
local onSelect = function(event)
  print(e.hasFlags) -- prints nil
end

event:bind(core, "objectSelected", onSelect)
```

To listen for any specific event type use *event:<handlerID>*.

`handlerID` is defined when binding a new event type:

```
registerEvent<SelectEvent>("SelectEvent",
    "onSelect", // <-- handlerID
    sol::base_classes, sol::bases<Event>(),
    "hasFlags", &SelectEvent::hasFlags,
    "entity", sol::property(&SelectEvent::getEntityId),
);
```

To handle `Gsage::SelectEvent` in Lua:

```
local onSelect = function(event)
  -- you will be able to access derived class methods
  print(e:hasFlags(OgreSceneNode.DYNAMIC))
end

event:onSelect(core, "objectSelected", onSelect)
```

1.10 Plugin System

Gsage Engine supports plugins, which can be installed at the runtime. Each plugin can be wrapped into dynamically linked library or shared library (.so/.dynlib/.dll)

Plugin loader is borrowed from the Ogre project `DynLib.h`.

All plugins installed into the system should have unique id.

- `Gsage::GsageFacade::loadPlugin()` can be used to install plugin from a shared library.
- `Gsage::GsageFacade::installPlugin()` can be called with instantiated plugin object.
- `Gsage::GsageFacade::uninstallPlugin()` removes installed plugin.
- `Gsage::GsageFacade::unloadPlugin()` unloads shared library.

1.10.1 Writing a Plugin

Each plugin should implement `IPlugin` interface.

Abstract Methods

- `Gsage::IPlugin::getName()` - this method should return unique string id of the plugin.
- `Gsage::IPlugin::installImpl()` - should contain plugin initialization logic.
- `Gsage::IPlugin::uninstallImpl()` - should contain plugin destruction logic.

`installImpl` can register UI/Window manager factories, add new SystemFactories or add a system to the Engine. `uninstallImpl` should properly uninstall plugin from the facade: remove the system, unregister lua bindings or unregister UI/Window manager.

Important: Though it is possible to define bindings in the `installImpl` method, there is another method for this: `Gsage::IPlugin::setupLuaBindings()`. Bindings may work properly if defined in `installImpl`, but if Lua state will be recreated by the `LuaInterface`, bindings will be lost.

While implementing a plugin, you should also add couple `extern "C"` methods, which will be called from the `GsageFacade` after plugin dynamic library was loaded:

- `dllStartPlugin`.
- `dllStopPlugin`.

Example:

```
// from OgrePlugin.h

...

#if GSAGE_PLATFORM == GSAGE_WIN32
#ifdef PLUGIN_EXPORT
#define PluginExport __declspec (dllexport)
#else
#define PluginExport __declspec (dllimport)
#endif
#else
#define PluginExport
#endif

...
```

```
// from OgrePlugin.cpp
...

bool OgrePlugin::installImpl()
{
  mEngine->addSystem<OgreRenderSystem>();
  mEngine->addSystem<RecastMovementSystem>();
  return true;
}

void OgrePlugin::uninstallImpl()
{
  mEngine->removeSystem("render");
  mEngine->removeSystem("movement");
}

OgrePlugin* ogrePlugin = NULL;
```

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```
extern "C" bool PluginExport dllStartPlugin(GsageFacade* facade)
{
  if(ogrePlugin != NULL)
  {
    return false;
  }
  ogrePlugin = new OgrePlugin();
  return facade->installPlugin(ogrePlugin);
}

extern "C" bool PluginExport dllStopPlugin(GsageFacade* facade)
{
  if(ogrePlugin == NULL)
    return true;

  bool res = facade->uninstallPlugin(ogrePlugin);
  if(!res)
    return false;
  delete ogrePlugin;
  ogrePlugin = NULL;
  return true;
}

...
```

Set Up Lua Bindings

- `Gsage::IPlugin::setupLuaBindings()` - should contain all Lua bindings.

This method will be called again if `lua_State` was recreated.

Example:

```
...

void OgrePlugin::setupLuaBindings() {
  if (mLuaInterface && mLuaInterface->getState())
  {
    sol::state_view lua = *mLuaInterface->getSolState();

    // Ogre Wrappers

    lua.new_usertype<OgreObject>("OgreObject",
        "type", sol::property(&OgreObject::getType)
    );

    ...

    lua.new_usertype<Ogre::Quaternion>("Quaternion",
        sol::constructors<sol::types<const Ogre::Real&, const Ogre::Real&, const␣
↪Ogre::Real&, const Ogre::Real&>, sol::types<const Ogre::Radian&, const␣
↪Ogre::Vector3&>>(),
        "w", &Ogre::Quaternion::w,
        "x", &Ogre::Quaternion::x,
        "y", &Ogre::Quaternion::y,
```

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```
        "z", &Ogre::Quaternion::z,
        sol::meta_function::multiplication,␣
↪(Ogre::Quaternion(Ogre::Quaternion::*)(const Ogre::Quaternion&)const)  &
↪Ogre::Quaternion::operator*
    );

    lua.new_usertype<Ogre::Radian>("Radian",
        sol::constructors<sol::types<float>>()
    );

    lua.new_usertype<OgreSelectEvent>("OgreSelectEvent",
        sol::base_classes, sol::bases<Event, SelectEvent>(),
        "intersection", sol::property(&OgreSelectEvent::getIntersection),
        "cast", cast<const Event&, const OgreSelectEvent&>
    );

    lua["Engine"]["render"] = &Engine::getSystem<OgreRenderSystem>;
    lua["Engine"]["movement"] = &Engine::getSystem<RecastMovementSystem>;

    lua["Entity"]["render"] = &Entity::getComponent<RenderComponent>;
    lua["Entity"]["movement"] = &Entity::getComponent<MovementComponent>;

    ...

  }
}

...
```

1.11 Custom Input Handler

New handler should be registered in the `Gsage::GsageFacade` by calling `Gsage::GsageFacade::registerInputFactory()`. As you can get from the method specialization, you should pass class which implements interface `Gsage::AbstractInputFactory`.

Any concrete factory should create input handlers that implement interface `Gsage::InputHandler`.

Input factory will requested to create new handler for each created window. After creation, this handler will receive all resize and close events.

`Gsage::OisInputFactory` can be taken as a good starting point for a new input implementation.

```
InputHandler* OisInputFactory::create(size_t windowHandle, Engine* engine)
{
  return new OisInputListener(windowHandle, engine);
}
```

1.12 Serialize Classes

1.12.1 Bindings

`Gsage::Serializable` is a convenient base class which can be used to tell Gsage Engine how the cpp object, which does not have any reflection and dynamic properties/methods lookup, can be converted into a

`Gsage::DataProxy`.

`Gsage::DataProxy` can be converted to `json`, `msgpack` and `sol::table`. Lua can pass `sol::table` directly into the engine and it will be wrapped by the `Gsage::DataProxy`. `json` and `msgpack` serialization will automatically try to convert all complex types to primitive type. When converting to `sol::table`, no conversion will take place, so if it is required to use field that stores a complex type in lua, this type should be registered in lua bindings. When converting `sol::table` to `Gsage::DataProxy`, it will try convert primitive types to complex. However, it is better to initialize the fields as complex types in Lua, as it will work faster.

When you derive class from the `Gsage::Serializable`, you should tell it what kind of properties you want to dump and read and how.

There are several macros for that:

Warning: doxygendefine: Cannot find define "BIND_PROPERTY" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_PROPERTY_WITH_PRIORITY" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_PROPERTY_OPTIONAL" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_ACCESSOR" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_ACCESSOR_WITH_PRIORITY" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_ACCESSOR_OPTIONAL" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_GETTER" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_GETTER_OPTIONAL" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_SETTER_OPTIONAL" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_READONLY_PROPERTY" in doxygen xml output for project "gsage" from directory: xml/

Warning: doxygendefine: Cannot find define "BIND_WRITEONLY_PROPERTY" in doxygen xml output for project "gsage" from directory: xml/

There are various places in code, where you can check out how these methods are used. For example, from `Gsage::RenderComponent`:

```
BIND_ACCESSOR_OPTIONAL("resources", &RenderComponent::setResources, &
↪RenderComponent::getResources);
BIND_GETTER("root", &RenderComponent::getRootNode);
BIND_GETTER("animations", &RenderComponent::getAnimations);
```

Or *Gsage::SceneNodeWrapper*:

```
BIND_PROPERTY("offset", &mOffset);

BIND_ACCESSOR("orientationVector", &SceneNodeWrapper::setOrientationVector, &
↪SceneNodeWrapper::getOrientationVector);
BIND_ACCESSOR("name", &SceneNodeWrapper::createNode, &SceneNodeWrapper::getId);
BIND_ACCESSOR("position", &SceneNodeWrapper::setPosition, &
↪SceneNodeWrapper::getPosition);
BIND_ACCESSOR("scale", &SceneNodeWrapper::setScale, &SceneNodeWrapper::getScale);
BIND_ACCESSOR("rotation", &SceneNodeWrapper::setOrientation, &
↪SceneNodeWrapper::getOrientation);
BIND_ACCESSOR("children", &SceneNodeWrapper::readChildren, &
↪SceneNodeWrapper::writeChildren);
```

1.12.2 Read and Dump

After the bindings are defined, it will be possible to use `Gsage::Serializable::dump()` and `Gsage::Serializable::read()` functions.

- `Gsage::Serializable::read()` - will allow to convert `Gsage::DataProxy` to the class. It will return `false` if any of non-Optional field is missing from the dict.
- `Gsage::Serializable::dump()` - will allow to convert the class `Gsage::DataProxy`.

1.13 Engine Abstraction Layer

As systems, that are installed from plugins most definetely will have different set of Lua bindings, Gsage Engine has Lua abstraction layer, that can be used to unify interfaces for different kinds of systems.

EAL helps to tie Lua code to the engine entities. Besides that EAL allows extensive code reuse between different objects.

The idea is pretty simple, each engine entity can have defined:

- A single `class` type.
- Several `mixin` s.
- Each component can also trigger EAL to add more Lua logic.

1.13.1 Defining an Extension

Extension is a function that accepts a class prototype as a first parameter.

```
local function extension(cls)

end
```

Then it is possible any amount of additional methods in that function.

```
local function extension(cls)
  function cls:moveToOrigin()
    self.render:setPosition(0, 0, 0)
  end
end
```

Besides defining custom methods, it is also possible to define `setup` and `teardown` methods. They are pretty similar to constructor/destructor methods, but there can be more than one `setup` and `teardown`.

```
local function extension(cls)
  ...
  cls.onCreate(function(self)
    self.someVariable = 1
  end)

  cls.onDestroy(function(self)
    print(tostring(self.id) .. " was destroyed")
  end)
  ...
end
```

To add this extension to the system, it is required to call `extend` method.

```
eal:extend({mixin = "extension"}, extension)
```

Now everything combined will look like that:

```
local eal = require 'eal.manager'

local function extension(cls)
  cls.onCreate(function(self)
    self.someVariable = 1
  end)

  cls.onDestroy(function(self)
    print(tostring(self.id) .. " was destroyed")
  end)

  function cls:moveToOrigin()
```

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```
    self.render:setPosition(0, 0, 0)
  end
end

eal:extend({mixin = "extension"}, extension)
```

In this example, extension is created as a mixin. Then, to use this extension for an entity, it is required to modify it's JSON data.

```
{
  "id": "something",
  "props": {
    "mixins": ["extension"] // adding a mixin
  }
  "render": {
    "root": {
    }
  }
}
```

After all these manipulations you should be able to use this EAL interface:

```
local e = eal:getEntity("something")
-- our extension method
e:moveToOrigin()
-- the variable set in set up should be accessible
assert(e.someVariable == 1)
```

1.13.2 Supported Types of Extensions

System

System wide extensions. Allows applying extension for all entities that have a component of a system `system` with subtype `type`.

Extending EAL:

```
eal:extend({system="render", type="ogre"}, extension)
```

There is no need to modify entity data as this extension will be applied system wide: each entity with component of system `render` with subtype `ogre` will have this extension applied.

Class

When there is no need to stick to any particular system type, but it's still required to distinguish different system `subtype`, it is better to use the class extension. Though it is also possible to define a class without a strict requirement of system type.

```
-- enable this extension only when render system type is "ogre"
eal:extend({class = {name = "camera", requires = {render = "ogre"}}}, extension)
```

Using it in the entity data:

```
{
  ...
  "props": {
    "class": "camera"
  }
  ...
}
```

Mixin

Mixin allows defining multiple different extensions for a single entity that are not tied to any specific system. It is better to define only the highest level logic in the mixin. Do not create too many mixins as it may hit the performance.

Important: As it is possible to make a composition of extensions of different kinds, it is necessary to know the order they are applied. First go system level extensions. Then class extension. Then mixins in order, defined in the json array.

1.14 Custom Window Manager

Gsage Engine allows you to implement new windowing managers.
Current main windowing system is SDL.
`WindowManager` is optional, it is possible to let render system create windows on it's own.

Steps to register new `WindowManager`:

1. Inherit `Gsage::WindowManager` interface. Implement abstract methods:
    - `Gsage::WindowManager::initialize()`.
    - `Gsage::WindowManager::createWindow()`.
    - `Gsage::WindowManager::destroyWindow()`.
2. Inherit *`Gsage::Window`* interface. Implement abstract methods:
    - `Gsage::WindowManager::getWindowHandle()` should return native OS window handle.
    - `Gsage::WindowManager::getGLContext()` should return open GL pointer. Return 0 if not needed.
3. Add register, unregister methods in the plugin:

```
...

bool MyPlugin::installImpl() {
  mFacade->registerWindowManager<MyWindowManager>("MyWindowManager");
  return true;
}

...
```

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```
void MyPlugin::uninstallImpl() {
  mFacade->removeWindowManager("MyWindowManager");
}
```

4. Make Gsage load the Plugin and switch to the new WindowManager:

```
...
"windowManager": {
  "type": "MyWindowManager"
}

...
"plugins":
[
...
"MyPlugin"
...
]
```

1.15 Using Another Render System

Writing the plugin which introduces another `RenderSystem` is pretty complicated thing to do, because many other plugins usually depend on `RenderSystem` implementation.

The most annoying thing is to write all UIManager adapters for newly implemented `RenderSystem`. Besides that, it is required to wrap all scene objects into serializable classes.

TODO: describe what interfaces to implement TODO: describe how to use generic 3D primitives

1.15.1 Implementing 2D Render System

TODO: never done that yet, so hard to describe it yet

1.15.2 Using EAL

EAL can help to simplify migration from one render system to another. Or make Lua code written for one `RenderSystem` work with another `RenderSystem` without any changes.

TODO: more details

1.15.3 Implement Factories

If it is impossible to use the same data structure for render component of the new system, it is possible to achieve compatibility by using different set of factories for different systems.

This way it will be possible to make it use the same interface, having different implementation underneath.

1.16 Ogre Plugin

Plugin Name: `OgrePlugin`

Only one version of OGRE can be built simultaneously. E.g. you can't build both 2.1 and 1.9 plugins at the same time.

1.16.1 Common Features

1.16.2 1.9.0

This version is still used by default, no additional build parameters are required to select this version.

Supported rendering subsystems:

- Direct3D9 Rendering Subsystem
- OpenGL Rendering Subsystem

Custom pipeline setup is not there yet. Editor starts, but it crashes when trying to load the scene:

- Direct3D11 Rendering Subsystem

1.16.3 1.10.0

Will be used instead of 1.9.0 in future. 1.9.0 support will be dropped.

1.16.4 2.1.0

To build against OGRE 2.1.

Using makefile:

```
# bash
OGRE_VERSION=2.1.0 make build

# windows shell
set OGRE_VERSION=2.1.0
make.exe build
```

Conan commands:

```
conan install -g cmake -s build_type=Release -o gsage:with_ogre=2.1.0 --
↪build=outdated .
conan build .
```

Supported rendering subsystems:

- OpenGL 3+ Rendering Subsystem
- Metal Rendering Subsystem (OSX only)

1.17 Dear ImGUI Plugin

Plugin Name `ImGUIPlugin`

ImGUI is used only for game development utilities. It may be possible to use it for the game interface but it may lack some functional.

Important: built-in ImGui::Image(...) is not supported. There is no support for images yet, but it should be possible to implement images basing on *Gsage::OgreView*.

1.17.1 Creating ImGUI Views in Lua

All ImGui views manipulation must be done using `imguiInterface`. Registering a simple view is pretty straightforward:

```
local imguiInterface = require 'imgui.base'

if imguiInterface:available() then

  -- simple function
  imguiInterface:addView("window", function()
    imgui.TextWrapped("Hello world")
  end, true)
end
```

It is possible to use Lua class for some complicated views:

```
local imguiInterface = require 'imgui.base'

-- imgui engine stats view
Stats = class(ImguiWindow, function(self, title, docked, open)
  ImguiWindow.init(self, title, docked, open)
  self.fps = 0
  self.frames = 0
  self.elapsedTime = 0
  self.monitor = ResourceMonitor.new(0.1)
  self.stats = self.monitor.stats

  self.handleTime = function(delta)
    self.frames = self.frames + 1
    self.elapsedTime = self.elapsedTime + delta
    if self.elapsedTime >= 1 then
      self.fps = self.frames
      self.frames = 0
      self.elapsedTime = 0
    end
  end
  game:addUpdateListener(self.monitor)
  time.addHandler("stats", self.handleTime, true)
end)

-- render stats
function Stats:__call()
  if self:imguiBegin() then
    imgui.Text("FPS:" .. self.fps)
    imgui.Text("CPU:" .. math.floor(self.stats.lastCPU * 100))
    self:imguiEnd()
  end
end

if imguiInterface:available() then
```

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```
  local stats = Stats("stats", true)
  imguiInterface:addView("window", stats)
end
```

Note that this view inherits `ImguiWindow`. This allows this view to be configured as dockable window by setting `docked` parameter to `true`.

ImGui Lua Interface

ImGui interface for Lua differs from the what there is for C++. ImGui relies on pointers to bool, float and other types, but there is no way to pass pointer to primitive types from Lua to C++.

Refer to `PlugIns/ImGUI/include/ImguiLuaInterface.h` file to see the list of all available methods.

There are some additional utility classes for Ogre:

class OgreView : **public** EventSubscriber<*OgreView*>
Allows displaying ogre camera into imgui window.

Lua usage example:

```
-- create ogre viewport
viewport = imgui.createOgreView("#000000FF")

local textureID = "myOgreView"

-- render camera to texture
local cam = camera:create("free")
cam:renderToTexture(textureID, {
  autoUpdated = false
})

-- set ogre view texture
viewport:setTextureID(textureID)
-- update on each imgui render call
viewport:render(320, 240)
```

class Gizmo : **public** EventSubscriber<*Gizmo*>
Transformation *Gizmo*, supports move, scale and rotate operations.

Lua usage example:

```
-- create gizmo
gizmo = imgui.createGizmo()

-- setting target
local render = eal:getEntity("test").render
if render == nil then
  exit(1)
end
gizmo:addTarget(render.root)

-- enable
gizmo:enable(true)

-- render on each ImGUI cycle
gizmo:render(0, 0, 320, 240)
```

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```
-- changing mode
gizmo.mode = imgui.gizmo.WORLD

-- changing operation
gizmo.operation = imgui.gizmo.ROTATE

-- draw coordinates editor for this gizmo
-- it is separate to make it possible to draw it in the separate window
gizmo:drawCoordinatesEditor(1, 0, 0, "%.3f", 1,
"position",
"scale",
"rotation")
```

class ImGuiDockspaceRenderer

Dockspace for ImGUI.

Provides alternate methods for `Begin` and `End`. Docked view should be surrounded by `BeginDock` and `EndDock` methods.

```
local flags = 0
local active, open = imgui.BeginDockOpen("test", true, flags)
if active and open then
  -- render some view here
  imgui.TextWrapped("Hello World!")
end
imgui.EndDock()
```

Saving and loading dockspace state:

```
-- save dock state (will get lua table)
local savedState = imgui.GetDockState()

...

-- restore dock state
imgui.SetDockState(savedState)
```

Additional imgui global variables:

- `imgui.render` *Gsage::ImguiRenderer* instance.
- `imgui.dockspace` *Gsage::ImGuiDockspaceRenderer* instance.

1.18 LibRocket Plugin

Plugin Name: `RocketUIPlugin`

TODO: examples, more description

1.19 SDL Plugin

Plugin Name: `SDLPlugin`

SDL Plugin registers *Gsage::SDLWindowManager* and *Gsage::SDLInputListener*.

1.20 Recast Navigation Plugin

Plugin Name: `RecastNavigationPlugin`

All render systems should inherit `Gsage::RenderSystem` and implement `Gsage::RenderSystem::getGeometry()` function.

When `Gsage::RecastNavigationPlugin` tries to build navmesh, it gets this raw 3D scene information from the `RenderSystem`.

TODO: describe some examples.

1.21 Class list

1.21.1 Class Gsage::Animation

class Animation
Class that wraps ogre animation state, adds speed definition

1.21.2 Class Gsage::AnimationController

class AnimationController
Animation controller

1.21.3 Class Gsage::AnimationGroup

class AnimationGroup
Container for several animations

1.21.4 Class Gsage::AnimationScheduler

class AnimationScheduler : **public** Serializable<*AnimationScheduler*>
Class that reads all animation information, configures states, then manages all animations playback

1.21.5 Class Gsage::BillboardSetWrapper

class BillboardSetWrapper : **public** *Gsage*::*MovableObjectWrapper*<OgreV1::BillboardSet>

1.21.6 Class Gsage::BillboardWrapper

class BillboardWrapper : **public** Serializable<*BillboardWrapper*>

1.21.7 Class Gsage::CameraWrapper

class CameraWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Camera>, **public** Listener

1.21.8 Class Gsage::CustomPass

class CustomPass : **public** CompositorPass
Subclassed by *Gsage::OverlayPass*

1.21.9 Class Gsage::CustomPassDef

class CustomPassDef : **public** CompositorPassDef
Subclassed by *Gsage::OverlayPassDef*

1.21.10 Class Gsage::CustomPassProvider

class CustomPassProvider : **public** CompositorPassProvider

1.21.11 Class Gsage::Dock

class Dock

1.21.12 Class Gsage::EntityWrapper

class EntityWrapper : **public** *Gsage*::*MovableObjectWrapper*<OgreV1::Entity>

1.21.13 Class Gsage::Gizmo

class Gizmo : **public** EventSubscriber<*Gizmo*>
Transformation *Gizmo*, supports move, scale and rotate operations.

Lua usage example:

```
-- create gizmo
gizmo = imgui.createGizmo()

-- setting target
local render = eal:getEntity("test").render
if render == nil then
  exit(1)
end
gizmo:addTarget(render.root)

-- enable
gizmo:enable(true)

-- render on each ImGUI cycle
gizmo:render(0, 0, 320, 240)

-- changing mode
gizmo.mode = imgui.gizmo.WORLD

-- changing operation
gizmo.operation = imgui.gizmo.ROTATE
```

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```
-- draw coordinates editor for this gizmo
-- it is separate to make it possible to draw it in the separate window
gizmo:drawCoordinatesEditor(1, 0, 0, "%.3f", 1,
"position",
"scale",
"rotation")
```

1.21.14 Class Gsage::GsageOgrePlugin

class GsageOgrePlugin : **public** IPlugin

1.21.15 Class Gsage::HlmsUnlit

class HlmsUnlit : **public** *HlmsUnlit*

Extends *Ogre* standard *HlmsUnlit*

1.21.16 Class Gsage::HlmsUnlitDatablock

class HlmsUnlitDatablock : **public** *HlmsUnlitDatablock*

1.21.17 Class Gsage::IMovableObjectWrapper

class IMovableObjectWrapper : **public** *Gsage*::*OgreObject*

Provides templateless base class for *MovableObjectWrapper*

Subclassed by *Gsage::MovableObjectWrapper< T >*, *Gsage::MovableObjectWrapper< Ogre::Camera >*, *Gsage::MovableObjectWrapper< Ogre::Item >*, *Gsage::MovableObjectWrapper< Ogre::Light >*, *Gsage::MovableObjectWrapper< Ogre::ManualObject >*, *Gsage::MovableObjectWrapper< OgreV1::BillboardSet >*, *Gsage::MovableObjectWrapper< OgreV1::Entity >*

1.21.18 Class Gsage::ImGUIRenderable

class ImGUIRenderable : **public** Renderable

1.21.19 Class Gsage::ImGuiDockspace

class ImGuiDockspace

Imgui dockspace

1.21.20 Class Gsage::ImGuiDockspaceRenderer

class ImGuiDockspaceRenderer

Dockspace for ImGUI.

Provides alternate methods for `Begin` and `End`. Docked view should be surrounded by `BeginDock` and `EndDock` methods.

```
local flags = 0
local active, open = imgui.BeginDockOpen("test", true, flags)
if active and open then
  -- render some view here
  imgui.TextWrapped("Hello World!")
end
imgui.EndDock()
```

Saving and loading dockspace state:

```
-- save dock state (will get lua table)
local savedState = imgui.GetDockState()

...

-- restore dock state
imgui.SetDockState(savedState)
```

1.21.21 Class Gsage::ImageRenderer

class ImageRenderer : **public** *Gsage*::*Renderer*

Really simple image renderer

1.21.22 Class Gsage::ImguiDockspaceView

class ImguiDockspaceView : **public** *Gsage*::*ImguiViewCollection*

Renders window collection into workspace

1.21.23 Class Gsage::ImguiEvent

class ImguiEvent : **public** Event

1.21.24 Class Gsage::ImguiImage

class ImguiImage

1.21.25 Class Gsage::ImguiLuaInterface

class ImguiLuaInterface

1.21.26 Class Gsage::ImguiManager

class ImguiManager : **public** UIManager, **public** EventSubscriber<*ImguiManager*>, **public** *Gsage*::*ImguiViewCollection*

1.21.27 Class Gsage::ImguiMovableObject

class ImguiMovableObject : **public** MovableObject

1.21.28 Class Gsage::ImguiMovableObjectFactory

class ImguiMovableObjectFactory : **public** MovableObjectFactory
Factory object for creating *ImguiMovableObject* instances

1.21.29 Class Gsage::ImguiOgrePlugin

class ImguiOgrePlugin : **public** IPlugin

1.21.30 Class Gsage::ImguiOgreRenderer

class ImguiOgreRenderer : **public** EventSubscriber<*ImguiOgreRenderer*>, **public** *Gsage*::*ImguiRenderer*
Subclassed by *Gsage::ImguiRendererV1*, *Gsage::ImguiRendererV2*

1.21.31 Class Gsage::ImguiPlugin

class ImguiPlugin : **public** IPlugin

1.21.32 Class Gsage::ImguiRenderable

class ImguiRenderable : **public** Renderable

1.21.33 Class Gsage::ImguiRenderer

class ImguiRenderer
Subclassed by *Gsage::ImguiOgreRenderer*

1.21.34 Class Gsage::ImguiRendererV1

class ImguiRendererV1 : **public** *Gsage*::*ImguiOgreRenderer*

1.21.35 Class Gsage::ImguiRendererV2

class ImguiRendererV2 : **public** *Gsage*::*ImguiOgreRenderer*

1.21.36 Class Gsage::ImguiTextBuffer

class ImguiTextBuffer
Imgui buffer that can be used by lua

1.21.37 Class Gsage::ImguiViewCollection

class ImguiViewCollection
Subclassed by *Gsage::ImguiDockspaceView*, *Gsage::ImguiManager*

1.21.38 Class Gsage::ItemWrapper

class ItemWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Item>

1.21.39 Class Gsage::LightWrapper

class LightWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Light>

1.21.40 Class Gsage::ManualObjectWrapper

class ManualObjectWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::ManualObject>, **public** *Gsage*::*MovableObj*

1.21.41 Class Gsage::ManualTextureManager

class ManualTextureManager : **public** Listener

This class is used to handle manual texture management and update

1.21.42 Class Gsage::MaterialBuilder

class MaterialBuilder

1.21.43 Class Gsage::MaterialLoader

class MaterialLoader : **public** EventDispatcher, **public** EventSubscriber<*MaterialLoader*>

TODO: INDEXER

{ “filename”: { “checksum”: “...”, “changed”: “...”, “materials”: [] } }

for(auto& file : filesystem->ls(folder)) { if(filesystem->extension(file) != “material”) { continue; } } Custom OGRE material loader

1.21.44 Class Gsage::MovableObjectWrapper

template<typename **T**>
class MovableObjectWrapper : **public** *Gsage*::*IMovableObjectWrapper*

1.21.45 Class Gsage::ObjectMutation

class ObjectMutation

1.21.46 Class Gsage::OgreGeom

class OgreGeom : **public** Geom

1.21.47 Class Gsage::OgreLogRedirect

class **OgreLogRedirect** : **public** LogListener
Class, used to redirect all ogre output to the easylogging++

1.21.48 Class Gsage::OgreObject

class **OgreObject** : **public** Serializable<*OgreObject*>
Abstract ogre object

Subclassed by *Gsage::IMovableObjectWrapper*, *Gsage::ParticleSystemWrapper*, *Gsage::SceneNodeWrapper*

1.21.49 Class Gsage::OgreObjectManager

class **OgreObjectManager** : **public** EventDispatcher

1.21.50 Class Gsage::OgreObjectManagerEvent

class **OgreObjectManagerEvent** : **public** Event
Event related to factory lifecycle

1.21.51 Class Gsage::OgreObjectManager::ConcreteOgreObjectPool

template<typename **C**>
class **ConcreteOgreObjectPool** : **public** *Gsage*::*OgreObjectManager*::*OgreObjectPool*

1.21.52 Class Gsage::OgreObjectManager::OgreObjectPool

class **OgreObjectPool**

1.21.53 Class Gsage::OgreRenderComponent

class **OgreRenderComponent** : **public** EventDispatcher, **public** RenderComponent
Ogre render system component

1.21.54 Class Gsage::OgreRenderSystem

class **OgreRenderSystem** : **public** ComponentStorage<*OgreRenderComponent*>, **public** RenderQueueListener, **public** E

1.21.55 Class Gsage::OgreSelectEvent

class **OgreSelectEvent** : **public** SelectEvent

1.21.56 Class Gsage::OgreTexture

class **OgreTexture** : **public** Texture, **public** Listener
Implements abstract texture class Texture

1.21.57 Class Gsage::OgreTexture::AllocateScalingPolicy

class AllocateScalingPolicy : **public** *Gsage*::*OgreTexture*::*ScalingPolicy*

1.21.58 Class Gsage::OgreTexture::DefaultScalingPolicy

class DefaultScalingPolicy : **public** *Gsage*::*OgreTexture*::*ScalingPolicy*

1.21.59 Class Gsage::OgreTexture::ScalingPolicy

class ScalingPolicy

Subclassed by *Gsage::OgreTexture::AllocateScalingPolicy*, *Gsage::OgreTexture::DefaultScalingPolicy*

1.21.60 Class Gsage::OgreView

class OgreView : **public** EventSubscriber<*OgreView*>

Allows displaying ogre camera into imgui window.

Lua usage example:

```
-- create ogre viewport
viewport = imgui.createOgreView("#000000FF")

local textureID = "myOgreView"

-- render camera to texture
local cam = camera:create("free")
cam:renderToTexture(textureID, {
  autoUpdated = false
})

-- set ogre view texture
viewport:setTextureID(textureID)
-- update on each imgui render call
viewport:render(320, 240)
```

1.21.61 Class Gsage::OverlayPass

class OverlayPass : **public** *Gsage*::*CustomPass*

1.21.62 Class Gsage::OverlayPassDef

class OverlayPassDef : **public** *Gsage*::*CustomPassDef*

1.21.63 Class Gsage::ParticleSystemWrapper

class ParticleSystemWrapper : **public** *Gsage*::*OgreObject*

1.21.64 Class Gsage::RenderEvent

class RenderEvent : **public** Event
Event that is used to update any UI overlay system

1.21.65 Class Gsage::RenderSystemWrapper

class RenderSystemWrapper
Subclassed by *Gsage::RocketOgreWrapper*

1.21.66 Class Gsage::RenderTarget

class RenderTarget : **public** EventSubscriber<*RenderTarget*>
Subclassed by *Gsage::RttRenderTarget*, *Gsage::WindowRenderTarget*

1.21.67 Class Gsage::RenderTargetFactory

class RenderTargetFactory
Factory creates Ogre::RenderTarget wrapped into Gsage wrapper

1.21.68 Class Gsage::RenderTargetType

class RenderTargetType

1.21.69 Class Gsage::Renderer

class Renderer
Subclassed by *Gsage::ImageRenderer*

1.21.70 Class Gsage::RendererFactory

class RendererFactory

1.21.71 Class Gsage::ResourceManager

class ResourceManager

1.21.72 Class Gsage::RocketContextEvent

class RocketContextEvent : **public** Event

1.21.73 Class Gsage::RocketOgreWrapper

class RocketOgreWrapper : **public** EventSubscriber<*RocketOgreWrapper*>, **public** *Gsage*::*RenderSystemWrapper*

1.21.74 Class Gsage::RocketUIManager

class RocketUIManager : **public** UIManager, **public** EventSubscriber<*RocketUIManager*>

1.21.75 Class Gsage::RocketUIPlugin

class RocketUIPlugin : **public** IPlugin

1.21.76 Class Gsage::RttRenderTarget

class RttRenderTarget : **public** *Gsage*::*RenderTarget*

Wraps *Ogre* RT target

1.21.77 Class Gsage::SDLAudioSystem

class SDLAudioSystem

1.21.78 Class Gsage::SDLCore

class SDLCore : **public** UpdateListener

1.21.79 Class Gsage::SDLEventListener

class SDLEventListener

Subclassed by *Gsage::SDLInputListener*

1.21.80 Class Gsage::SDLInputFactory

class SDLInputFactory : **public** AbstractInputFactory

1.21.81 Class Gsage::SDLInputListener

class SDLInputListener : **public** InputHandler, **public** EventDispatcher, **public** *Gsage*::*SDLEventListener*

1.21.82 Class Gsage::SDLPlugin

class SDLPlugin : **public** IPlugin

1.21.83 Class Gsage::SDLRenderer

class SDLRenderer

Wraps SDL renderer and call updates on each engine update

1.21.84 Class Gsage::SDLWindow

class SDLWindow : **public** *Window*

1.21.85 Class Gsage::SDLWindowManager

class SDLWindowManager : **public** WindowManager
SDL Window Manager implementation

1.21.86 Class Gsage::SceneNodeWrapper

class SceneNodeWrapper : **public** *Gsage*::*OgreObject*, **public** EventSubscriber<*SceneNodeWrapper*>

1.21.87 Class Gsage::ViewportRenderData

class ViewportRenderData

1.21.88 Class Gsage::WindowEventListener

class WindowEventListener : **public** *WindowEventListener*
Proxy ogre window resize events to the engine

1.21.89 Class Gsage::WindowRenderTarget

class WindowRenderTarget : **public** *Gsage*::*RenderTarget*
Wrapped Ogre::RenderWindow

1.21.90 Class Gsage::WorkspaceEvent

class WorkspaceEvent : **public** Event
Fired when a new Ogre::CompositorWorkspace is created

1.21.91 Class MOC::CollisionTools

class CollisionTools

1.21.92 Class Ogre::ManualMovableTextRenderer

class ManualMovableTextRenderer : **public** ParticleSystemRenderer
Renderer that is used to create floating text particles, like damage

1.21.93 Class Ogre::ManualMovableTextRendererFactory

class ManualMovableTextRendererFactory : **public** ParticleSystemRendererFactory

1.21.94 Class Ogre::ManualMovableTextRenderer::CmdFontName

class CmdFontName : **public** ParamCommand

1.21.95 Class Ogre::MeshInformation

class MeshInformation
A single mesh information

1.21.96 Class Ogre::MeshTools

class MeshTools : **public** *Ogre*::Singleton<*MeshTools*>
Provides cached access to raw mesh data

1.21.97 Class Ogre::MovableText

class MovableText : **public** MovableObject, **public** Renderable, **public** FrameListener, **public** MovableObject, **publi**

1.21.98 Class Ogre::MovableTextFactory

class MovableTextFactory : **public** MovableObjectFactory
Factory object for creating *MovableText* instances

1.21.99 Class Ogre::MovableTextValue

class MovableTextValue : **public** ParticleVisualData
Movable text string

1.21.100 Class Ogre::TextNode

class TextNode
Class that represents created movable text node

1.21.101 Class RenderInterfaceOgre3D

class RenderInterfaceOgre3D : **public** RenderInterface
A sample render interface for Rocket into Ogre3D.

Modified by Brett Didemus to work with programable pipeline

Author Peter Curry

1.21.102 Class SystemInterfaceOgre3D

class SystemInterfaceOgre3D : **public** SystemInterface
A sample system interface for Rocket into Ogre3D.

Author Peter Curry

1.22 Struct list

1.22.1 Struct Gsage::ImGuiDockspaceState

`struct ImGuiDockspaceState`

1.22.2 Struct Gsage::ImGuiDockspaceState::Dockstate

`struct Dockstate`

1.22.3 Struct Gsage::ImGuiDockspaceStyle

`struct ImGuiDockspaceStyle`

1.22.4 Struct Gsage::ImguiRenderer::Context

`struct Context`

1.22.5 Struct Gsage::MaterialLoader::FileInfo

`struct FileInfo`

1.22.6 Struct Gsage::OgreObject::PendingPropertyUpdate

`struct PendingPropertyUpdate`

1.22.7 Struct ImGui::Gradient

`struct Gradient`
Subclassed by *ImGui::VerticalGradient*

1.22.8 Struct ImGui::VerticalGradient

`struct VerticalGradient` : `public` *ImGui*::*Gradient*

1.23 Namespace list

1.23.1 Namespace Gsage

`namespace Gsage`

Typedefs

typedef *RenderTarget* ***RenderTargetPtr**

typedef std::shared_ptr<*Renderer*> **RendererPtr**

typedef std::shared_ptr<*Dock*> **DockPtr**

Enums

enum DockSlotPreviewStyle

Values:

DockSlotPreviewFill = 0

DockSlotPreviewOutline = 1

enum ImGuiDockFlags

Values:

ImGuiDock_NoTitleBar = 1 << 0

ImGuiDock_NoResize = 1 << 1

Functions

static const *Ogre*::Vector3 **GsageVector3ToOgreVector3**(**const** *Gsage*::Vector3 &*vector*)

static const *Gsage*::Vector3 **OgreVector3ToGsageVector3**(**const** *Ogre*::Vector3 &*vector*)

static const *Ogre*::Quaternion **GsageQuaternionToOgreQuaternion**(**const** *Gsage*::Quaternion &*quaternion*)

static const *Gsage*::Quaternion **OgreQuaternionToGsageQuaternion**(**const** *Ogre*::Quaternion &*quaternion*)

static const *Ogre*::AxisAlignedBox **BoundingBoxToAxisAlignedBox**(**const** BoundingBox &*bbox*)

TYPE_CASTER(OgreDegreeCaster, *Ogre*::Degree, std::string)

TYPE_CASTER(OgreColourValueCaster, *Ogre*::ColourValue, std::string)

TYPE_CASTER(OgreVector3Caster, *Ogre*::Vector3, std::string)

TYPE_CASTER(OgreQuaternionCaster, *Ogre*::Quaternion, std::string)

TYPE_CASTER(OgreFloatRectCaster, *Ogre*::FloatRect, std::string)

TYPE_CASTER(OgrePixelFormatCaster, *Ogre*::PixelFormat, std::string)

TYPE_CASTER(RenderOperationTypeCaster, *Ogre*::RenderOperation::OperationType, std::string)

TYPE_CASTER(RenderTargetTypeCaster, *RenderTargetType*::Type, std::string)

unsigned long **WindowContentViewHandle**(SDL_SysWMinfo &*info*)

static DataProxy **dumpState**(*ImGuiDockspaceState state*)

static *ImGuiDockspaceState* **loadState** (DataProxy *dp*)

class Animation
#include <AnimationScheduler.h> Class that wraps ogre animation state, adds speed definition

class AnimationController
#include <AnimationScheduler.h> *Animation* controller

class AnimationGroup
#include <AnimationScheduler.h> Container for several animations

class AnimationScheduler : **public** Serializable<*AnimationScheduler*>
#include <AnimationScheduler.h> Class that reads all animation information, configures states, then manages all animations playback

class CustomPass : **public** CompositorPass
Subclassed by *Gsage::OverlayPass*

class CustomPassDef : **public** CompositorPassDef
Subclassed by *Gsage::OverlayPassDef*

class Gizmo : **public** EventSubscriber<*Gizmo*>
#include <Gizmo.h> Transformation *Gizmo*, supports move, scale and rotate operations.

Lua usage example:

```
-- create gizmo
gizmo = imgui.createGizmo()

-- setting target
local render = eal:getEntity("test").render
if render == nil then
  exit(1)
end
gizmo:addTarget(render.root)

-- enable
gizmo:enable(true)

-- render on each ImGUI cycle
gizmo:render(0, 0, 320, 240)

-- changing mode
gizmo.mode = imgui.gizmo.WORLD

-- changing operation
gizmo.operation = imgui.gizmo.ROTATE

-- draw coordinates editor for this gizmo
-- it is separate to make it possible to draw it in the separate window
gizmo:drawCoordinatesEditor(1, 0, 0, "%.3f", 1,
"position",
"scale",
"rotation")
```

class HlmsUnlit : **public** *HlmsUnlit*
#include <HlmsUnlit.h> Extends *Ogre* standard *HlmsUnlit*

class ImageRenderer : **public** *Gsage*::*Renderer*
#include <*Image.hpp*> Really simple image renderer

class ImGuiDockspace
#include <*ImGuiDockspace.h*> Imgui dockspace

class ImGuiDockspaceRenderer
#include <*ImGuiDockspace.h*> Dockspace for ImGUI.

Provides alternate methods for `Begin` and `End`. Docked view should be surrounded by `BeginDock` and `EndDock` methods.

```
local flags = 0
local active, open = imgui.BeginDockOpen("test", true, flags)
if active and open then
  -- render some view here
  imgui.TextWrapped("Hello World!")
end
imgui.EndDock()
```

Saving and loading dockspace state:

```
-- save dock state (will get lua table)
local savedState = imgui.GetDockState()

...

-- restore dock state
imgui.SetDockState(savedState)
```

class ImguiDockspaceView : **public** *Gsage*::*ImguiViewCollection*
#include <*ImguiManager.h*> Renders window collection into workspace

class ImguiMovableObjectFactory : **public** MovableObjectFactory
#include <*ImguiMovableObject.h*> Factory object for creating *ImguiMovableObject* instances

class ImguiOgreRenderer : **public** EventSubscriber<*ImguiOgreRenderer*>, **public** *Gsage*::*ImguiRenderer*
Subclassed by *Gsage::ImguiRendererV1*, *Gsage::ImguiRendererV2*

class ImguiRenderer
Subclassed by *Gsage::ImguiOgreRenderer*

class ImguiTextBuffer
#include <*ImguiLuaInterface.h*> Imgui buffer that can be used by lua

class ImguiViewCollection
Subclassed by *Gsage::ImguiDockspaceView*, *Gsage::ImguiManager*

class IMovableObjectWrapper : **public** *Gsage*::*OgreObject*
#include <*MovableObjectWrapper.h*> Provides templateless base class for *MovableObjectWrapper*

Subclassed by *Gsage::MovableObjectWrapper< T >*, *Gsage::MovableObjectWrapper< Ogre::Camera >*, *Gsage::MovableObjectWrapper< Ogre::Item >*, *Gsage::MovableObjectWrapper< Ogre::Light >*, *Gsage::MovableObjectWrapper< Ogre::ManualObject >*, *Gsage::MovableObjectWrapper< OgreV1::BillboardSet >*, *Gsage::MovableObjectWrapper< OgreV1::Entity >*

class ManualTextureManager : **public** Listener
#include <*ManualTextureManager.h*> This class is used to handle manual texture management and update

class MaterialLoader : **public** EventDispatcher, **public** EventSubscriber<*MaterialLoader*>
#include <*MaterialLoader.h*> TODO: INDEXER

{ "filename": { "checksum": "...", "changed": "...", "materials": [] } }

for(auto& file : filesystem->ls(folder)) { if(filesystem->extension(file) != "material") { continue; } } Custom OGRE material loader

class OgreLogRedirect : **public** LogListener
#include <*OgreRenderSystem.h*> Class, used to redirect all ogre output to the easylogging++

class OgreObject : **public** Serializable<*OgreObject*>
#include <*OgreObject.h*> Abstract ogre object

Subclassed by *Gsage::IMovableObjectWrapper*, *Gsage::ParticleSystemWrapper*, *Gsage::SceneNodeWrapper*

class OgreObjectManagerEvent : **public** Event
#include <*OgreObjectManager.h*> Event related to factory lifecycle

class OgreRenderComponent : **public** EventDispatcher, **public** RenderComponent
#include <*OgreRenderComponent.h*> *Ogre* render system component

class OgreTexture : **public** Texture, **public** Listener
#include <*ManualTextureManager.h*> Implements abstract texture class Texture

class OgreView : **public** EventSubscriber<*OgreView*>
#include <*OgreView.h*> Allows displaying ogre camera into imgui window.

Lua usage example:

```
-- create ogre viewport
viewport = imgui.createOgreView("#000000FF")

local textureID = "myOgreView"

-- render camera to texture
local cam = camera:create("free")
cam:renderToTexture(textureID, {
  autoUpdated = false
})

-- set ogre view texture
viewport:setTextureID(textureID)
-- update on each imgui render call
viewport:render(320, 240)
```

class Renderer
Subclassed by *Gsage::ImageRenderer*

class RenderEvent : **public** Event
#include <*RenderEvent.h*> Event that is used to update any UI overlay system

class RenderSystemWrapper
Subclassed by *Gsage::RocketOgreWrapper*

class RenderTarget : **public** EventSubscriber<*RenderTarget*>
Subclassed by *Gsage::RttRenderTarget*, *Gsage::WindowRenderTarget*

class RenderTargetFactory
#include <RenderTarget.h> Factory creates Ogre::RenderTarget wrapped into Gsage wrapper

class RttRenderTarget : **public** *Gsage*::*RenderTarget*
#include <RenderTarget.h> Wraps *Ogre* RT target

class SDLEventListener
Subclassed by *Gsage::SDLInputListener*

class SDLRenderer
#include <SDLRenderer.h> Wraps SDL renderer and call updates on each engine update

class SDLWindowManager : **public** WindowManager
#include <SDLWindowManager.h> SDL Window Manager implementation

class WindowEventListener : **public** *WindowEventListener*
#include <WindowEventListener.h> Proxy ogre window resize events to the engine

class WindowRenderTarget : **public** *Gsage*::*RenderTarget*
#include <RenderTarget.h> Wrapped Ogre::RenderWindow

class WorkspaceEvent : **public** Event
#include <WorkspaceEvent.h> Fired when a new Ogre::CompositorWorkspace is created

1.23.2 Namespace ImGui

namespace ImGui

Functions

IMGUI_API bool ImGui::Spinner(const char * label, float radius, int thickness, const I

static void **AddConvexPolyFilled**(ImDrawList **drawList*, **const** ImVec2 **points*, **const** int *points_count*, **const** *Gradient* &*gradient*)

static void **PathFillConvex**(ImDrawList **drawList*, **const** *Gradient* &*gradient*)

struct Gradient
Subclassed by *ImGui::VerticalGradient*

1.23.3 Namespace ImGuizmo

namespace ImGuizmo

Enums

enum OPERATION
Values:

TRANSLATE

ROTATE

SCALE

TRANSLATE

ROTATE

SCALE

BOUNDS

enum MODE

Values:

LOCAL

WORLD

LOCAL

WORLD

enum OPERATION

Values:

TRANSLATE

ROTATE

SCALE

TRANSLATE

ROTATE

SCALE

BOUNDS

enum MODE

Values:

LOCAL

WORLD

LOCAL

WORLD

Functions

```
IMGUI_API void ImGuizmo::BeginFrame()
IMGUI_API void ImGuizmo::EndFrame()
IMGUI_API bool ImGuizmo::IsOver()
IMGUI_API bool ImGuizmo::IsUsing()
IMGUI_API void ImGuizmo::Enable(bool enable)
IMGUI_API void ImGuizmo::DecomposeMatrixToComponents(const float * matrix, float * tra
IMGUI_API void ImGuizmo::RecomposeMatrixFromComponents(const float * translation, cons
IMGUI_API void ImGuizmo::SetRect(float x, float y, float width, float height)
IMGUI_API void ImGuizmo::DrawCube(const float * view, const float * projection, float
IMGUI_API void ImGuizmo::Manipulate(const float * view, const float * projection, OPER
IMGUI_API void ImGuizmo::SetDrawlist()
```

```
IMGUI_API void ImGuizmo::SetOrthographic(bool isOrthographic)
IMGUI_API void ImGuizmo::DrawCube(const float * view, const float * projection, const
IMGUI_API void ImGuizmo::DrawGrid(const float * view, const float * projection, const
```

1.23.4 Namespace MOC

namespace MOC

1.23.5 Namespace Ogre

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

class ManualMovableTextRenderer : **public** ParticleSystemRenderer

#include <*ManualMovableTextRenderer.h*> Renderer that is used to create floating text particles, like damage

class MeshInformation

#include <*MeshTools.h*> A single mesh information

class MeshTools : **public** *Ogre*::Singleton<*MeshTools*>

#include <*MeshTools.h*> Provides cached access to raw mesh data

class MovableTextFactory : **public** MovableObjectFactory

#include <*MovableText.h*> Factory object for creating *MovableText* instances

class MovableTextValue : **public** ParticleVisualData

#include <*ManualMovableTextRenderer.h*> Movable text string

class TextNode

#include <*ManualMovableTextRenderer.h*> Class that represents created movable text node

1.23.6 Namespace sol

namespace sol

1.24 File list

1.24.1 File AnimationScheduler.h

Defines

DEFAULT_FADE_SPEED

LOOP

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class Animation
#include <AnimationScheduler.h> Class that wraps ogre animation state, adds speed definition

Public Functions

Animation()

virtual ~Animation()

void **initialize**(OgreV1::AnimationState **state*)

void **update**(double *time*)
Calls Ogre::AnimationState addTime with adjusted speed

Parameters
- `time`: Time in seconds

void **enable**(double *time* = DEFAULT_FADE_SPEED)
Enables animation

Parameters
- `time`: Time to fade in

void **disable**(double *time* = DEFAULT_FADE_SPEED)
Disables animation

Parameters
- `time`: Time to fade out

float **getTimePosition**()
Gets current time position of anim

void **setTimePosition**(double *value*)
Sets current time position of anim

Parameters
- `value`: Time in seconds

float **getLength**()
Gets animation length

bool **getEnabled**()
Gets enabled

void **setEnabled**(bool *value*)
Change enabled animation state immediately

Parameters
- `value`: Enable anim

bool **getLoop**()
Gets loop enabled

void **setLoop**(bool *value*)
Sets loop value

Parameters
- `value`:

bool **hasEnded**()
Gets animation finished (if not looping)

double **getSpeed**()
Gets animation speed

void **setSpeed**(float *speed*)
Sets animation speed

bool **isInitialized**()
Animation has anim state

bool **isEnding**()
Animation is finite and fading out

bool **isFadingOut**()
Animation is disabled but is still fading

void **rewind**(double *offset* = 0)
Rewind animation to the beginning, depends on direction
Parameters
- `offset`: If speed >= 0: 0 + offset, else: length - offset

Private Members

OgreV1::AnimationState ***mAnimationState**

bool **mFadeIn**

bool **mFadeOut**

float **mFadeTime**

float **mSpeed**

Friends

friend Gsage::AnimationScheduler

class AnimationController
#include <AnimationScheduler.h> *Animation* controller

Public Functions

AnimationController(*Animation* &*animation*, double *speed* = 0, double *offset* = 0)

AnimationController(**const** *AnimationController* &*other*)

virtual ~AnimationController()

void **start**()
Starts animation with predefined parameters

void **finish**()
Stops animation

bool **hasEnded**()
Check that wrapped animation ended

AnimationController **operator=**(**const** *AnimationController* &*other*)

bool **operator==**(*Animation* &*anim*)

bool **operator!=**(*Animation* &*anim*)

Private Members

Animation &**mAnimation**

float **mOffset**

float **mSpeed**

class AnimationGroup
#include <AnimationScheduler.h> Container for several animations

Public Functions

AnimationGroup()

AnimationGroup(*OgreRenderComponent* **c*)

virtual ~AnimationGroup()

bool **initialize**(**const** DataProxy &*dict*, *Ogre*::SceneManager **sceneManager*)
Initialize animation groups

double **getSpeed**()
Gets animations speed

void **setSpeed**(float *value*)
Sets animations speed

Parameters
- `value`: 1 is normal speed

bool **hasEnded**()
Checks that all animations ended

Private Types

typedef std::map<std::string, *Animation*> **Animations**

Private Members

Animations **mAnimations**

OgreRenderComponent ***mRenderComponent**

float **mSpeed**

Friends

friend Gsage::AnimationScheduler

class AnimationScheduler : **public** Serializable<*AnimationScheduler*>
#include <*AnimationScheduler.h*> Class that reads all animation information, configures states, then manages all animations playback

Public Functions

AnimationScheduler()

virtual ~AnimationScheduler()

void **setRenderComponent**(*OgreRenderComponent* **c*)

bool **initialize**(**const** DataProxy &*dict*, *Ogre*::SceneManager **sceneManager*, *OgreRenderComponent* **renderComponent*)
Read dict and configure groups, read anim states from entities

Parameters
- `dict`: DataProxy to get settings from
- `sceneManager`: Ogre::SceneManager to get entities from
- `renderComponent`: target render component

bool **adjustSpeed**(**const** std::string &*name*, double *speed*)
Adjust animation speed

Return true if animation group exists
Parameters
- `name`: *Animation* group name
- `speed`: *Animation* speed, 1 is normal speed

bool **play**(**const** std::string &*name*, int *times* = LOOP, double *speed* = 0, double *offset* = 0, bool *reset* = false)
Play animations from animations group

Return true if animation group exists
Parameters
- `name`: *Animation* group name
- `times`: Repeat times, -1 means loop
- `speed`: *Animation* speed, 1 is normal speed
- `offset`: *Animation* start offset
- `reset`: Starts animation immediately

void **resetState**()
Reset animation state

void **update**(double *time*)
Update animations

Parameters
- `time`: Time delta in seconds

Private Types

typedef std::map<std::string, *Animation* *> **Animations**

typedef std::map<std::string, *AnimationGroup*> **AnimationGroups**

typedef std::queue<*AnimationController*> **AnimationQueue**

typedef std::map<std::string, *AnimationQueue*> **AnimationQueues**

Private Functions

void **playDefaultAnimation**()
Plays default animation, if present

bool **queueAnimation**(*AnimationGroup* &*animation*, double *speed*, double *offset*, bool *reset*)
Queue animation
Parameters
- `animation`: *Animation* group to play
- `speed`: *Animation* speed
- `offset`: *Animation* offset
- `reset`: interrupt current animation

bool **isQueued**(**const** std::string &*group*, *Animation* &*anim*)
Check that animation is in queue
Parameters
- `group`: *Animation* group, queue name
- `anim`: *Animation* instance

void **setStates**(**const** DataProxy &*dict*)
Set animation states
Parameters
- `dict`: DataProxy with settings

const DataProxy &**getStates**() **const**
Get animation states serialized

Private Members

Ogre::SceneManager ***mSceneManager**

AnimationQueues **mAnimationQueues**

AnimationGroups **mAnimationGroups**

Animations **mAnimations**

float **mDefaultAnimationSpeed**

std::string **mDefaultAnimation**

std::string **mCurrentAnimation**

DataProxy **mAnimationStatesDict**

OgreRenderComponent ***mRenderComponent**

bool **mInitialized**

1.24.2 File BillboardWrapper.h

Defines

BBT_POINT_ID

BBT_ORIENTED_COMMON_ID

BBT_ORIENTED_SELF_ID

BBT_PERPENDICULAR_SELF_ID

BBT_PERPENDICULAR_COMMON_ID

namespace Gsage

class BillboardSetWrapper : **public** *Gsage*::*MovableObjectWrapper*<OgreV1::BillboardSet>

Public Functions

BillboardSetWrapper()

virtual ~BillboardSetWrapper()

bool **read**(**const** DataProxy &*dict*)
Override default logic values reading

void **setCommonUpVector**(**const** *Ogre*::Vector3 &*vector*)
Set common up vector of the billboard
Parameters
- `vector`: Vector3

const *Ogre*::Vector3 &**getCommonUpVector**() **const**
Get common up vector of the billboard

void **setCommonDirection**(**const** *Ogre*::Vector3 &*vector*)
Set common direction vector of the billboard

Parameters
- `vector`: Vector3

const *Ogre*::Vector3 &**getCommonDirection**() **const**
Get direction vector of the billboard

void **setBillboardType**(**const** std::string &*type*)
Set billboard type
See Ogre::BillboardType for the list of supported ids. It is the same as it is in the enum
Parameters
- `type`: Type id

std::string **getBillboardType**()
Get billboard type

void **setMaterialName**(**const** std::string &*id*)
Set billboard material
Parameters
- `id`: Material id

const std::string &**getMaterialName**() **const**
Get billboard material

void **setBillboards**(**const** DataProxy &*dict*)
Add billboards to the billboard set

DataProxy **getBillboards**()
Get billboards to the billboard set

Public Static Attributes

const std::string **TYPE**

Private Types

typedef std::vector<*BillboardWrapper*> **Billboards**

Private Members

OgreV1::BillboardSet ***mBillboardSet**

Billboards **mBillboards**

std::string **mMaterialName**

Private Static Functions

static std::string **mapBillboardType**(**const** OgreV1::BillboardType *type*)
Convert ogre type enum to string
Parameters
- `type`: Enum value of the type

static OgreV1::BillboardType **mapBillboardType**(**const** std::string &*type*)
Convert string type id to ogre type enum

Parameters
- `type`: String id

class BillboardWrapper : **public** Serializable<*BillboardWrapper*>

Public Functions

BillboardWrapper()

virtual ~BillboardWrapper()

bool **initialize**(**const** DataProxy &*dict*, OgreV1::BillboardSet **billboardSet*)
Initialize billboard
Return false if fails
Parameters
- `dict`: DataProxy with values
- `billboardSet`: Ogre::BillboardSet to create billboard into

void **setPosition**(**const** *Ogre*::Vector3 &*position*)
Set billboard position
Parameters
- `position`: Position of the billboard object

const *Ogre*::Vector3 &**getPosition**() **const**
Get billboard position

void **setWidth**(**const** float &*value*)
Set billboard width
Parameters
- `value`: Billboard width

float **getWidth**()
Get billboard width

void **setHeight**(**const** float &*value*)
Set billboard height
Parameters
- `value`: Billboard height

float **getHeight**()
Get billboard height

void **setColour**(**const** *Ogre*::ColourValue &*value*)
Set billboard colour
Parameters
- `value`: Billboard colour ARGB

const *Ogre*::ColourValue &**getColour**() **const**
Get billboard colour

void **setRotation**(**const** *Ogre*::Degree &*value*)
Set billboard rotation
Parameters
- `value`: Billboard rotation

Ogre::Degree **getRotation**()
Get billboard rotation

void **setTexcoordRect**(**const** *Ogre*::FloatRect &*rect*)
Set Texcoord Rect

const *Ogre*::FloatRect &**getTexcoordRect**() **const**
Get Texcoord Rect

void **setTexcoordIndex**(**const** unsigned int &*index*)
Set Texcoord Index

unsigned int **getTexcoordIndex**()
Get Texcoord Index

Private Members

OgreV1::BillboardSet ***mBillboardSet**

OgreV1::Billboard ***mBillboard**

float **mWidth**

float **mHeight**

1.24.3 File CameraWrapper.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class CameraWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Camera>, **public** Listener

Public Functions

CameraWrapper()

virtual ~CameraWrapper()

void **setOrientation**(**const** *Ogre*::Quaternion &*orientation*)
Sets camera orientation

Parameters
- `orientation`: Ogre::Quaternion

const *Ogre*::Quaternion &**getOrientation**() **const**
Gets camera orientation

void **attach**(*Ogre*::Viewport *viewport)
Activate this camera

void **attach**(*RenderTargetPtr renderTarget*)
Attach the camera to render target

Parameters
- `renderTarget`: *RenderTarget*

void **detach**()
Detach camera from the render target

void **createCamera**(**const** std::string &*name*)
Create camera
Parameters
- `name`: Camera name

Ogre::Camera ***getCamera**()
Get camera ogre object

const *Ogre*::Camera ***getCamera**() **const**
Get camera ogre object

const std::string &**getName**() **const**
Get camera name

void **setClipDistance**(**const** float &*value*)
Set camera clip distance
Parameters
- `value`: Clip distance

float **getClipDistance**()
Get camera clip distance

void **setBgColour**(**const** *Ogre*::ColourValue &*colour*)
Set viewport background colour
Parameters
- `colour`: ColourValue

const *Ogre*::ColourValue &**getBgColour**() **const**
Get viewport background colour

bool **isActive**() **const**
Check if camera is active

const *Ogre*::Matrix4 &**getViewMatrix**() **const**
Get view matrix

const *Ogre*::Matrix4 &**getProjectionMatrix**() **const**
Get projection matrix

void **destroy**()
Remove camera

void **objectDestroyed**(*Ogre*::MovableObject *cam)

RenderTargetPtr **getRenderTarget**()
Get render target camera attached to

Public Static Attributes

const std::string **TYPE**

Private Members

std::string **mTarget**

Ogre::ColourValue **mBgColour**

Ogre::Viewport ***mViewport**

Ogre::RenderWindow ***mWindow**

bool **mIsActive**

RenderTargetPtr **mRenderTarget**

1.24.4 File CollisionTools.h

namespace MOC

class CollisionTools

Public Functions

CollisionTools(*Ogre*::SceneManager **sceneMgr*)

~CollisionTools()

bool **raycastFromCamera**(int *width*, int *height*, *Ogre*::Camera **camera*, **const** *Ogre*::Vector2 &*mousecoords*, *Ogre*::Vector3 &*result*, *Ogre*::MovableObject *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

bool **raycastFromCamera**(int *width*, int *height*, *Ogre*::Camera **camera*, **const** *Ogre*::Vector2 &*mousecoords*, *Ogre*::Vector3 &*result*, OgreV1::Entity *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

bool **collidesWithEntity**(**const** *Ogre*::Vector3 &*fromPoint*, **const** *Ogre*::Vector3 &*toPoint*, **const** float *collisionRadius* = 2.5f, **const** float *rayHeightLevel* = 0.0f, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

void **calculateY**(*Ogre*::SceneNode **n*, **const** bool *doTerrainCheck* = true, **const** bool *doGridCheck* = true, **const** float *gridWidth* = 1.0f, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

float **getTSMHeightAt**(**const** float *x*, **const** float *z*)

bool **raycastFromPoint**(**const** *Ogre*::Vector3 &*point*, **const** *Ogre*::Vector3 &*normal*, *Ogre*::Vector3 &*result*, *Ogre*::MovableObject *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

bool **raycastFromPoint**(**const** *Ogre*::Vector3 &*point*, **const** *Ogre*::Vector3 &*normal*, *Ogre*::Vector3 &*result*, OgreV1::Entity *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

bool **raycast**(**const** *Ogre*::Ray &*ray*, *Ogre*::Vector3 &*result*, *Ogre*::MovableObject *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

bool **raycast**(**const** *Ogre*::Ray &*ray*, *Ogre*::Vector3 &*result*, OgreV1::Entity *&*target*, float &*closest_distance*, **const** *Ogre*::uint32 *queryMask* = 0xFFFFFFFF)

void **setHeightAdjust**(**const** float *heightadjust*)

float **getHeightAdjust**(void)

Public Members

Ogre::RaySceneQuery ***mRaySceneQuery**

Ogre::RaySceneQuery ***mTSMRaySceneQuery**

Ogre::SceneManager ***mSceneMgr**

Private Members

float **_heightAdjust**

1.24.5 File CustomPassProvider.h

namespace Gsage

class CustomPassProvider : **public** CompositorPassProvider

Public Functions

CustomPassProvider()

virtual ~CustomPassProvider()

void **initialize**(Engine *engine)

Ogre::CompositorPass ***addPass**(**const** *Ogre*::CompositorPassDef *definition, *Ogre*::Camera *defaultCamera, *Ogre*::CompositorNode *parentNode, **const** *Ogre*::CompositorChannel &*target*, *Ogre*::SceneManager *sceneManager)

Ogre::CompositorPassDef ***addPassDef**(*Ogre*::CompositorPassType *passType*, *Ogre*::IdString *customId*, *Ogre*::CompositorTargetDef *parentTargetDef, *Ogre*::CompositorNodeDef *parentNodeDef)

template<class **C**, class **D**>
bool **registerPassDef**(**const** std::string &*customId*)

Private Types

typedef std::function<*Ogre*::CompositorPassDef * (*Ogre*::CompositorTargetDef *, *Ogre*::CompositorNodeDef *)> **DefFactoryFunc**

typedef std::map<*Ogre*::IdString, *DefFactoryFunc*> **DefFactoryFuncs**

typedef std::function<*Ogre*::CompositorPass * (**const** *Ogre*::CompositorPassDef *definition, **const** *Ogre*::CompositorChannel &target, *Ogre*::CompositorNode *parentNode)> **PassFactoryFunc**

typedef std::map<std::string, *PassFactoryFunc*> **PassFactoryFuncs**

Private Members

Engine ***mEngine**

DefFactoryFuncs **mDefFactories**

PassFactoryFuncs **mPassFactories**

1.24.6 File CustomPass.h

namespace Gsage

class CustomPass : **public** CompositorPass

Subclassed by *Gsage::OverlayPass*

Public Functions

CustomPass(Engine *engine, **const** *Ogre*::CompositorPassDef *def, **const** *Ogre*::CompositorChannel &target, *Ogre*::CompositorNode *parentNode)

virtual ~CustomPass()

Protected Attributes

Engine ***mEngine**

class CustomPassDef : **public** CompositorPassDef

Subclassed by *Gsage::OverlayPassDef*

Public Functions

CustomPassDef(**const** std::string &id, Engine *engine, *Ogre*::CompositorTargetDef *target, *Ogre*::CompositorNodeDef *node)

virtual ~CustomPassDef()

const std::string &**getID**() **const**

Get pass def identifier

Protected Attributes

const std::string **mID**

Engine ***mEngine**

1.24.7 File Definitions.h

Defines

GSAGE_OGRE_PLUGIN_API

OgreV1

GET_IV_DATA(variable)

1.24.8 File EntityWrapper.h

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class EntityWrapper : **public** *Gsage*::*MovableObjectWrapper*<OgreV1::Entity>

Public Types

enum Query

Values:

STATIC = 0x01

DYNAMIC = 0x02

UNKNOWN = 0x04

Public Functions

EntityWrapper()

virtual ~EntityWrapper()

void **setQueryFlags**(**const** std::string &*type*)

Set model entity flags, used for raycasting and querying entities

Parameters

- `type`: static means that entity is a part of location, dynamic means that entity is some actor

const std::string &**getQueryFlags**() **const**
Get query flags of the model

void **setResourceGroup**(**const** std::string &*name*)
Set model resource group
Parameters
- `name`: Resource group name, e.g. General

const std::string &**getResourceGroup**() **const**
Get resource group name

void **setMesh**(**const** std::string &*mesh*)
Set model mesh (this function creates entity)
Parameters
- `mesh`: Mesh file name

const std::string &**getMesh**() **const**
Get mesh file name

void **setCastShadows**(**const** bool &*value*)
Set cast shadows
Parameters
- `value`: Cast shadows

bool **getCastShadows**()
Get cast shadows

void **setRenderQueue**(**const** unsigned int &*queue*)
Set render queue
Parameters
- `queue`: queue id

unsigned int **getRenderQueue**()
Get render queue

void **attachToBone**(**const** DataProxy &*params*, **const** std::string &*entityId*, DataProxy *movableObjectData*)
Attach another entity to the bone
Parameters
- `params`: should contain boneID field
- `entityId`: Id of new entity
- `movableObjectData`: MovableObject to create and attach

bool **attach**(*Ogre*::MovableObject **object*, **const** DataProxy &*params*)
Attach another entity to the bone
Parameters
- `params`: must contain boneID

OgreV1::Entity ***getEntity**()
Get underlying entity

void **createCloneWithMaterial**(*Ogre*::MaterialPtr *material*, *Ogre*::uint8 *renderQueue*)
Clone and assign entity material

Parameters
- `material`:

void **removeClone**()
Remove cloned entity

Ogre::AxisAlignedBox **getAabb**() **const**
Get AABB

Public Static Attributes

const std::string **TYPE**

Private Types

typedef std::vector<*OgreObject* *> **AttachedEntities**

Private Members

OgreV1::SkeletonAnimationBlendMode **mAnimBlendMode**

std::string **mMeshName**

std::string **mQueryString**

std::string **mResourceGroup**

Query **mQuery**

AttachedEntities **mAttachedEntities**

OgreV1::Entity ***mClone**

1.24.9 File Factory.hpp

namespace Gsage

class RendererFactory

Public Functions

RendererPtr **create**(**const** DataProxy &*params*, SDL_Renderer **renderer*, *SDLCore* **core*, WindowPtr *window*)

1.24.10 File Gizmo.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See “Notes” on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class Gizmo : **public** EventSubscriber<*Gizmo*>

#include <Gizmo.h> Transformation *Gizmo*, supports move, scale and rotate operations.

Lua usage example:

```
-- create gizmo
gizmo = imgui.createGizmo()

-- setting target
local render = eal:getEntity("test").render
if render == nil then
  exit(1)
end
gizmo:addTarget(render.root)

-- enable
gizmo:enable(true)

-- render on each ImGUI cycle
gizmo:render(0, 0, 320, 240)

-- changing mode
gizmo.mode = imgui.gizmo.WORLD

-- changing operation
gizmo.operation = imgui.gizmo.ROTATE

-- draw coordinates editor for this gizmo
-- it is separate to make it possible to draw it in the separate window
gizmo:drawCoordinatesEditor(1, 0, 0, "%.3f", 1,
"position",
"scale",
"rotation")
```

Public Functions

Gizmo(*OgreRenderSystem* **rs*)

virtual ~Gizmo()

void **render**(float *x*, float *y*, **const** std::string &*rttName*)
Render gizmo UI

void **enable**(bool *value*)
Enable/disable gizmo

void **addTarget**(*SceneNodeWrapper* **target*)
Set target

void **removeTarget**(**const** *SceneNodeWrapper* **target*)
Remove target

void **resetTargets**()
Reset all targets in *Gizmo*

void **setOperation**(*ImGuizmo*::*OPERATION* *value*)
Set gizmo operation

ImGuizmo::*OPERATION* **getOperation**() **const**
Get gizmo operation

void **setMode**(*ImGuizmo*::*MODE* *value*)
Set gizmo mode

ImGuizmo::*MODE* **getMode**() **const**
Get gizmo mode

bool **drawCoordinatesEditor**(float *v_speed* = 1.0f, float *v_min* = 0.0f, float *v_max* = 0.0f, **const** std::string &*display_format* = "%.3f", float *power* = 1.0f, **const** std::string &*posLabel* = "position", **const** std::string &*scaleLabel* = "scale", **const** std::string &*rotationLabel* = "rotation")
Draw coordinates editor

Private Types

typedef std::vector<*SceneNodeWrapper* *> **Targets**

typedef std::map<**const** *SceneNodeWrapper* *, *Ogre*::Vector3> **Positions**

Private Functions

const *Ogre*::Vector3 &**getPosition**()

const *Ogre*::Vector3 &**getScale**()

const *Ogre*::Quaternion &**getOrientation**()

bool **onTargetDestroyed**(EventDispatcher *sender, **const** Event &*event*)

void **updateTargetNode**(bool *reset* = true)

void **rotate**(float *delta*[3])

void **setScale**(float *scale*[3])

bool **extractMatrix**(*Ogre*::Matrix4, float *dest, int *length*)

Private Members

OgreRenderSystem ***mRenderSystem**

Targets **mTargets**

Positions **mPositions**

Positions **mInitialPositions**

Positions **mInitialScales**

float **mModelMatrix**[16]

Ogre::Vector3 **mPosition**

Ogre::Vector3 **mScale**

Ogre::Quaternion **mOrientation**

ImGuizmo::*OPERATION* **mOperation**

ImGuizmo::*MODE* **mMode**

bool **mEnabled**

bool **mUsing**

1.24.11 File GsageOgrePlugin.h

namespace Gsage

class GsageOgrePlugin : **public** IPlugin

Public Functions

GsageOgrePlugin()

virtual ~GsageOgrePlugin()

virtual const std::string &**getName**() **const**
Get ogre plugin name

virtual bool **installImpl**()
Registers *OgreRenderSystem* and RecastNavigationSystem

virtual void **uninstallImpl**()
Unregisters *OgreRenderSystem* and RecastNavigationSystem

virtual void **setupLuaBindings**()
Set up lua bindings

1.24.12 File HlmsUnlitDatablock.h

namespace Gsage

class HlmsUnlitDatablock : **public** *HlmsUnlitDatablock*

Public Functions

HlmsUnlitDatablock(*Ogre*::IdString *name*, *HlmsUnlit* **creator*, **const** *Ogre*::HlmsMacroblock **macroblock*, **const** *Ogre*::HlmsBlendblock **blendblock*, **const** *Ogre*::HlmsParamVec &*params*)

Friends

friend Gsage::HlmsUnlit

1.24.13 File HlmsUnlit.h

namespace Gsage

class HlmsUnlit : **public** *HlmsUnlit*
#include <HlmsUnlit.h> Extends *Ogre* standard *HlmsUnlit*

Public Functions

HlmsUnlit(*Ogre*::Archive **dataFolder*, *Ogre*::ArchiveVec **libraryFolders*)

HlmsUnlit(*Ogre*::Archive **dataFolder*, *Ogre*::ArchiveVec **libraryFolders*, *Ogre*::HlmsTypes *type*, **const** *Ogre*::String *&typeName*)

virtual ~HlmsUnlit()

virtual *Ogre*::uint32 **fillBuffersForV2**(**const** *Ogre*::HlmsCache **cache*, **const** *Ogre*::QueuedRenderable *&queuedRenderable*, bool *casterPass*, *Ogre*::uint32 *lastCacheHash*, *Ogre*::CommandBuffer **commandBuffer*)

void **setUseCustomProjectionMatrix**(*Ogre*::IdString *name*, **const** *Ogre*::Matrix4 *&matrix*)

Make *HlmsUnlit* use the same projection matrix for all renderables which are using datablock with the specified name.

Parameters
- `name`: Datablock name
- `matrix`: Ogre::Matrix4 to use

Public Static Functions

static void **getDefaultPaths**(*Ogre*::String *&outDataFolderPath*, *Ogre*::StringVector *&outLibraryFoldersPaths*)

Protected Types

typedef std::map<*Ogre*::IdString, *Ogre*::Matrix4> **CustomProjectionMatrices**

Protected Functions

virtual *Ogre*::HlmsDatablock ****createDatablockImpl**(*Ogre*::IdString *datablockName*, **const** *Ogre*::HlmsMacroblock **macroblock*, **const** *Ogre*::HlmsBlendblock **blendblock*, **const** *Ogre*::HlmsParamVec *&paramVec*)

Protected Attributes

CustomProjectionMatrices **mCustomProjectionMatrices**

1.24.14 File ImGuiConverters.h

1.24.15 File ImGuiDockspaceState.h

namespace Gsage

Functions

static DataProxy **dumpState**(*ImGuiDockspaceState state*)

static *ImGuiDockspaceState* **loadState**(DataProxy *dp*)

1.24.16 File ImGuiDockspace.h

Defines

IMGUI_DEFINE_MATH_OPERATORS

namespace Gsage

Typedefs

typedef std::shared_ptr<*Dock*> **DockPtr**

Enums

enum DockSlotPreviewStyle

Values:

DockSlotPreviewFill = 0

DockSlotPreviewOutline = 1

enum ImGuiDockFlags

Values:

ImGuiDock_NoTitleBar = 1 << 0

ImGuiDock_NoResize = 1 << 1

class Dock

Public Types

enum Layout

Values:

None = 0

Vertical = 1

Horizontal = 2

enum Location

Values:

Unspecified = 10

Left = 1

Right = *Left* ^ 1

Top = 3

Bottom = *Top* ^ 1

Tab = 5

Root = 6

Public Functions

Dock(**const** char **label*, **const** *ImGuiDockspaceStyle* &*mStyle*)

virtual ~Dock()

void **reset**()

Called when dock is detached

void **activateOther**()

Activate any other tab if there is one Descending order is preferable

bool **isContainer**() **const**

Check if dock is container should have any children present

bool **hasBothChildren**() **const**

Check if container has both children open

bool **bothChildrenVisible**() **const**

Check if both children are visible

void **updateChildren**()

Update children in container

Update dimensions, positions and draw splits

void **setDimensions**(ImVec2 *pos*, ImVec2 *size*)

Update dock dimensions

Parameters

- `pos`: Position
- `size`: Size

float **getRatio**() **const**

Get first dock scale ratio

void **setRatio**(float *ratio*)

Set first dock scale ratio

Parameters

- `ratio`: from 0 to 1

const ImVec2 &**getPosition**() **const**
Get position

const ImVec2 &**getSize**() **const**
Get size

bool **getOpened**() **const**
Check if dock is opened

bool **anyTabOpen**() **const**
Check if this tab or any next tab is open

void **setOpened**(bool *value*)
Change opened state for dock

Parameters
- `value`:

bool **getActive**() **const**
Check if dock is active (tab wise)

void **setActive**(bool *value*)
Set dock as active

Parameters
- `value`:

bool **visible**() **const**
Check if the dock should be drawn

bool **docked**() **const**
Is docked to anything

void **addChild**(*DockPtr child*)
Add child to location defined in child itself

Parameters
- `child`: DockPtr

void **addChildAt**(*DockPtr child*, *Location location*)
Add child to container at location

Parameters
- `child`: DockPtr
- `location`: Location

void **removeChildAt**(*Location location*)
Remove child from location

Parameters
- `location`: Location

DockPtr **getChildAt**(*Location location*)
Get child at specified location

DockPtr **getChildAt**(int *index*)
Get child at specified index

Dock::Layout **getLayout**() **const**
Get dock layout

Dock::Location **getLocation**() **const**
Get dock location

DockPtr **getParent**()
Get dock parent

DockPtr **getNextTab**()
Get next tab

DockPtr **getPreviousTab**()
Get previous tab

const char ***getLabel**() **const**
Get dock label

const char ***getTitle**() **const**
Get dock title

const ImRect &**getBoundingRect**() **const**
Get bounding rect

float **calculateRatio**(*Dock*::Layout *layout*, **const** ImVec2 &*containerSize*)
Calculate ratio for the dock, basing on dock location

Parameters
- `container`: destination container

Private Functions

int **locationToIndex**(*Location location*) **const**

Private Members

char ***mLabel**

char ***mTitle**

ImVec2 **mPos**

ImVec2 **mSize**

ImRect **mBounds**

DockPtr **mChildren**[2]

DockPtr **mNextTab**

DockPtr **mPreviousTab**

DockPtr **mParent**

Layout **mLayout**

Location **mLocation**

bool **mActive**

bool **mOpened**

bool **mRendered**

bool **mResized**

bool **mDirty**

float **mRatio**

int **mFlags**

const *ImGuiDockspaceStyle* &**mStyle**

Friends

friend Gsage::ImGuiDockspace

friend Gsage::ImGuiDockspaceRenderer

class ImGuiDockspace

#include <*ImGuiDockspace.h*> Imgui dockspace

Public Functions

ImGuiDockspace()

ImGuiDockspace(**const** *ImGuiDockspaceStyle* &*style*)

virtual ~ImGuiDockspace()

ImGuiDockspaceState **getState**()

Get dockspace state

Return current *ImGuiDockspaceState*

void **setState**(*ImGuiDockspaceState* *state*)

Set dockspace state

Parameters

- `state`: *ImGuiDockspaceState*

void **setDimensions**(ImVec2 *pos*, ImVec2 *size*)

Update dockspace position and dimensions

Parameters

- `pos`: Position
- `size`: Size

void **updateLayout**()

Update layout

bool **dockTo**(**const** char **label*, *DockPtr dock*, *Dock*::Location *location*)

Dock window

Parameters

- `label`: parent dock label
- `location`: location to dock to

bool **undock**(*DockPtr dock*, bool *destroy* = false)

Undock dock from any kind of container

Parameters

- `dock`: DockPtr
- `destroy`: removes dock object completely, clearing the dock state

bool **undock**(**const** char **label*, bool *destroy* = false)
Undock dock from any kind of container

Parameters
- `label`: dock label
- `destroy`: removes dock object completely, clearing the dock state

DockPtr **getRootDock**()
Get root dock

DockPtr **getDock**(**const** char **label*)
Get window state calculated by updateLayout call

Parameters
- `label`: identifies window uniquely

DockPtr **getDock**(**const** std::string &*label*)
ImGuiDockspace::getDock

DockPtr **createDock**(**const** char **label*, bool *opened* = true, bool *active* = true)
Create new dock

Parameters
- `label`: dock label

void **addChild**(*DockPtr container*, *DockPtr child*)
Add child dock to container

Parameters
- `container`:
- `child`:

void **reset**()
Reset dockspace, remove all docks

DockPtr **getDockAt**(**const** ImVec2 &*position*)
Get dock under mouse position

Parameters
- `ImVec2`: position

Private Types

typedef std::map<std::string, *DockPtr*> **Docks**

typedef std::map<*Dock*::Location, *Dock*::Layout> **LocationToLayout**

Private Members

ImGuiDockspaceStyle **mStyle**

Docks **mDocks**

LocationToLayout **mLocationToLayout**

DockPtr **mRootDock**

ImVec2 **mSize**

Friends

friend Gsage::ImGuiDockspaceRenderer

class ImGuiDockspaceRenderer

#include <ImGuiDockspace.h> Dockspace for ImGUI.

Provides alternate methods for `Begin` and `End`. Docked view should be surrounded by `BeginDock` and `EndDock` methods.

```
local flags = 0
local active, open = imgui.BeginDockOpen("test", true, flags)
if active and open then
  -- render some view here
  imgui.TextWrapped("Hello World!")
end
imgui.EndDock()
```

Saving and loading dockspace state:

```
-- save dock state (will get lua table)
local savedState = imgui.GetDockState()

...

-- restore dock state
imgui.SetDockState(savedState)
```

Public Functions

ImGuiDockspaceRenderer()

ImGuiDockspaceRenderer(**const** *ImGuiDockspaceStyle* &*style*)

virtual ~ImGuiDockspaceRenderer()

bool **activateDock**(**const** char **label*)
Activate dock
Return true if succeed
Parameters
- `label`: *Dock* id

void **beginWorkspace**(ImVec2 *pos*, ImVec2 *size*)
Must be called before rendering all windows

bool **begin**(**const** char **label*, bool **opened*, ImGuiWindowFlags *windowFlags*)
Begin rendering

Parameters
- `label`: Window label
- `opened`: Pointer to bool
- `windowFlags`: additional window flags

bool **begin**(**const** char **label*, **const** char **title*, bool **opened*, ImGuiWindowFlags *windowFlags*, int *dockFlags*)
Begin rendering

Parameters

- `label`: Window label
- `opened`: Pointer to bool
- `windowFlags`: additional window flags
- `dockFlags`: additional dock flags

bool **begin**(**const** char **label*, **const** char **title*, bool **opened*, ImGuiWindowFlags *windowFlags*)
Begin rendering

Parameters
- `label`: Window label
- `title`: Actual window name
- `opened`: Pointer to bool
- `windowFlags`: additional window flags

void **end**()
End rendering

void **endWorkspace**(bool *cleanup* = false)
Must be called after rendering all windows

Parameters
- `cleanup`: do cleanup of docks that were not rendered this time

ImGuiDockspaceState **getState**()
Get workspace state

void **setState**(**const** *ImGuiDockspaceState* &*state*)
Set workspace state

Parameters
- `state`:

Private Types

enum EndCommand
Values:

End_None = 0

End_Child = 1

End_Window = 2

typedef std::map<std::string, bool> **Windows**

Private Functions

bool **tabbar**(*DockPtr dock*, bool *closeButton*)

void **title**(*DockPtr dock*)

void **dockWindows**()

void **splitters**()

void **handleDragging**()

bool **dockSlots**(*DockPtr destDock*, **const** ImRect &*rect*, **const** std::vector<*Dock*::Location> &*locations*)

Private Members

ImGuiDockspace **mDockspace**

ImGuiDockspaceStyle **mStyle**

EndCommand **mEndCommand**

ImVec2 **mPos**

ImVec2 **mSize**

bool **mPopClipRect**

Windows **mDockableWindows**

DockPtr **mDraggedDock**

bool **mStateWasUpdated**

struct ImGuiDockspaceState

Public Types

typedef std::map<std::string, *Dockstate*> **Docks**

Public Members

Docks **docks**

ImVec2 **size**

struct Dockstate

Public Functions

Dockstate()

Dockstate(*DockPtr dock*)

virtual ~Dockstate()

Public Members

float **ratio**

std::string **children**[2]

std::string **next**

std::string **prev**

std::string **parent**

Dock::Layout **layout**

Dock::Location **location**

bool **active**

bool **opened**

struct ImGuiDockspaceStyle

Public Members

float **splitterThickness**

float **tabbarHeight**

float **tabbarTextMargin**

float **tabbarPadding**

float **windowRounding**

ImU32 **windowBGColor**

ImU32 **tabInactiveColor**

ImU32 **tabActiveColor**

ImU32 **tabHoveredColor**

ImU32 **textColor**

ImU32 **splitterHoveredColor**

ImU32 **splitterNormalColor**

ImU32 **dockSlotHoveredColor**

ImU32 **dockSlotNormalColor**

DockSlotPreviewStyle **dockSlotPreview**

1.24.17 File Image.hpp

namespace Gsage

class ImageRenderer : **public** *Gsage*::*Renderer*

#include <*Image.hpp*> Really simple image renderer

Public Functions

ImageRenderer(**const** DataProxy &*params*, SDL_Renderer **renderer*, *SDLCore* **core*, WindowPtr *window*)

~ImageRenderer()

void **render**()

Private Members

SDL_Surface ***mImage**

SDL_Texture ***mTexture**

SDL_Renderer ***mRenderer**

SDL_Rect **mDestRect**

bool **mCustomRect**

1.24.18 File ImguiDefinitions.h

Defines

RENDER_QUEUE_IMGUI

IMGUI_MATERIAL_NAME

1.24.19 File ImguiEvent.h

namespace Gsage

class ImguiEvent : **public** Event

Public Functions

ImguiEvent (Event::ConstType *type*, **const** std::string &*contextName*)

virtual ~ImguiEvent ()

Public Members

std::string **mContextName**

Public Static Attributes

const Event::Type **CONTEXT_CREATED**

1.24.20 File ImguiExportHeader.h

Defines

IMGUI_PLUGIN_API

1.24.21 File ImguiImage.h

namespace Gsage

class ImguiImage

Public Functions

ImguiImage(**const** std::string &*name*, RenderSystem **render*)

virtual ~ImguiImage()

void **render**(unsigned int *width*, unsigned int *height*)
Render image

Parameters
- `width`: Image width
- `height`: Image height

TexturePtr **getTexture**()
Get texture object

Private Members

TexturePtr **mTexture**

RenderSystem ***mRender**

std::string **mName**

1.24.22 File ImguiLuaInterface.h

namespace Gsage

class ImguiLuaInterface

Public Static Functions

static void **addLuaBindings**(*sol*::state_view &*lua*)
Add IMGUI bindings to the lua state

Parameters
- `lua`: state to enrich with imgui bindings

class ImguiTextBuffer
#include <ImguiLuaInterface.h> Imgui buffer that can be used by lua

Public Functions

ImguiTextBuffer(int *size*, **const** char **initialValue* = "")

virtual ~ImguiTextBuffer()

std::string **read**() **const**
Read the buffer

char ***read**()
Read the buffer

bool **write**(**const** std::string &*value*)
Overwrite the buffer.

Parameters
- `value`: to write

int **size**() **const**
Returns buffer size.

Private Members

char ***mBuffer**

int **mSize**

1.24.23 File ImguiLualterator.h

1.24.24 File ImguiManager.h

namespace Gsage

class ImguiDockspaceView : **public** *Gsage*::*ImguiViewCollection*
#include <*ImguiManager.h*> Renders window collection into workspace

Public Functions

ImguiDockspaceView(*ImguiManager* **manager*, **const** std::string &*name*)

void **render**(int *x*, int *y*, int *width*, int *height*)
Render views
Parameters
- `x`: dockspace x
- `y`: dockspace y
- `width`: dockspace width
- `height`: dockspace height

sol::table **getState**()
Get dockspace state

void **setState**(*sol*::table *t*)
Set dockspace state

Parameters
- `t`: sol::table to read state data from

bool **activateDock**(**const** std::string &*name*)
Activate dock

Return true if dock was found
Parameters
- `name`: *Dock* name

virtual bool **addView**(**const** std::string &*name*, *sol*::object *view*)
Add new lua view to the imgui renderer.

Parameters
- `name`: view name
- `view`: lua function that will render everything.

virtual bool **removeView**(**const** std::string &*name*, *sol*::object *view*)
Remove view from dockspace

Private Members

ImguiManager ***mManager**

DataProxy **mState**

std::unique_ptr<*ImGuiDockspaceRenderer*> **mDockspace**

std::string **mName**

class ImguiManager : **public** UIManager, **public** EventSubscriber<*ImguiManager*>, **public** *Gsage*::*ImguiViewColle*

Public Types

typedef std::function<*ImguiRenderer* *()> **RendererFactory**

Public Functions

ImguiManager()

virtual ~ImguiManager()

virtual void **initialize**(GsageFacade **facade*, lua_State **L* = 0)
Initialize ui manager

Parameters
- `called`: by gsage facade on setup
- `facade`: Gsage Facade
- `L`: init with lua state

lua_State ***getLuaState**()
Gets Rocket lua state

void **setLuaState**(lua_State **L*)
Update load state
Parameters
- `L`: lua_State

void **setUp**()
Configures rendering

void **tearDown**()
Tear down imgui manager

bool **handleSystemChange**(EventDispatcher *_sender_, **const** Event &_event_)
SystemChangeEvent::SYSTEM_ADDED and SystemChangeEvent::SYSTEM_REMOVED handler

bool **handleMouseEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle mouse event from engine

Parameters
- `sender`: EventDispatcher
- `event`: Event

const std::string &**getType**()

void **addRendererFactory**(**const** std::string &_type_, *RendererFactory* _f_)
This method is called by render system interfaces plugins

Parameters
- `type`: Type of render system to use for. RenderSystem must properly return "type" field from getSystemInfo call
- `f`: Factory method to create renderables

void **removeRendererFactory**(**const** std::string &_type_)
Unregister renderer factory

ImGuiContext ***getImGuiContext**(std::string _name_, **const** ImVec2 &_initialSize_)
Get or create new ImGuiContext instance

Parameters
- `name`: Context name
- `initialSize`: Initial context size

virtual void **renderViews**(*ImguiRenderer*::*Context* &_ctx_)
Render a single imgui frame

Public Static Attributes

const std::string **TYPE**

Private Types

typedef std::map<std::string, *RendererFactory*> **RendererFactories**

typedef std::vector<ImVector<ImWchar>> **GlyphRanges**

Private Functions

bool **handleKeyboardEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle keyboard event from engine

bool **handleInputEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle input event from engine

bool **doCapture**()
Check if mouse event can be captured by any rocket element

bool **render**(EventDispatcher *_dispatcher_, **const** Event &_e_)
This function does not handle actual render system rendering, it only updates ImGUI draw list

Private Members

ImguiRenderer ***mRenderer**

ImFontAtlas ***mFontAtlas**

bool **mIsSetUp**

RendererFactories **mRendererFactories**

std::string **mPendingSystemType**

std::string **mUsedRendererType**

ImVector<ImFont *> **mFonts**

GlyphRanges **mGlyphRanges**

std::map<std::string, ImGuiContext *> **mContexts**

ImGuiDockspaceRenderer ***mCurrentDockspace**

Friends

friend Gsage::ImguiDockspaceView

class ImguiRenderer
Subclassed by *Gsage::ImguiOgreRenderer*

Public Functions

ImguiRenderer()

virtual ~ImguiRenderer()

virtual void **initialize**(Engine *_facade_, lua_State *_L_)
Set engine, setup lua bindings

Parameters
- `engine`: Gsage CE
- `L`: lua state

void **setMousePosition**(**const** std::string &_name_, ImVec2 _position_)
Update mouse position for the render target

Parameters
- `name`: render target name
- `position`: mouse position

virtual void **createFontTexture**(unsigned char *_pixels_, int _width_, int _height_) = 0
Create font texture in the underlying render system

Parameters

- `pixels`: Raw texture
- `width`: Texture width
- `height`: Texture height

virtual void **setImguiContext**(ImGuiContext *ctx) = 0
Imgui context is not shared across plugins, so pass it to renderer

Parameters
- `ctx`: *Context* to use

void **render**()

Protected Functions

virtual *Context* ***getContext**(ImGuiContext *context)

virtual *Context* ***initializeContext**(**const** std::string &name)

Protected Attributes

std::map<std::string, ImVec2> **mMousePositions**

Engine ***mEngine**

std::map<std::string, bool> **mRenderTargetWhitelist**

std::mutex **mContextLock**

std::map<std::string, *Context*> **mContexts**

std::map<ImGuiContext *, std::string> **mContextNames**

ImguiManager ***mManager**

Friends

friend Gsage::ImguiManager

struct Context

Public Members

ImVec2 **size**

ImGuiContext ***context**

class ImguiViewCollection
Subclassed by *Gsage::ImguiDockspaceView*, *Gsage::ImguiManager*

Public Functions

virtual bool **addView**(**const** std::string &name, *sol*::object *view*)
Add new lua view to the imgui renderer.

Parameters
- `name`: view name

- `view`: lua function that will render everything.

virtual bool **removeView**(**const** std::string &*name*, *sol*::object *view*)
Remove view from collection

Protected Types

typedef std::function<*sol*::function_result()> **RenderView**

typedef std::map<std::string, *RenderView*> **Views**

Protected Attributes

Views **mViews**

1.24.25 File ImguiMovableObject.h

namespace Gsage

class ImguiMovableObject : **public** MovableObject

Public Functions

ImguiMovableObject(*Ogre*::IdType *id*, *Ogre*::ObjectMemoryManager **objectMemoryManager*, *Ogre*::SceneManager **manager*, *Ogre*::uint8 *renderQueue*)

virtual ~ImguiMovableObject()

virtual const *Ogre*::String &**getMovableType**(void) **const**

void **updateVertexData**(**const** ImDrawList **drawList*, int *offset*)
Update vertex data for each underlying renderable

Parameters
- `drawList`: ImDrawList
- `offset`: drawList list offset (z order)

void **setDatablock**(**const** *Ogre*::String &*name*)
Set datablock to use for renderables

Parameters
- `name`: Datablock name

Private Members

Ogre::String **mDatablockName**

class ImguiMovableObjectFactory : **public** MovableObjectFactory
#include <ImguiMovableObject.h> Factory object for creating *ImguiMovableObject* instances

Public Functions

ImguiMovableObjectFactory()

~ImguiMovableObjectFactory()

const *Ogre*::String &**getType**(void) **const**

void **destroyInstance**(*Ogre*::MovableObject *_obj_)

Public Static Attributes

Ogre::String **FACTORY_TYPE_NAME**

Protected Functions

virtual *Ogre*::MovableObject ***createInstanceImpl**(*Ogre*::IdType *id*, *Ogre*::ObjectMemoryManager *_objectMemoryManager_, *Ogre*::SceneManager *_manager_, **const** *Ogre*::NameValuePairList *_params_ = 0)

1.24.26 File ImguiOgrePlugin.h

namespace Gsage

class ImguiOgrePlugin : **public** IPlugin

Public Functions

ImguiOgrePlugin()

virtual ~ImguiOgrePlugin()

virtual const std::string &**getName**() **const**
Get rocket UI plugin name

Return ImGUI string

virtual bool **installImpl**()
Install rocker ui manager

Return true if succesful

virtual void **uninstallImpl**()
Uninstall rocket ui manager

virtual void **setupLuaBindings**()
Set up lua bindings for imgui

1.24.27 File ImguiOgreRenderer.h

namespace Gsage

class ImguiOgreRenderer : **public** EventSubscriber<*ImguiOgreRenderer*>, **public** *Gsage*::*ImguiRenderer*
Subclassed by *Gsage::ImguiRendererV1*, *Gsage::ImguiRendererV2*

Public Functions

ImguiOgreRenderer()

virtual ~ImguiOgreRenderer()

virtual void **initialize**(Engine **facade*, lua_State **L*)
Set engine, setup lua bindings

Parameters
- `engine`: Gsage CE
- `L`: lua state

virtual void **createFontTexture**(unsigned char **pixels*, int *width*, int *height*)
Create font texture in the underlying render system

Parameters
- `pixels`: Raw texture
- `width`: Texture width
- `height`: Texture height

virtual void **updateVertexData**(*Ogre*::Viewport **vp*, ImVec2 *displaySize*) = 0

virtual void **setImguiContext**(ImGuiContext **ctx*)
Imgui context is not shared across plugins, so pass it to renderer

Parameters
- `ctx`: Context to use

Protected Functions

virtual void **updateFontTexture**()

virtual void **createMaterial**() = 0

virtual bool **renderQueueEnded**(EventDispatcher **sender*, **const** Event *&event*)

Protected Attributes

Ogre::TexturePtr **mFontTex**

Ogre::SceneManager ***mSceneMgr**

unsigned char ***mFontPixels**

int **mFontTexWidth**

int **mFontTexHeight**

bool **mUpdateFontTex**

std::mutex **mFontTexLock**

1.24.28 File ImguiPlugin.h

namespace Gsage

class ImguiPlugin : **public** IPlugin

Public Functions

ImguiPlugin ( )

virtual ~ImguiPlugin ( )

virtual const std::string &**getName** ( ) **const**
Get rocket UI plugin name

Return ImGUI string

virtual bool **installImpl** ( )
Install rocker ui manager

Return true if succesful

virtual void **uninstallImpl** ( )
Uninstall rocket ui manager

virtual void **setupLuaBindings** ( )
Set up lua bindings for imgui

Private Members

int **mUIManagerHandle**

ImguiManager **mUIManager**

1.24.29 File ImguiRendererV1.h

namespace Gsage

class ImguiRendererV1 : **public** *Gsage*::*ImguiOgreRenderer*

Public Functions

ImguiRendererV1 ( )

virtual ~ImguiRendererV1 ( )

void **initialize** (Engine **facade*, lua_State **L*)
Set engine, setup lua bindings

Parameters
- `engine`: Gsage CE
- `L`: lua state

Protected Functions

void **updateVertexData**(*Ogre*::Viewport *vp, ImVec2 *displaySize*)

void **createMaterial**()

void **updateFontTexture**()

void **setFiltering**(*Ogre*::TextureFilterOptions *mode*)

Private Members

std::vector<*ImGUIRenderable* *> **mRenderables**

Ogre::Pass ***mPass**

Ogre::TextureUnitState ***mTexUnit**

1.24.30 File ImguiRendererV2.h

namespace Gsage

class ImguiRendererV2 : **public** *Gsage*::*ImguiOgreRenderer*

Public Functions

ImguiRendererV2(*Ogre*::uint8 *renderQueueGroup*)

virtual ~ImguiRendererV2()

void **initialize**(Engine *facade, lua_State *L)
Set engine, setup lua bindings

Parameters
- `engine`: Gsage CE
- `L`: lua state

virtual void **updateVertexData**(*Ogre*::Viewport *vp, ImVec2 *displaySize*)

Protected Functions

virtual void **createMaterial**()

Private Functions

ImguiMovableObject ***createImguiMovableObject**()

Private Members

std::vector<*ImguiMovableObject* *> **mImguiMovableObjects**

Ogre::uint8 **mRenderQueueGroup**

ImguiMovableObjectFactory ***mMovableObjectFactory**

HlmsUnlit ***mHlms**

1.24.31 File ItemWrapper.h

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class ItemWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Item>

Public Types

enum Query

Values:

STATIC = 0x01

DYNAMIC = 0x02

UNKNOWN = 0x04

Public Functions

ItemWrapper()

virtual ~ItemWrapper()

void **setMesh**(**const** std::string &*mesh*)

Set model mesh (this function creates entity)

Parameters

- `mesh`: Mesh file name

const std::string &**getMesh**() **const**

Get mesh file name

void **setQueryFlags**(**const** std::string &*type*)

Set model entity flags, used for raycasting and querying entities

Parameters

- `type`: static means that entity is a part of location, dynamic means that entity is some actor

const std::string &**getQueryFlags**() **const**
Get query flags of the model

Ogre::Item ***getItem**()
Get underlying entity

void **setDatablock**(**const** std::string &*name*)
Set item datablock
Parameters
- `name`: datablock name (Hlms)

const std::string &**getDatablock**() **const**
Get item datablock name

Public Static Attributes

const std::string **TYPE**

Private Members

std::string **mMeshName**

std::string **mDatablock**

std::string **mQueryString**

Query **mQuery**

1.24.32 File LightWrapper.h

namespace Gsage

class LightWrapper : **public** *Gsage*::*MovableObjectWrapper*<*Ogre*::Light>

Public Functions

LightWrapper()

virtual ~LightWrapper()

void **create**(**const** std::string &*name*)
Create light instance
Parameters
- `light`: name

const std::string &**getName**() **const**
Get light name

void **setType**(**const** std::string &*type*)
Set light type
Parameters
- `type`: point/directional/spot

std::string **getType**()
Get light type

void **setPosition**(**const** *Ogre*::Vector3 &*position*)
Set light position
Parameters
- `position`: Ogre::Vector3 position

Ogre::Vector3 **getPosition**()
Get light position

void **setDiffuseColour**(**const** *Ogre*::ColourValue &*value*)
Set light diffuse colour
Parameters
- `value`: ColourValue

const *Ogre*::ColourValue &**getDiffuseColour**() **const**
Get light diffuse colour

void **setSpecularColour**(**const** *Ogre*::ColourValue &*value*)
Set light specular colour
Parameters
- `value`: ColourValue

const *Ogre*::ColourValue &**getSpecularColour**() **const**
Get light specular colour

void **setDirection**(**const** *Ogre*::Vector3 &*value*)
Set light direction
Parameters
- `direction`: Vector3 direction, non relevant for point light

Ogre::Vector3 **getDirection**()
Get light direction

void **setCastShadows**(**const** bool &*value*)
Cast shadows from this light
Parameters
- `value`: Cast shadows

bool **getCastShadows**()
Get cast shadows

void **setRenderQueue**(**const** unsigned int &*queue*)
Set render queue
Parameters
- `queue`: queue id

unsigned int **getRenderQueue**()
Get render queue

Public Static Attributes

const std::string **TYPE**

Private Functions

Ogre::Light::LightTypes **mapType**(**const** std::string &*type*)
Get ogre internal light type from string
Parameters
- `type`: point/directional/spotlight

std::string **mapType**(**const** *Ogre*::Light::LightTypes &*type*)
Convert *Ogre* light type to string type
Parameters
- `ogre`: Ogre::Light::LightTypes

1.24.33 File ManualMovableTextRenderer.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

class ManualMovableTextRenderer : **public** ParticleSystemRenderer
#include <ManualMovableTextRenderer.h> Renderer that is used to create floating text particles, like damage

Public Functions

ManualMovableTextRenderer(**const** std::string &*name*, ObjectMemoryManager **memoryManager*, SceneManager **sceneManager*)

virtual ~ManualMovableTextRenderer()

void **setFontName**(**const** std::string &*name*)
Set font name to use
Parameters
- `name`: Id of the font

const std::string &**getFontName**() **const**
Get used font name

const std::string &**getType**() **const**
Get the type of this renderer

void **_updateRenderQueue**(RenderQueue **queue*, Camera **camera*, **const** Camera **lodCamera*, list<Particle *>::type &*currentParticles*, bool *cullIndividually*, RenderableArray &*outRenderables*)
Updates all nodes in the renderer

void **_notifyParticleQuota**(size_t *quota*)
Parameters

- `quota`: Number of nodes to be allocated

void **_notifyDefaultDimensions**(Real *width*, Real *height*)
Not used

void **setRenderQueueGroup**(uint8 *queueID*)
Not used

void **setRenderQueueGroupAndPriority**(uint8 *queueID*, ushort *priority*)
Not used

void **setKeepParticlesInLocalSpace**(bool *keepLocal*)
Not used

SortMode **_getSortMode**() **const**
Not used

void **_setDatablock**(HlmsDatablock **datablock*)
Not used

void **_setMaterialName**(**const** String &*matName*, **const** String &*resourceGroup*)
Not used

void **_notifyCurrentCamera**(**const** Camera **cam*)
Not used

void **_notifyAttached**(Node **parent*)
Not used

void **setRenderQueueSubGroup**(uint8 *queueID*)
Not used

void **_destroyVisualData**(ParticleVisualData **data*)
Not used

Protected Static Attributes

CmdFontName **msFontNameCmd**

Private Types

typedef std::vector<*TextNode*> **TextNodes**

typedef std::deque<*TextNode* *> **TextNodesPtrs**

typedef std::map<Particle *, *TextNode* *> **TextNodesMap**

Private Functions

void **adjustNodeCount**()
Adjust particle count to the quota

Private Members

TextNodesMap **mBusyNodes**

TextNodesPtrs **mFreeNodes**

TextNodes **mNodePool**

size_t **mQuota**

std::string **mName**

std::string **mFontName**

int **mPrevousParticleCount**

class CmdFontName : **public** ParamCommand

Public Functions

std::string **doGet**(**const** void **target*) **const**

void **doSet**(void **target*, **const** std::string &*val*)

class ManualMovableTextRendererFactory : **public** ParticleSystemRendererFactory

Public Functions

ManualMovableTextRendererFactory()

virtual ~ManualMovableTextRendererFactory()

const String &**getType**() **const**

ParticleSystemRenderer ***createInstance**(**const** String &*name*)

void **destroyInstance**(ParticleSystemRenderer **ptr*)

Private Members

int **mCreatedRenderersCounter**

class MovableTextValue : **public** ParticleVisualData
#include <ManualMovableTextRenderer.h> Movable text string

Public Functions

MovableTextValue(**const** std::string &*value*, SceneNode **attachTo*)

const std::string &**getValue**() **const**
Get text value for particle

void **setNode**(*TextNode* **node*)
Set node that is using this movable text value
Parameters
- `node`: Pointer to the node

TextNode ***getNode**()
Node that is using this movable text value
Return 0 if no node present

SceneNode ***getNodeToAttachTo**()
Get parent node to use for the text node

Private Members

std::string **mValue**

TextNode ***mNode**

SceneNode ***mSceneNode**

class TextNode
#include <ManualMovableTextRenderer.h> Class that represents created movable text node

Public Functions

TextNode(IdType *id*, ObjectMemoryManager **memoryManager*, SceneManager **sceneManager*)

virtual ~TextNode()

void **activate**(*MovableTextValue* **value*, **const** std::string &*fontName*)
Activate text node
Parameters
- `parent`: Node to attach text to
- `value`: Text value to display

void **deactivate**()
Deactivate text node this deletes movable text value that was attached to this node

void **setPosition**(**const** Vector3 &*position*)
Set node position
Parameters
- `position`: Position

void **setColour**(**const** ColourValue &*colour*)
Set text colour

void **setHeight**(**const** float *value*)
Set text height

Private Members

MovableTextValue ***mValue**

SceneNode ***mSceneNode**

MovableText ***mView**

IdType **mId**

ObjectMemoryManager ***mObjectManager**

SceneManager ***mSceneManager**

1.24.34 File ManualTextureManager.h

namespace Gsage

class ManualTextureManager : **public** Listener
#include <ManualTextureManager.h> This class is used to handle manual texture management and update

Public Functions

ManualTextureManager(*OgreRenderSystem* **renderSystem*)

virtual ~ManualTextureManager()

void **reset**()
Destroy all texture objects

TexturePtr **createTexture**(RenderSystem::TextureHandle *handle*, DataProxy *params*)
Create manual texture

List of possible texture parameters:
- `group` resource group to use (optional). Defaults to `DEFAULT_RESOURCE_GROUP_NAME`.
- `textureType` texture type (optional). Defaults to `TEX_TYPE_2D`.
- `width` initial texture width (required).
- `height` initial texture height (required).
- `depth` depth The depth of the texture (optional). Defaults to 0.
- `numMipmaps` The number of pre-filtered mipmaps to generate. If left to MIP_DEFAULT then the TextureManager's default number of mipmaps will be used (see setDefaultNumMipmaps()) If set to MIP_UNLIMITED mipmaps will be generated until the lowest possible level, 1x1x1.
- `pixelFormat` texture pixel format (optional). Defaults to `PF_R8G8B8A8`.
- `usage` usage type (optional). Defaults to `TU_DEFAULT`.
- `hwGammaCorrection` use gamma correction (optional). Defaults to `false`.
- `fsaa` antialiasing (optional). Defaults to 0.
- **`fsaaHint` The level of multisampling to use if this is a render target.** Ignored if usage does not include TU_RENDERTARGET or if the device does not support it. (optional).
- `explicitResolve` Whether FSAA resolves are done implicitly when used as texture, or must be done explicitly. (optional).
- `shareableDepthBuffer` Only valid for depth texture formats. When true, the depth buffer is a "view" of an existing depth texture (e.g. useful for reading the depth buffer contents of a GBuffer pass in deferred rendering). When false, the texture gets its own depth buffer created for itself (e.g. useful for shadow mapping, which is a depth-only pass).

Parameters
- `handle`: texture handle
- `params`: Texture params, see above

TexturePtr **getTexture**(RenderSystem::TextureHandle *handle*)
Gets existing texture

Parameters
- `handle`: texture handle

bool **deleteTexture**(RenderSystem::TextureHandle *handle*)
Delete texture by handle

Return true if succeed
Parameters

- `handle`: texture id

void **setDefaultPixelFormat**(*Ogre*::PixelFormat *format*)
Set default pixelFormat

Parameters
- `format`: Ogre::PixelFormat

void **updateDirtyTexures**()
Update dirty textures

Private Types

typedef std::unordered_map<*Ogre*::String, int> **RenderSystemCapabilities**

Private Members

std::map<RenderSystem::TextureHandle, TexturePtr> **mTextures**

Ogre::PixelFormat **mPixelFormat**

OgreRenderSystem ***mRenderSystem**

RenderSystemCapabilities **mRenderSystemCapabilities**

class OgreTexture : **public** Texture, **public** Listener
#include <ManualTextureManager.h> Implements abstract texture class Texture

Public Types

enum Flags
Values:

BlitDirty = 1

Public Functions

OgreTexture(**const** std::string *&name*, **const** DataProxy *&params*, *Ogre*::PixelFormat *pixelFormat*, int *flags* = 0)

virtual ~OgreTexture()

void **update**(**const** void **buffer*, size_t *size*, int *width*, int *height*)
Update texture data

Parameters
- `buffer`: buffer to use
- `size`: provided buffer size
- `width`: buffer width
- `height`: buffer height

virtual void **update**(**const** void **buffer*, size_t *size*, int *width*, int *height*, **const** Rect<int> *&area*)
Update texture data using changed rectangle

Parameters

- `buffer`: buffer to use
- `size`: provided buffer size
- `width`: buffer width
- `height`: buffer height
- `area`: changed rect

bool **hasData**() **const**
Check if the texture has actual data

void **setSize**(int *width*, int *height*)
Set texture size

Parameters
- `width`: texture width
- `height`: texture height

void **unloadingComplete**(*Ogre*::Resource **res*)
Ogre::Texture::Listener implementation

void **create**(int *width* = -1, int *height* = -1)
Create the underlying texture

Parameters
- `width`: override width
- `height`: override height

bool **isDirty**() **const**
Texture buffer was changed

void **render**()
Update texture using supplied buffer

Ogre::TexturePtr **getOgreTexture**()
Get underlying *OgreTexture* object

void **destroy**()
Destroy underlying Ogre::TexturePtr

Private Functions

std::unique_ptr<*OgreTexture*::*ScalingPolicy*> **createScalingPolicy**(**const** DataProxy &*params*)

bool **blitDirty**()

bool **blitAll**()

Private Members

Ogre::TexturePtr **mTexture**

std::string **mName**

std::unique_ptr<*OgreTexture*::*ScalingPolicy*> **mScalingPolicy**

bool **mHasData**

bool **mDirty**

bool **mCreate**

int **mFlags**

std::vector<Rect<int>> **mDirtyRegions**

Friends

friend Gsage::ScalingPolicy

class AllocateScalingPolicy : **public** *Gsage*::*OgreTexture*::*ScalingPolicy*

Public Functions

AllocateScalingPolicy(*OgreTexture* &*texture*, float *scalingFactor*)

Protected Functions

bool **resize**()
Actual resize

Private Members

float **mScalingFactor**

class DefaultScalingPolicy : **public** *Gsage*::*OgreTexture*::*ScalingPolicy*

Public Functions

DefaultScalingPolicy(*OgreTexture* &*texture*)

Protected Functions

bool **resize**()
Actual resize

class ScalingPolicy
Subclassed by *Gsage::OgreTexture::AllocateScalingPolicy*, *Gsage::OgreTexture::DefaultScalingPolicy*

Public Functions

ScalingPolicy(*OgreTexture* &*texture*)

virtual ~ScalingPolicy()

void **invalidate**()
Forces rescaling without width/height change

void **update**(int *width*, int *height*)
Update scaling policy

bool **render**()
Should be called in the render loop

Return true if the texture was recreated

Protected Functions

virtual bool **resize**() = 0
Actual resize

Protected Attributes

OgreTexture &**mTexture**

int **mWidth**

int **mHeight**

bool **mDirty**

1.24.35 File MaterialBuilder.h

namespace Gsage

class MaterialBuilder

Public Functions

MaterialBuilder()

virtual ~MaterialBuilder()

Public Static Functions

static *Ogre*::MaterialPtr **parse**(**const** std::string &*name*, **const** DataProxy &*data*)
Create material from json data

Return true if succeed
Parameters
- `data`: to create from

1.24.36 File MaterialLoader.h

namespace Gsage

class MaterialLoader : **public** EventDispatcher, **public** EventSubscriber<*MaterialLoader*>
#include <*MaterialLoader.h*> TODO: INDEXER

{ "filename": { "checksum": "...", "changed": "...", "materials": [] } }

for(auto& file : filesystem->ls(folder)) { if(filesystem->extension(file) != "material") { continue; } } Custom OGRE material loader

Public Functions

MaterialLoader(*OgreRenderSystem* *render, GsageFacade *facade)

bool **load**(**const** std::string &material, **const** std::string &group, bool background = true)
Loads material from any of resource folders

Parameters
- `material`: Material name
- `group`: Material group
- `background`: Loads material in background

void **scan**(**const** std::string &folder)
Indexer scans materials files to detect materials sets defined there

Parameters
- `folder`: Folder to scan

Private Types

typedef std::map<std::string, *FileInfo*> **MaterialIndex**

Private Functions

void **scanFolder**(**const** std::string &folder, std::vector<std::string> &files, **const** std::string extension)

void **readIndexFile**()

void **writeIndexFile**()

bool **onEnvUpdated**(EventDispatcher *sender, **const** Event &event)

void **reloadIndex**()

Private Members

OgreRenderSystem ***mRender**

GsageFacade ***mFacade**

DataProxy **mIndex**

std::string **mWorkdir**

MaterialIndex **mMaterialIndex**

struct FileInfo

Public Members

std::string **path**

signed long **modified**

std::string **folder**

1.24.37 File MeshTools.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

class MeshInformation
#include <MeshTools.h> A single mesh information

Public Types

enum Flags
Values:

Vertices = 0x01

Indices = 1 << 1

Normals = 1 << 2

Default = *Vertices* | *Indices*

All = *Vertices* | *Indices* | *Normals*

Public Functions

MeshInformation()

~MeshInformation()

void **allocate**(size_t *vertexCount*, size_t *indexCount*, *MeshInformation*::Flags *flags*)
Allocates *MeshInformation* data arrays

Public Members

Ogre::Vector3 ***vertices**

Ogre::Vector3 ***normals**

Ogre::uint32 ***indices**

size_t **vertexCount**

size_t **indexCount**

class MeshTools : **public** *Ogre*::Singleton<*MeshTools*>
#include <MeshTools.h> Provides cached access to raw mesh data

Public Functions

MeshTools()

virtual ~MeshTools()

bool **getMeshInformation**(*Ogre*::MovableObject **object*, *MeshInformation* &*dest*, *Ogre*::Matrix4 *transform*, *MeshInformation*::Flags *flags* = *MeshInformation*::Default)

Gets movable object mesh information, if eligible

Return false if not eligible to get this information

bool **getMeshInformation**(*Ogre*::MovableObject **object*, *MeshInformation* &*dest*, **const** *Ogre*::Vector3 &*position*, **const** *Ogre*::Quaternion &*orient*, **const** *Ogre*::Vector3 &*scale*, *MeshInformation*::Flags *flags* = *MeshInformation*::Default)

Gets movable object mesh information, if eligible

Return false if not eligible to get this information

void **getMeshInformation**(OgreV1::MeshPtr *mesh*, *MeshInformation* &*dest*, **const** *Ogre*::Matrix4 &*transform*, *MeshInformation*::Flags *flags* = *MeshInformation*::Default)

Gets v1 mesh information

Public Static Functions

static *MeshTools* &**getSingleton**(void)

static *MeshTools* ***getSingletonPtr**(void)

1.24.38 File MovableObjectWrapper.h

namespace Gsage

class IMovableObjectWrapper : **public** *Gsage*::*OgreObject*

#include <*MovableObjectWrapper.h*> Provides templateless base class for *MovableObjectWrapper*

Subclassed by *Gsage::MovableObjectWrapper< T >*, *Gsage::MovableObjectWrapper< Ogre::Camera >*, *Gsage::MovableObjectWrapper< Ogre::Item >*, *Gsage::MovableObjectWrapper< Ogre::Light >*, *Gsage::MovableObjectWrapper< Ogre::ManualObject >*, *Gsage::MovableObjectWrapper< OgreV1::BillboardSet >*, *Gsage::MovableObjectWrapper< OgreV1::Entity >*

Public Functions

virtual void **setRenderQueueGroup**(**const** unsigned char &*queueId*) = 0

virtual unsigned char **getRenderQueueGroup**() = 0

virtual void **setVisibilityFlags**(unsigned int *mask*) = 0

virtual void **resetVisibilityFlags**() = 0

template<typename **T**>
class MovableObjectWrapper : **public** *Gsage*::*IMovableObjectWrapper*

Public Functions

MovableObjectWrapper()

virtual ~MovableObjectWrapper()

void **defineUserBindings**()

void **setRenderQueueGroup**(**const** unsigned char &*queueId*)

unsigned char **getRenderQueueGroup**()

void **setVisibilityFlags**(unsigned int *mask*)

void **resetVisibilityFlags**()

Protected Attributes

T ***mObject**

1.24.39 File OSXUtils.h

namespace Gsage

Functions

unsigned long **WindowContentViewHandle**(SDL_SysWMinfo &*info*)

1.24.40 File ObjectMutation.h

namespace Gsage

class ObjectMutation

Public Types

typedef std::function<void()> **Callback**

Public Functions

ObjectMutation()

ObjectMutation(*Callback cb*)

virtual ~ObjectMutation()

void **execute**()
Execute obejct mutation

Private Members

Callback **mCallback**

1.24.41 File OgreConverters.h

namespace Gsage

Functions

static const *Ogre*::Vector3 **GsageVector3ToOgreVector3**(**const** *Gsage*::Vector3 &*vector*)

static const *Gsage*::Vector3 **OgreVector3ToGsageVector3**(**const** *Ogre*::Vector3 &*vector*)

static const *Ogre*::Quaternion **GsageQuaternionToOgreQuaternion**(**const** *Gsage*::Quaternion &*quaternion*)

static const *Gsage*::Quaternion **OgreQuaternionToGsageQuaternion**(**const** *Ogre*::Quaternion &*quaternion*)

static const *Ogre*::AxisAlignedBox **BoundingBoxToAxisAlignedBox**(**const** BoundingBox &*bbox*)

TYPE_CASTER(OgreDegreeCaster, *Ogre*::Degree, std::string)

TYPE_CASTER(OgreColourValueCaster, *Ogre*::ColourValue, std::string)

TYPE_CASTER(OgreVector3Caster, *Ogre*::Vector3, std::string)

TYPE_CASTER(OgreQuaternionCaster, *Ogre*::Quaternion, std::string)

TYPE_CASTER(OgreFloatRectCaster, *Ogre*::FloatRect, std::string)

TYPE_CASTER(OgrePixelFormatCaster, *Ogre*::PixelFormat, std::string)

TYPE_CASTER(RenderOperationTypeCaster, *Ogre*::RenderOperation::OperationType, std::string)

TYPE_CASTER(RenderTargetTypeCaster, *RenderTargetType*::Type, std::string)

1.24.42 File OgreGeom.h

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class OgreGeom : **public** Geom

Public Types

typedef std::vector<*Ogre*::MovableObject *> **OgreEntities**

Public Functions

OgreGeom(*OgreEntities src*, *Ogre*::SceneNode **referenceNode*)

virtual ~OgreGeom()

Private Members

OgreEntities **mSrcEntities**

1.24.43 File OgreObjectManager.h

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class OgreObjectManager : **public** EventDispatcher

Public Functions

OgreObjectManager(*OgreRenderSystem* **rs*)

virtual ~OgreObjectManager()

OgreObject ***create**(**const** DataProxy &*dict*, **const** std::string &*owner*, *Ogre*::SceneManager **sceneManager*, *Ogre*::SceneNode **parent* = 0)

Create object from the DataProxy

Parameters

- `dict`: DataProxy with all values (dict should contain type field)
- `owner`: Owner entity of the created object
- `sceneManager`: Ogre::SceneManager to create object in
- `parent`: Parent object to attach to

OgreObject ***create**(**const** DataProxy &*dict*, **const** std::string &*owner*, *Ogre*::SceneManager **sceneManager*, **const** std::string &*type*, *Ogre*::SceneNode **parent* = 0)

Create object from the DataProxy

Parameters

- `dict`: DataProxy with all values
- `owner`: Owner entity of the created object
- `sceneManager`: Ogre::SceneManager to create object in
- `type`: Object type string, defined explicitly
- `parent`: Parent object to attach to

OgreObject ***create**(**const** DataProxy &*dict*, **const** std::string &*owner*, *Ogre*::SceneManager **sceneManager*, **const** std::string &*type*, **const** DataProxy &*params*, *OgreObject* **parent* = 0)

Create object from the DataProxy

Parameters

- `dict`: DataProxy with all values
- `owner`: Owner entity of the created object
- `sceneManager`: Ogre::SceneManager to create object in
- `type`: Object type string, defined explicitly
- `parent`: Parent object to attach to

template<typename **C**>
C ***create**(**const** DataProxy &*dict*, **const** std::string &*owner*, *Ogre*::SceneManager **sceneManager*, *Ogre*::SceneNode **parent* = 0)

See *OgreObjectManager::create*

void **destroy**(*OgreObject* **object*)

Destroy object

Parameters

- `object`: Object to destroy

template<typename **C**>
void **registerElement**(**const** std::string &*type*)

Register new element type, so factory will be able to create it

Parameters

- `type`: String type representation

template<typename **C**>
void **registerElement**()

Register new element type, so factory will be able to create id. For this method, visual element should have static std::string TYPE defined

bool **unregisterElement**(**const** std::string &*type*)

Unregister existing element type It will destroy all existing objects of that type

Parameters

- `type`: String type representation

template<typename **C**>
bool **unregisterElement**()

Unregister existing element type It will destroy all existing objects of that type

OgreRenderSystem ***getRenderSystem**()

Get targeted render system instance

Private Types

typedef std::map<std::string, *OgreObjectPool* *> **OgreObjectsCollections**

Private Members

OgreObjectsCollections **mObjects**

OgreRenderSystem ***mRenderSystem**

template<typename **C**>
class ConcreteOgreObjectPool : **public** *Gsage*::*OgreObjectManager*::*OgreObjectPool*

Public Functions

virtual ~ConcreteOgreObjectPool()

OgreObject ***allocate**()

void **remove**(*OgreObject* **object*)

void **clear**()

Private Members

ObjectPool<C> **mObjects**

class OgreObjectPool

Public Functions

virtual ~OgreObjectPool()

virtual *OgreObject* ***allocate**() = 0

virtual void **remove**(*OgreObject* **object*) = 0

class OgreObjectManagerEvent : **public** Event
#include <*OgreObjectManager.h*> Event related to factory lifecycle

Public Functions

OgreObjectManagerEvent(Event::ConstType *type*, **const** std::string &*id*, *OgreObject* **object* = 0)

virtual ~OgreObjectManagerEvent()

const std::string &**getId**() **const**
Get factory id that was unregistered or object id related to event

const *OgreObject* ***getObject**() **const**
Related object

Public Static Attributes

const Event::Type **FACTORY_UNREGISTERED**
Factory was unregistered

const Event::Type **OBJECT_DESTROYED**
Object was destroyed

Private Members

std::string **mId**

OgreObject ***mObject**

1.24.44 File OgreObject.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class OgreObject : **public** Serializable<*OgreObject*>
#include <OgreObject.h> Abstract ogre object

Subclassed by *Gsage::IMovableObjectWrapper*, *Gsage::ParticleSystemWrapper*, *Gsage::SceneNodeWrapper*

Public Functions

OgreObject()

virtual ~OgreObject()

virtual bool **initialize**(*OgreObjectManager* **objectManager*, **const** DataProxy &*dict*, **const** std::string &*ownerId*, **const** std::string &*type*, *Ogre*::SceneManager **sceneManager*, *Ogre*::SceneNode **parent*)
Initialize element from the node with values
Parameters
- `factory`: *OgreObjectManager* to enable child class creation
- `dict`: DataProxy with values
- `type`: String type of the object
- `parent`: Parent SceneNode
- `sceneManager`: SceneManager to use
- `ownerId`: Id of entity that owns the element

virtual bool **initialize**(*OgreObjectManager* *objectManager, **const** DataProxy &*dict*, **const** std::string &*ownerId*, **const** std::string &*type*, *Ogre*::SceneManager *sceneManager, **const** DataProxy &*attachParams*, *OgreObject* *parent)

Initialize element from the node with values

Parameters

- `factory`: *OgreObjectManager* to enable child class creation
- `dict`: DataProxy with values
- `type`: String type of the object
- `parent`: Parent *OgreObject*
- `sceneManager`: SceneManager to use
- `attachParams`: Passed down to the parent object when attaching
- `ownerId`: Id of entity that owns the element

virtual void **destroy**()

Destroy object

const std::string &**getType**() **const**

Get object type

const std::string &**getObjectId**() **const**

Get object id

void **attachObject**(*Ogre*::MovableObject *object)

Attach object to the parent node

Parameters

- `object`: Object to attach

virtual bool **attach**(*Ogre*::MovableObject *object, **const** DataProxy &*params*)

Attach movable object to this object

Parameters

- `object`: Object to attach

std::string **generateName**() **const**

Generate unique name for the object.

void **sync**()

Sync all pending property updates

Protected Attributes

std::string **mObjectId**

std::string **mOwnerId**

std::string **mType**

OgreObjectManager ***mObjectManager**

Ogre::SceneManager ***mSceneManager**

Ogre::SceneNode ***mParentNode**

OgreObject ***mParentObject**

DataProxy **mAttachParams**

struct PendingPropertyUpdate

Public Members

std::string **propertyName**

1.24.45 File OgreRenderComponent.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class OgreRenderComponent : **public** EventDispatcher, **public** RenderComponent
#include <OgreRenderComponent.h> *Ogre* render system component

Public Types

enum RotationAxis
Values:

X_AXIS

Y_AXIS

Z_AXIS

NONE

Public Functions

OgreRenderComponent()

virtual ~OgreRenderComponent()

void **prepare**(*Ogre*::SceneManager **sceneManager*, *ResourceManager* **resourceManager*, *OgreObjectManager* **objectManager*)
Set scene manager instance

Parameters
- `sceneManager`: Ogre::SceneManager instance to allow creating objects on scene
- `resourceManager`: ResourceManager* instance to allow component loading additional resource
- `objectManager`: *OgreObjectManager* instance to allow creating root tree

void **setPosition**(**const** *Ogre*::Vector3 *&position*)
Set render component position
Parameters

- `position`: New position

void **setOrientation**(**const** *Ogre*::Quaternion &*orientation*)
Set render component orientation (equal to Ogre::SceneNode::setOrientation)
Parameters
- `orientation`: Orientation quaternion (absolute)

void **rotate**(**const** *Ogre*::Quaternion &*rotation*)
Rotates render component
Parameters
- `rotation`: Rotation quaternion (relative)

void **lookAt**(**const** *Ogre*::Vector3 &*position*, **const** Geometry::RotationAxis *rotationAxis*, Geometry::TransformSpace *transformSpace* = Geometry::TS_WORLD)
Equalient to Ogre::Node lookAt
Parameters
- `position`: Position to look at
- `rotationAxis`: rotate only in one axis
- `transformSpace`: ogre transform space

void **lookAt**(**const** *Ogre*::Vector3 &*position*)
Equalient to Ogre::Node lookAt
Parameters
- `position`: Position to look at

const *Ogre*::Vector3 **getOgrePosition**()
Get current position

const *Ogre*::Vector3 **getOgreScale**()
Get current scale

const *Ogre*::Vector3 **getOgreDirection**()
Get current direction vector, uses orientationVector from config to detect front of the object

const *Ogre*::Quaternion **getOgreOrientation**()
Get object orientation

const *Ogre*::Quaternion **getOgreFaceOrientation**()
Get object orientation with respect to the direction vector

void **rotate**(**const** *Gsage*::Quaternion &*rotation*)
Rotates render component using Gsage::Quaternion
Parameters
- `rotation`: Rotation quaternion (relative)

void **lookAt**(**const** *Gsage*::Vector3 &*position*, **const** Geometry::RotationAxis *rotationAxis*, Geometry::TransformSpace *transformSpace* = Geometry::TS_WORLD)
Equalient to Ogre::Node lookAt
Parameters
- `position`: Position to look at
- `rotationAxis`: rotate only in one axis
- `transformSpace`: ogre transform space

void **lookAt**(**const** *Gsage*::Vector3 &*position*)
Parameters
- `position`: Position to look at

void **setPosition**(**const** *Gsage*::Vector3 &*position*)
Set position by using Gsage::Vector
Parameters
- `position`: New position

void **setOrientation**(**const** *Gsage*::Quaternion &*orientation*)
Set orientation using Gsage::Quaternion
Parameters
- `orientation`: Orientation quaternion (absolute)

const *Gsage*::Vector3 **getPosition**()
Get current position

const *Gsage*::Vector3 **getScale**()
Get current scale

const *Gsage*::Vector3 **getDirection**()
Get current direction vector, uses orientationVector from config to detect front of the object

const *Gsage*::Quaternion **getOrientation**()
Get object orientation

const *Gsage*::Quaternion **getFaceOrientation**()
Get object orientation with respect to the direction vector

bool **adjustAnimationStateSpeed**(**const** std::string &*name*, double *speed*)
Adjusts animation speed for state
Parameters
- `name`: *Animation* state name
- `speed`: animation speed

bool **setAnimationState**(**const** std::string &*name*)
Sets animation state
Return true if state was found
Parameters
- `name`: *Animation* name

bool **playAnimation**(**const** std::string &*name*, int *times* = -1, double *speed* = 1, double *offset* = 0, bool *reset* = false)
Plays animation

Return true if animation group exists
Parameters
- `name`: *Animation* group name
- `times`: Repeat times, -1 means loop
- `speed`: *Animation* speed, 1 is normal speed
- `offset`: *Animation* start offset
- `reset`: Starts animation immediately

void **resetAnimationState**()
Resets animation state to default

DataProxy **getRootNode**()
Reads component root node

void **setRootNode**(**const** DataProxy &*value*)
Builds node tree from DataProxy. Example:

```
{
  "position": "0,0,0",
  "scale": "0,0,0",
  "children": [
  {
    "type": "model",
    "mesh": "mesh.mesh"
  }
  ]
}
```

DataProxy **getAnimations**()
Reads component animations

void **setAnimations**(**const** DataProxy &*value*)
Sets animations DataProxy should have the following format:

```
{
  "states": {
    "state1": {"base": {"<model-name>": "<anim-name>"}}
  }
}
```

SceneNodeWrapper ***getRoot**()
Get root *SceneNodeWrapper*

void **setResources**(**const** DataProxy &*resources*)
Read additional resources paths from the DataProxy
Parameters
- `resources`: DataProxy with all resources settings

const DataProxy &**getResources**() **const**
Get resources

Public Static Attributes

const std::string **SYSTEM**

const Event::Type **POSITION_CHANGE**

Private Members

bool **mAddedToScene**

AnimationScheduler **mAnimationScheduler**

SceneNodeWrapper ***mRootNode**

DataProxy **mResources**

Ogre::SceneManager ***mSceneManager**

ResourceManager ***mResourceManager**

OgreObjectManager ***mObjectManager**

Friends

friend Gsage::OgreRenderSystem

1.24.46 File OgreRenderSystem.h

Variables

const std::string **OGRE_SECTION** = "OgreRenderer"

const std::string **OGRE_PLUGINS_PATH** = "PluginsPath"

const std::string **OGRE_CONFIG_PATH** = "ConfigPath"

const std::string **OGRE_RESOURCES** = "Resources"

namespace Ogre

File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class OgreLogRedirect : **public** LogListener

#include <OgreRenderSystem.h> Class, used to redirect all ogre output to the easylogging++

Private Functions

void **messageLogged**(**const** std::string &*message*, *Ogre*::LogMessageLevel *lml*, bool *maskDebug*, **const** std::string &*system*, bool &*skipMessage*)

class OgreRenderSystem : **public** ComponentStorage<*OgreRenderComponent*>, **public** RenderQueueListener, **pub**

Public Types

typedef std::vector<Entity *> **Entities**

typedef std::vector<*Ogre*::MovableObject *> **OgreEntities**

Enumerable of Ogre::MovableObject

Public Functions

OgreRenderSystem()

virtual ~OgreRenderSystem()

virtual bool **initialize**(**const** DataProxy &*settings*)
Intializes ogre render system
Parameters
- `settings`: DataProxy with initial settings for the render system

virtual void **shutdown**()
Shutdown OGRE

virtual bool **prepareComponent**(*OgreRenderComponent* *c)
Initializes *OgreRenderComponent*, injects objectManager, resourceManager and sceneManager

Parameters
- `c`: *OgreRenderComponent* component to initialize

virtual bool **fillComponentData**(*OgreRenderComponent* *component, **const** DataProxy &*data*)
Finalizes setup

Return false if failed to initialize component for some reason
Parameters
- `component`: *OgreRenderComponent* component to initialize
- `data`: DataProxy with node settings

virtual void **update**(**const** double &*time*)
Update render system
Parameters
- `time`: Elapsed time

virtual void **updateComponent**(*OgreRenderComponent* *component, Entity *entity, **const** double &*time*)
Update *OgreRenderComponent*

Parameters
- `component`: *OgreRenderComponent* to update
- `entity`: Entity that owns that component
- `time`: Elapsed time

virtual bool **removeComponent**(*OgreRenderComponent* *component)
Remove render component from the system. Removes all related visual nodes

Parameters
- `component`: *OgreRenderComponent* component to remove

virtual bool **configure**(**const** DataProxy &*config*)
Reconfigure render system

Parameters
- `config`: DataProxy with configs

DataProxy &**getConfig**()
Get current configs of the system

GeomPtr **getGeometry**(**const** BoundingBox &*bounds*, int *flags* = 0xFF)
Get implementation independent Geometry information

Return GeomPtr
Parameters
- `bounds`: get entities in bounds
- `flags`: filter entities by flags (default is all)

GeomPtr **getGeometry**(std::vector<std::string> *entities*)
Get implementation independent Geometry information

Return GeomPtr
Parameters
- `entities`: filter entities by names

virtual TexturePtr **createTexture**(RenderSystem::TextureHandle *handle*, **const** DataProxy &*parameters*)
Create texture manually

Parameters
- `handle`: texture id
- `parameters`: variable parameters that can be used for texture creation

virtual TexturePtr **getTexture**(RenderSystem::TextureHandle *handle*)
Get texture by name

Parameters
- `handle`: texture id

virtual bool **deleteTexture**(RenderSystem::TextureHandle *handle*)
Delete texture by handle

Return true if succeed
Parameters
- `handle`: texture id

virtual void **renderQueueStarted**(*Ogre*::uint8 *queueGroupId*, **const** *Ogre*::String &*invocation*, bool &*skipThisInvocation*)
Callback for ui updating 1.x, 2.0

virtual void **renderQueueEnded**(*Ogre*::uint8 *queueGroupId*, **const** *Ogre*::String &*invocation*, bool &*skipThisInvocation*)
Render queue event pass through

template<typename **T**>
void **registerElement**()
Register new type of factory in the render system

template<typename **T**>
bool **unregisterElement**()
Unregister factory type

Ogre::RenderWindow ***getRenderWindow**()
Get ogre render window

Ogre::SceneManager ***getSceneManager**()
Get ogre scene manager

Ogre::RenderSystem ***getRenderSystem**()
Get ogre render system

OgreEntities **getEntities**(**const** unsigned int &*query*, **const** BoundingBox &*bounds*)
Gets all scene entities

Parameters
- `query`: Filter entities by some query, default is all
- `bounds`: filter entities which are intersected by bounds

OgreEntities **getEntities**(**const** unsigned int &*query* = 0xFF)
Gets all scene entities

Parameters
- `query`: Filter entities by some query, default is all

Entities **getObjectsInRadius**(**const** *Ogre*::Vector3 &*center*, float *distance*, **const** unsigned int *flags* = 0xFF, **const** std::string &*id* = "")
Get objects in radius
Return list of entities
Parameters
- `position`: Point to search around
- `distance`: Radius of the sphere query

virtual void **setWidth**(unsigned int *width*, **const** std::string &*target* = "")
Set render target width

Parameters
- `target`: Render target name

virtual unsigned int **getWidth**(**const** std::string &*target* = "") **const**
Get render window width

virtual void **setHeight**(unsigned int *height*, **const** std::string &*target* = "")
Set render target height

Parameters
- `target`: Render target name

virtual unsigned int **getHeight**(**const** std::string &*target* = "") **const**
Get render window height

virtual void **setSize**(unsigned int *width*, unsigned int *height*, **const** std::string &*target* = "")
Set size of render target

Parameters
- `target`: Render target name

void **renderCameraToTarget**(**const** std::string &*cameraName*, **const** std::string &*target*)
Render camera to texture with name

Parameters
- `cameraName`: Name of the camera to use
- `target`: Name of RTT to render to

void **renderCameraToTarget**(*Ogre*::Camera *&*cam*, **const** std::string &*target*)
Render camera to texture with name

Parameters
- `cam`: Camera pointer
- `target`: Name of RTT to render to

RenderTargetPtr **createRenderTarget**(**const** std::string &*name*, *RenderTargetType*::Type *type*, DataProxy *parameters*)
Create new render target

Parameters
- `name`: Render target name
- `type`: Render target type
- `parameters`: Additional parameters

RenderTargetPtr **getRenderTarget** (**const** std::string &*name*)
Get render target by name

Parameters
- `name`: Render target name

RenderTargetPtr **getRenderTarget** (*Ogre*::RenderTarget **target*)
Get render target by wrapped Ogre::RenderTarget*

Parameters
- `target`: Ogre::RenderTarget

RenderTargetPtr **getMainRenderTarget** ()
Get main render target (window)

MaterialLoader ***getMaterialLoader** ()
Get material loader

bool **allowMultithreading** ()
Allow multithreaded mode for *OgreRenderSystem*

void **queueMutation** (*ObjectMutation*::*Callback callback*)
Queue object mutation is called from *Ogre* wrappers

Parameters
- `callback`: Mutation callback

OgreObjectManager ***getObjectManager** ()
Gets object manager

Public Static Attributes

const std::string **ID**

Protected Types

typedef std::queue<DataProxy> **ComponentLoadQueue**

typedef std::map<std::string, *RenderTargetPtr*> **RenderTargets**

typedef std::map<*Ogre*::RenderTarget *, std::string> **RenderTargetReverseIndex**

typedef std::map<std::string, *RenderTargetPtr*> **RenderWindowsByHandle**

Protected Functions

bool **handleWindowResized** (EventDispatcher **sender*, **const** Event &*event*)
Handle window resizing
Parameters
- `sender`: Engine
- `event`: WindowEvent

bool **installPlugin** (**const** std::string &*name*)

GeomPtr **getGeometry** (*OgreEntities entities*)

void **removeAllRenderTargets** ()

Protected Attributes

Ogre::Root ***mRoot**

Ogre::SceneManager ***mSceneManager**

Ogre::RenderSystem ***mRenderSystem**

Ogre::LogManager ***mLogManager**

Ogre::FontManager ***mFontManager**

Ogre::Viewport ***mViewport**

Ogre::*ManualMovableTextRendererFactory* ***mManualMovableTextParticleFactory**

OgreLogRedirect **mLogRedirect**

OgreObjectManager **mObjectManager**

WindowEventListener ***mWindowEventListener**

ResourceManager ***mResourceManager**

MaterialLoader ***mMaterialLoader**

ComponentLoadQueue **mLoadQueue**

RenderTargets **mRenderTargets**

RenderTargetReverseIndex **mRenderTargetsReverseIndex**

RenderTargetFactory **mRenderTargetFactory**

RenderWindowsByHandle **mRenderWindowsByHandle**

RenderTargetPtr **mWindow**

ThreadSafeQueue<*ObjectMutation*> **mMutationQueue**

ManualTextureManager **mManualTextureManager**

1.24.47 File OgreSelectEvent.h

namespace Gsage

class OgreSelectEvent : **public** SelectEvent

Public Functions

OgreSelectEvent(Event::ConstType *type*, **const** unsigned int *&flags*, **const** std::string *&entityId*, **const** *Ogre*::Vector3 *&intersection*)

virtual ~OgreSelectEvent()

const *Ogre*::Vector3 &**getIntersection**() **const**
Get selection hit point

Private Members

Ogre::Vector3 **mIntersection**

1.24.48 File OgreView.h

namespace Gsage

class OgreView : **public** EventSubscriber<*OgreView*>
#include <OgreView.h> Allows displaying ogre camera into imgui window.

Lua usage example:

```
-- create ogre viewport
viewport = imgui.createOgreView("#000000FF")

local textureID = "myOgreView"

-- render camera to texture
local cam = camera:create("free")
cam:renderToTexture(textureID, {
  autoUpdated = false
})

-- set ogre view texture
viewport:setTextureID(textureID)
-- update on each imgui render call
viewport:render(320, 240)
```

Public Functions

OgreView(*OgreRenderSystem* **render*, ImVec4 *bgColour*)

virtual ~OgreView()

void **render**(unsigned int *width*, unsigned int *height*)
Render ogre view

void **setTexture**(TexturePtr *texture*)
Sets rendered manual texture object
Parameters
- `texture`: Texture object

bool **setTexture**(**const** std::string &*id*)
Sets texture by texture id
Return true if succeed
Parameters
- `id`: texture id

Private Functions

void **setTextureID**(**const** std::string &*textureID*)
Sets rendered texture id
Parameters
- `textureID`: RTT texture

bool **onTextureEvent**(EventDispatcher **sender*, **const** Event &*event*)

Private Members

std::string **mTextureID**

TexturePtr **mTexture**

OgreRenderSystem ***mRender**

unsigned int **mWidth**

unsigned int **mHeight**

ViewportRenderData ***mViewport**

ImVec2 **mPosition**

ImVec4 **mBgColour**

1.24.49 File OverlayPass.h

namespace Gsage

class OverlayPass : **public** *Gsage*::*CustomPass*

Public Functions

OverlayPass(Engine **engine*, **const** *Ogre*::CompositorPassDef **def*, **const** *Ogre*::CompositorChannel &*target*, *Ogre*::CompositorNode **parentNode*)

virtual ~OverlayPass()

void **execute**(**const** *Ogre*::Camera **lodCamera*)
Do the UI rendering

Parameters
- `lodCamera`: Unused

class OverlayPassDef : **public** *Gsage*::*CustomPassDef*

Public Functions

OverlayPassDef(Engine **engine*, *Ogre*::CompositorTargetDef **target*, *Ogre*::CompositorNodeDef **node*)

virtual ~OverlayPassDef()

1.24.50 File ParticleSystemWrapper.h

Defines

__NODE_ID_TYPE

namespace Gsage

class ParticleSystemWrapper : **public** *Gsage*::*OgreObject*

Public Functions

ParticleSystemWrapper()

virtual ~ParticleSystemWrapper()

bool **read**(**const** DataProxy &*dict*)
Override default behavior for read

void **setTemplate**(**const** std::string &*templateName*)
Set particle system template. Note that it requires particle system recreation
Parameters
- `templateName`: Template name

const std::string &**getTemplate**() **const**
Get particle system template name

void **createParticle**(unsigned short *index*, __NODE_ID_TYPE *nodeId*)
Manualy create particle in the system
Parameters
- `index`: Index of the emitter
- `nodeId`: Emit particle from the specified node

void **createParticle**(unsigned short *index*, __NODE_ID_TYPE *nodeId*, **const** std::string &*value*)
Manually create text particle in the system Particle system type should be "manual_text" to use this method. Otherwise it will just generate a particle
Parameters
- `index`: Index of the emitter
- `nodeId`: Emit particle from the specified node
- `value`: Text value

void **createParticle**(unsigned short *index*, __NODE_ID_TYPE *nodeId*, **const** std::string &*value*, **const** *Ogre*::Quaternion &*rotation*)
Manually create text particle in the system Particle system type should be "manual_text" to use this method. Otherwise it will just generate a particle
Parameters
- `index`: Index of the emitter
- `nodeId`: Emit particle from the specified node
- `value`: Text value
- `rotate`: the emitter in the following direction

Public Static Attributes

const std::string **TYPE**

Private Functions

void **createParticle**(unsigned short *index*, *Ogre*::ParticleVisualData **data*, __NODE_ID_TYPE *nodeId*, **const** *Ogre*::Quaternion &*rotation*)

Private Members

std::string **mTemplate**

Ogre::ParticleSystem ***mParticleSystem**

1.24.51 File RenderEvent.h

namespace Gsage

class RenderEvent : **public** Event
#include <RenderEvent.h> Event that is used to update any UI overlay system

Public Functions

RenderEvent(Event::ConstType *type*, *OgreRenderSystem* **renderSystem*, *Ogre*::uint8 *queueID* = 0, *RenderTargetPtr renderTarget* = nullptr)

virtual ~RenderEvent()

OgreRenderSystem ***getRenderSystem**()
Gets a reference to the current render system

Public Members

Ogre::uint8 **queueID**
Ogre queue id

RenderTargetPtr **renderTarget**
RenderTarget that triggered that render event

Public Static Attributes

const Event::Type **RENDER_QUEUE_STARTED**

const Event::Type **UPDATE**
Main update

const Event::Type **RENDER_QUEUE_ENDED**
Same to ogre render queue ended

Private Members

OgreRenderSystem ***mRenderSystem**

1.24.52 File RenderInterfaceOgre3D.h

class RenderInterfaceOgre3D : **public** RenderInterface
#include <RenderInterfaceOgre3D.h> A sample render interface for Rocket into Ogre3D.

Modified by Brett Didemus to work with programable pipeline

Author Peter Curry

Public Functions

RenderInterfaceOgre3D(unsigned int *window_width*, unsigned int *window_height*)

virtual ~RenderInterfaceOgre3D()

virtual void **RenderGeometry**(Rocket::Core::Vertex **vertices*, int *num_vertices*, int **indices*, int *num_indices*, Rocket::Core::TextureHandle *texture*, **const** Rocket::Core::Vector2f &*translation*)
Called by Rocket when it wants to render geometry that it does not wish to optimise.

virtual Rocket::Core::CompiledGeometryHandle **CompileGeometry**(Rocket::Core::Vertex **vertices*, int *num_vertices*, int **indices*, int *num_indices*, Rocket::Core::TextureHandle *texture*)
Called by Rocket when it wants to compile geometry it believes will be static for the forseeable future.

virtual void **RenderCompiledGeometry**(Rocket::Core::CompiledGeometryHandle *geometry*, **const** Rocket::Core::Vector2f &*translation*)
Called by Rocket when it wants to render application-compiled geometry.

virtual void **ReleaseCompiledGeometry**(Rocket::Core::CompiledGeometryHandle *geometry*)
Called by Rocket when it wants to release application-compiled geometry.

virtual void **EnableScissorRegion**(bool *enable*)
Called by Rocket when it wants to enable or disable scissoring to clip content.

virtual void **SetScissorRegion**(int *x*, int *y*, int *width*, int *height*)
Called by Rocket when it wants to change the scissor region.

virtual bool **LoadTexture**(Rocket::Core::TextureHandle &*texture_handle*, Rocket::Core::Vector2i &*texture_dimensions*, **const** Rocket::Core::String &*source*)
Called by Rocket when a texture is required by the library.

virtual bool **GenerateTexture**(Rocket::Core::TextureHandle &*texture_handle*, **const** Rocket::Core::byte **source*, **const** Rocket::Core::Vector2i &*source_dimensions*)
Called by Rocket when a texture is required to be built from an internally-generated sequence of pixels.

virtual void **ReleaseTexture**(Rocket::Core::TextureHandle *texture*)
Called by Rocket when a loaded texture is no longer required.

float **GetHorizontalTexelOffset**()
Returns the native horizontal texel offset for the renderer.

float **GetVerticalTexelOffset**()
Returns the native vertical texel offset for the renderer.

void **setCustomProjectionMatrix**(*Ogre*::Matrix4 *projMatrix*)

Private Members

Ogre::RenderSystem ***render_system**

Ogre::LayerBlendModeEx **colour_blend_mode**

Ogre::LayerBlendModeEx **alpha_blend_mode**

Ogre::Matrix4 **customProjectionMatrix**

Ogre::TexturePtr **m_blankTexture**

bool **scissor_enable**

int **scissor_left**

int **scissor_top**

int **scissor_right**

int **scissor_bottom**

1.24.53 File RenderTargetTypes.h

namespace Gsage

class RenderTargetType

Public Types

enum Type
Represents different kinds of underlying wrapped target

Values:

Generic = 0

Rtt = 1

Window = 2

1.24.54 File RenderTarget.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

Typedefs

typedef *RenderTarget* ***RenderTargetPtr**

class RenderTarget : **public** EventSubscriber<*RenderTarget*>
Subclassed by *Gsage::RttRenderTarget*, *Gsage::WindowRenderTarget*

Public Functions

RenderTarget(**const** std::string &*name*, *Ogre*::RenderTarget **wrapped*, **const** DataProxy &*parameters*, Engine **engine*)

RenderTarget(**const** std::string &*name*, *RenderTargetType*::Type *type*, **const** DataProxy &*parameters*, Engine **engine*)

virtual ~RenderTarget()

const std::string &**getName**() **const**
Get *RenderTarget* name

RenderTargetType::Type **getType**() **const**
Get *RenderTarget* type

void **initialize**(*Ogre*::SceneManager **sceneManager*)
Initialize with scene manager

Parameters
- `sceneManager`: Ogre::SceneManager

virtual int **getWidth**() **const**
Get render target width

virtual int **getHeight**() **const**
Get render target height

virtual void **setWidth**(int *width*)
Set render target width
Parameters
- `width`:

virtual void **setHeight**(int *height*)
Set render target height
Parameters
- `height`:

virtual void **setDimensions**(int *width*, int *height*)
Set render target dimensions

Parameters
- `width`:
- `height`:

virtual void **setPosition**(int *x*, int *y*)
Set render target position

Parameters
- `x`:
- `y`:

virtual void **setCamera**(*Ogre*::Camera **camera*)
Set render target camera

Parameters
- `camera`:

virtual *Ogre*::Camera ***getCamera**()
Get camera

virtual *Ogre*::Viewport ***getViewport**()
Get viewport

virtual void **update**()
Update render target

bool **isAutoUpdated**() **const**
Is render target auto updated

Ogre::RenderTarget ***getOgreRenderTarget**()
Get underlying Ogre::RenderTarget

bool **isMouseOver**() **const**
Check if mouse over

void **switchToDefaultCamera**()
Switches back to default camera

virtual bool **onTextureEvent**(EventDispatcher **sender*, **const** Event &*event*)

std::tuple<*Ogre*::Vector3, Entity *> **raycast**(*Ogre*::Real *defaultDistance*, *Ogre*::Real *closestDistance*, unsigned int *flags*) **const**
Raycast and get object and 3d point under the pointer

Return tuple: point and object hit by ray
Parameters
- `defaultDistance`: If nothing is hit, use ray and point on it
- `closestDistance`: Closest raycast distance
- `flags`: Objects flags filter

Protected Functions

virtual void **updateCameraAspectRatio**()

virtual void **configureViewport**(*Ogre*::Viewport **viewport*)

Protected Attributes

Ogre::RenderTarget ***mWrappedTarget**

std::string **renderQueueSequenceName**

int **mX**

int **mY**

int **mWidth**

int **mHeight**

DataProxy **mParameters**

const std::string **mName**

Ogre::Camera ***mCurrentCamera**

Ogre::Camera ***mDefaultCamera**

bool **mAutoUpdate**

RenderTargetType::Type **mType**

bool **mHasQueueSequence**

bool **mDestroying**

int **mSamples**

Engine *__mEngine__

Ogre::SceneManager *__mSceneManager__

std::shared_ptr<*MOC*::*CollisionTools*> __mCollisionTools__

bool **mContinuousRaycast**

bool **mMouseOver**

Ogre::Vector2 __mMousePosition__

std::string __mRolledOverObject__

bool **mRenderQueueSequenceCreated**

Private Functions

void **subscribe**()

bool **handleRaycast**(EventDispatcher *_sender_, **const** Event &_event_)

bool **handleMouseEvent**(EventDispatcher *_sender_, **const** Event &_event_)

std::tuple<*Ogre*::Ray, bool> **getRay**() **const**

void **doRaycasting**(float _x_, float _y_, unsigned int _flags_ = 0xFFFF, bool _select_ = false)

class RenderTargetFactory

#include <*RenderTarget.h*> Factory creates Ogre::RenderTarget wrapped into Gsage wrapper

Public Functions

RenderTargetPtr **create**(**const** std::string &_name_, *RenderTargetType*::Type _type_, **const** DataProxy &_parameters_, Engine *_engine_)

Create render target of specified type

Parameters

- `name`: render target name
- `type`: *RenderTargetType*:Rtt or RenderTargetType::Window
- `parameters`: additional parameters
- `engine`: Engine instance

RenderTargetPtr **wrap**(*Ogre*::RenderTarget *_renderTarget_, **const** std::string &_name_, **const** DataProxy &_parameters_, Engine *_engine_)

Wrap render target

Parameters

- `renderTarget`: Ogre::RenderTarget
- `name`: wrapped rt name
- `parameters`: additional parameters
- `engine`: Engine instance

class RttRenderTarget : **public** *Gsage*::*RenderTarget*

#include <*RenderTarget.h*> Wraps *Ogre* RT target

Public Functions

RttRenderTarget(**const** std::string &*name*, **const** DataProxy &*parameters*, Engine **engine*)

virtual ~RttRenderTarget()

void **setDimensions**(int *width*, int *height*)
Set render target dimensions

Parameters
- `width`:
- `height`:

Protected Functions

void **createTexture**(**const** std::string &*name*, unsigned int *width*, unsigned int *height*, unsigned int *samples*, *Ogre*::PixelFormat *pixelFormat*)

bool **onTextureEvent**(EventDispatcher **sender*, **const** Event &*event*)

Protected Attributes

TexturePtr **mTexture**

Private Functions

void **wrap**()

class WindowRenderTarget : **public** *Gsage*::*RenderTarget*
#include <*RenderTarget.h*> Wrapped Ogre::RenderWindow

Public Functions

WindowRenderTarget(**const** std::string &*name*, **const** DataProxy &*parameters*, Engine **engine*)

virtual ~WindowRenderTarget()

void **setDimensions**(int *width*, int *height*)
Set render target dimensions

Parameters
- `width`:
- `height`:

1.24.55 File Renderer.hpp

namespace Gsage

Typedefs

typedef std::shared_ptr<*Renderer*> **RendererPtr**

class Renderer
Subclassed by *Gsage::ImageRenderer*

Public Functions

Renderer(WindowPtr *window*, *SDLCore* **core*)

virtual void **render**() = 0

Protected Attributes

SDLCore ***mCore**

WindowPtr **mWindow**

Friends

friend Gsage::RendererFactory

1.24.56 File ResourceManager.h

namespace Gsage

class ResourceManager

Public Functions

ResourceManager(GsageFacade **facade*, *MaterialLoader* **materialLoader*)

virtual ~ResourceManager(void)

bool **load**(**const** DataProxy &*resources*, bool *initialize* = true)
Loads all resource groups

Parameters
- `resources`: DataProxy with all required resources
- `initialize`: Intializes resource group

void **unload**(**const** std::string &*group*)
Unload resources

Parameters
- `group`: Resource group to unload

void **unload**()
Unload all resources

void **unload**(**const** DataProxy &*resources*)
Unload resources

Parameters
- `resources`: Resource groups DataProxy

std::tuple<std::string, std::string> **processPath**(**const** std::string &*line*, **const** std::string &*workdir* = "")

Private Members

bool **mHlmsLoaded**

GsageFacade ***mFacade**

MaterialLoader ***mMaterialLoader**

1.24.57 File RocketEvent.h

namespace Gsage

class RocketContextEvent : **public** Event

Public Functions

RocketContextEvent(Event::ConstType *type*, **const** std::string &*name*)

virtual ~RocketContextEvent()

Public Members

std::string **name**

Public Static Attributes

const Event::Type **CREATE**

1.24.58 File RocketOgreWrapper.h

namespace Gsage

class RocketOgreWrapper : **public** EventSubscriber<*RocketOgreWrapper*>, **public** *Gsage*::*RenderSystemWrapper*

Public Functions

RocketOgreWrapper(Engine **engine*)

virtual ~RocketOgreWrapper()

void **destroy**()
Destroy *RocketOgreWrapper*

Protected Functions

void **setUpInterfaces**(unsigned int *width*, unsigned int *height*)
Set up interfaces

Private Functions

bool **render**(EventDispatcher **sender*, **const** Event &*event*)

void **configureRenderSystem**(*RenderEvent* &*event*)

Private Members

Rocket::Core::RenderInterface ***mRenderInterface**

Rocket::Core::SystemInterface ***mSystemInterface**

1.24.59 File RocketUIManager.h

namespace Gsage

class RenderSystemWrapper
Subclassed by *Gsage::RocketOgreWrapper*

Public Types

typedef std::map<std::string, Rocket::Core::Context *> **Contexts**

Public Functions

RenderSystemWrapper(Engine **engine*)

virtual ~RenderSystemWrapper()

virtual Rocket::Core::Context ***getContext**(**const** std::string &*name*)
Get context

Return rocket context
Parameters
- `name`: Context name

virtual *Contexts* **getContexts**()
Get all contexts

virtual void **setLuaState**(lua_State **L*)
Set lua state

virtual void **destroy**()
Destroy render system wrapper

Protected Functions

virtual Rocket::Core::Context ***createContext**(**const** std::string &*name*, unsigned int *width*, unsigned int *height*)
Create context

virtual void **setUpInterfaces**(unsigned int *width*, unsigned int *height*) = 0
Set up interfaces

Protected Attributes

Contexts **mContexts**

Engine ***mEngine**

lua_State ***mLuaState**

bool **mInitialized**

class RocketUIManager : **public** UIManager, **public** EventSubscriber<*RocketUIManager*>

Public Functions

RocketUIManager()

virtual ~RocketUIManager()

virtual void **initialize**(GsageFacade **facade*, lua_State **L* = 0)
Initialize ui manager

Parameters
- `called`: by gsage facade on setup
- `L`: init with lua state

lua_State ***getLuaState**()
Gets Rocket lua state

void **setLuaState**(lua_State **L*)
Update load state
Parameters
- `L`: lua_State

void **setUp**()
Configures rendering

bool **handleSystemChange**(EventDispatcher **sender*, **const** Event &*event*)
SystemChangeEvent::SYSTEM_ADDED and SystemChangeEvent::SYSTEM_REMOVED handler

const std::string &**getType**()

Public Static Attributes

const std::string **TYPE**

Private Types

typedef std::map<KeyboardEvent::Key, Rocket::Core::Input::KeyIdentifier> **KeyIdentifierMap**

Private Functions

bool **handleMouseEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle mouse event from engine

Parameters
- `event`: Event

bool **handleKeyboardEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle keyboard event from engine

bool **handleInputEvent**(EventDispatcher *_sender_, **const** Event &_event_)
Handle keyboard event from engine

int **getKeyModifierState**()
Get key modifier state

void **buildKeyMap**()
Build Engine <-> Rocket key map

bool **doCapture**(Rocket::Core::Context *_ctx_)
Check if mouse event can be captured by any rocket element

Private Members

RenderSystemWrapper ***mRenderSystemWrapper**

KeyIdentifierMap **mKeyMap**

unsigned int **mModifiersState**

bool **mIsSetUp**

1.24.60 File RocketUIPlugin.h

namespace Gsage

class RocketUIPlugin : **public** IPlugin

Public Functions

RocketUIPlugin()

virtual ~RocketUIPlugin()

virtual const std::string &**getName**() **const**
Get rocket UI plugin name

Return RocketUI string

virtual bool **installImpl**()
Install rocker ui manager

Return true if succesful

virtual void **uninstallImpl**()
Uninstall rocket ui manager

void **setupLuaBindings**()
Set up lua bindings

Private Members

int **mUIManagerHandle**

RocketUIManager **mUIManager**

1.24.61 File SDLAudioSystem.h

namespace Gsage

class SDLAudioSystem

Public Functions

SDLAudioSystem()

virtual ~SDLAudioSystem()

1.24.62 File SDLCore.h

namespace Gsage

class SDLCore : **public** UpdateListener

Public Functions

SDLCore()

virtual ~SDLCore()

bool **initialize**(**const** DataProxy &*params*, GsageFacade **facade*)
Initialize SDL core
Return true if succeed

void **tearDown**()
Tear down SDL core

void **update**(double *time*)
Update is called on each engine loop

void **addEventListener**(*SDLEventListener* *listener)
Add SDL event listener
Parameters
- `listener`: *SDLEventListener*

void **removeEventListener**(*SDLEventListener* *listener)
Remove SDL event listener
Parameters
- `listener`: *SDLEventListener*

void **setWindowManager**(*SDLWindowManager* *value)
Sets active window manager. *SDLCore* will call update for each window

Parameters
- `value`: *SDLWindowManager*

const std::string &**getResourcePath**() **const**
Get engine resources path

Private Types

typedef std::vector<*SDLEventListener* *> **EventListeners**

Private Members

bool **mInitialized**

GsageFacade ***mFacade**

EventListeners **mEventListeners**

SDLWindowManager ***mWindowManager**

1.24.63 File SDLEventListener.h

namespace Gsage

class SDLEventListener
Subclassed by *Gsage::SDLInputListener*

Public Functions

SDLEventListener()

virtual ~SDLEventListener()

virtual void **handleEvent**(SDL_Event *event) = 0
Abstract event handling interface

virtual void **setSDLCore**(*SDLCore* *core)
Inject sdl core instance
Parameters
- `core`: *SDLCore* pointer

Protected Attributes

SDLCore ***mSDLCore**

1.24.64 File SDLInputListener.h

namespace Gsage

class SDLInputFactory : **public** AbstractInputFactory

Public Functions

SDLInputFactory()

virtual ~SDLInputFactory()

InputHandlerPtr **create**(size_t *windowHandle*, Engine **engine*)
Create SDL input handler

Return InputHandler
Parameters
- `windowHandle`: Window handle to attach to
- `engine`: Engine instance

void **setSDLCore**(*SDLCore* **core*)
Inject SDL core instance
Parameters
- `core`: SDL core

Private Members

SDLCore ***mCore**

InputHandlerPtr **mListener**

class SDLInputListener : **public** InputHandler, **public** EventDispatcher, **public** *Gsage*::*SDLEventListener*

Public Functions

SDLInputListener(size_t *handle*, Engine **eventRedirect* = 0)

virtual ~SDLInputListener()

void **handleEvent**(SDL_Event **event*)
Handle sdl event
Parameters
- `event`: SDL event

virtual void **update**(double *time*)

virtual void **handleResize**(unsigned int *width*, unsigned int *height*)

virtual void **handleClose**()

Private Functions

const MouseEvent::ButtonType **mapButtonType**(Uint8 *sdlButtonID*)

void **handleMouseEvent**(SDL_Event **event*)
Handle mouse event
Parameters
- `event`: SDL_Event

void **handleKeyboardEvent**(SDL_Event **event*)
Handle keyboard event
Parameters
- `event`: SDL_Event

Private Members

std::map<SDL_Keycode, KeyboardEvent::Key> **mKeyMap**

1.24.65 File SDLPlugin.h

namespace Gsage

class SDLPlugin : **public** IPlugin

Public Functions

SDLPlugin()

virtual ~SDLPlugin()

virtual const std::string &**getName**() **const**
Get rocket UI plugin name

Return "SDL" string

virtual bool **installImpl**()
Install rocker ui manager

Return true if succesful

virtual void **uninstallImpl**()
Uninstall rocket ui manager

virtual void **setupLuaBindings**()
Set up lua bindings for imgui

Private Members

SDLCore **mSDLCore**

1.24.66 File SDLRenderer.h

namespace Gsage

class SDLRenderer
#include <SDLRenderer.h> Wraps SDL renderer and call updates on each engine update

Public Functions

SDLRenderer(WindowPtr *window*, **const** DataProxy &*params*, SDL_Renderer **renderer*, *SDLCore* **core*)

virtual ~SDLRenderer()

void **render**()
Update underlying views

Private Types

typedef std::vector<*RendererPtr*> **Renderers**

Private Members

SDL_Renderer ***mRenderer**

Renderers **mRenderers**

1.24.67 File SDLWindowManager.h

namespace Gsage

class SDLWindow : **public** *Window*

Public Functions

SDLWindow(**const** std::string &*name*, SDL_Window **window*)

virtual ~SDLWindow()

unsigned long long **getWindowHandle**()
Get window handle

void ***getGLContext**()
Get GL context

std::tuple<int, int> **getPosition**() **const**
Get window position

virtual void **setPosition**(int *x*, int *y*)
Sets window position

Parameters
- `x`:
- `y`:

virtual std::tuple<int, int> **getSize**()
Get window size

void **setSize**(int *width*, int *height*)
Set window size

Parameters
- `width`:
- `height`:

virtual std::tuple<int, int, int, int> **getDisplayBounds**()
Get display size information Selects the display which contains current window position

virtual float **getScaleFactor**() **const**
Get screen DPI that is used to display the window

virtual int **getDisplay**() **const**
Get display index that contains the window

virtual void **show**()
Show window

virtual void **hide**()
Hide window

Private Members

SDL_Window ***mWindow**

SDL_GLContext **mGLContext**

Friends

friend Gsage::SDLWindowManager

class SDLWindowManager : **public** WindowManager
#include <SDLWindowManager.h> SDL Window Manager implementation

Public Functions

SDLWindowManager(**const** std::string &*type*, *SDLCore* **core*)

virtual ~SDLWindowManager()

bool **initialize**(**const** DataProxy &*config*)
Inialize SDL system

Parameters
- `config`: *SDLWindowManager*

WindowPtr **createWindow**(**const** std::string &*name*, unsigned int *width*, unsigned int *height*, bool *fullscreen*, **const** DataProxy &*params*)
Create a window

Return newly created window pointer
Parameters
- `create`: a window
- `width`: window width
- `height`: window height
- `fullscreen`: create a fullscreen window
- `params`: additional parameters

virtual bool **destroyWindow**(WindowPtr *window*)
Close a window

Return true if succeed
Parameters
- `window`: window pointer to destroy

virtual void **update**(double *time*)
Update is used to render windows, whose rendering is handled by SDL2 itself

Parameters
- `time`: Delta time

Private Types

typedef std::unique_ptr<*SDLRenderer*> **SDLRendererPtr**

Private Members

std::mutex **mWindowsMutex**

SDLCore ***mCore**

std::map<std::string, *SDLRendererPtr*> **mRenderers**

1.24.68 File SceneNodeWrapper.h

namespace Gsage

class SceneNodeWrapper : **public** *Gsage*::*OgreObject*, **public** EventSubscriber<*SceneNodeWrapper*>

Public Functions

SceneNodeWrapper()

virtual ~SceneNodeWrapper()

bool **initialize**(*OgreObjectManager* **objectManager*, **const** DataProxy &*dict*, **const** std::string &*ownerId*, **const** std::string &*type*, *Ogre*::SceneManager **sceneManager*, *Ogre*::SceneNode **parent*)
Initialize element from the node with values
Parameters
- `factory`: *OgreObjectManager* to enable child class creation
- `dict`: DataProxy with values
- `type`: String type of the object

- `parent`: Parent SceneNode
- `sceneManager`: SceneManager to use
- `ownerId`: Id of entity that owns the element

bool **hasNode**()
Check that node has *Ogre* node created

void **createNode**(**const** std::string &*id*)
Create Ogre::SceneNode with the specified if
Parameters
- `id`: Node id

const std::string &**getId**() **const**
Get node id

void **setPosition**(**const** *Ogre*::Vector3 &*position*)
Set node position with defined offset
Parameters
- `position`: Ogre::Vector3 position

void **setPositionWithoutOffset**(**const** *Ogre*::Vector3 &*position*)
Set node position without defined offset
Parameters
- `position`: Ogre::Vector3 position

Ogre::Vector3 **getPosition**()
Get node position

Ogre::Vector3 **getPositionWithoutOffset**()
Get node position without correction that is defined in offset field

void **setScale**(**const** *Ogre*::Vector3 &*scale*)
Set SceneNode scale
Parameters
- `scale`: Ogre::Vector3 scale in all dimensions

Ogre::Vector3 **getScale**()
Get node scale

void **setOrientation**(**const** *Ogre*::Quaternion &*rotation*)
Set node orientation
Parameters
- `rotation`: Orientation quaternion

Ogre::Quaternion **getOrientation**()
Get node orientation

void **readChildren**(**const** DataProxy &*dict*)

DataProxy **writeChildren**()

void **setOrientationVector**(**const** *Ogre*::Vector3 &*value*)
Set vector that defines "face" of the node
Parameters
- `value`: Ogre::Vector3 normalized/not normalized vector (it is normalized anyway)

const *Ogre*::Vector3 &**getOrientationVector**() **const**
Get vector that defines "face" of the node

void **rotate**(**const** *Ogre*::Quaternion &*rotation*, **const** *Ogre*::Node::TransformSpace *ts*)
Rotate node
Parameters
- `rotation`: Ogre::Quaternion that defines rotation

void **rotate**(**const** *Ogre*::Vector3 &*axis*, **const** *Ogre*::Degree &*degree*, **const** *Ogre*::Node::TransformSpace *ts*)
Rotate node
Parameters
- `axis`: Axis to rotate around
- `degree`: Rotation degree
- `ts`: Transform space

void **lookAt**(**const** *Ogre*::Vector3 &*position*, *Ogre*::Node::TransformSpace *relativeTo*)
Rotate node to look at position
Parameters
- `position`: Position to look at
- `relativeTo`: Coordinate space to use

void **destroy**()
Remove all children and destroy node

bool **attach**(*Ogre*::MovableObject **object*, **const** DataProxy &*params*)
Attach movable object to this object
Parameters
- `object`: Object to attach

void **destroyAllAttachedMovableObjects**(*Ogre*::SceneNode **node*)
Remove all attached movable objects from the node
Parameters
- `node`: Node to process

OgreObject ***getChild**(**const** std::string &*type*, **const** std::string &*name*, bool *traverse* = false)
Get child
Parameters
- `type`: Type of the child
- `name`: Name, that was defined in the "name" field
- `traverse`: Traverse children splitting name by .

template<class **T**>
T ***getChildOfType**(**const** std::string &*name*)
Get child of specific type
Parameters
- `type`: Type of the child
- `name`: Name, that was defined in the "name" field

IMovableObjectWrapper ***getMovableObject**(**const** std::string &*type*, **const** std::string &*name*)

void **pitch**(**const** *Ogre*::Radian &*angle*, *Ogre*::Node::TransformSpace *relativeTo* = *Ogre*::Node::TS_LOCAL)
Rotate the node around X axis

Parameters
- `angle`: Rotation angle
- `relativeTo`: Transformation space

void **yaw**(**const** *Ogre*::Radian &*angle*, *Ogre*::Node::TransformSpace *relativeTo* = *Ogre*::Node::TS_LOCAL)
Rotate the node around Y axis

Parameters
- `angle`: Rotation angle
- `relativeTo`: Transformation space

void **roll**(**const** *Ogre*::Radian &*angle*, *Ogre*::Node::TransformSpace *relativeTo* = *Ogre*::Node::TS_LOCAL)
Rotate the node around Z axis

Parameters
- `angle`: Rotation angle
- `relativeTo`: Transformation space

void **translate**(**const** *Ogre*::Vector3 &*d*)
Moves the node along the Cartesian axes

Parameters
- `d`: Vector with x,y,z values representing the translation

void **translate**(**const** *Ogre*::Vector3 &*d*, *Ogre*::Node::TransformSpace *relativeTo* = *Ogre*::Node::TS_LOCAL)
Moves the node along the Cartesian axes

Parameters
- `d`: Vector with x,y,z values representing the translation
- `relativeTo`: Transformation space

Ogre::SceneNode ***getNode**()
Get Ogre::SceneNode

Public Static Attributes

const std::string **TYPE**

Private Types

typedef std::map<**const** std::string, *OgreObject* *> **ObjectCollection**

typedef std::map<**const** std::string, *ObjectCollection*> **Objects**

Private Functions

bool **onFactoryUnregister**(EventDispatcher **sender*, **const** Event &*event*)
Handle factory removal event
Parameters
- `event`: *OgreObjectManager* event

Private Members

std::string **mId**

Ogre::Vector3 **mOrientationVector**

Ogre::SceneNode ***mNode**

Ogre::Vector3 **mOffset**

Objects **mChildren**

1.24.69 File SystemInterfaceOgre3D.h

class SystemInterfaceOgre3D : **public** SystemInterface
#include <SystemInterfaceOgre3D.h> A sample system interface for Rocket into Ogre3D.

Author Peter Curry

Public Functions

SystemInterfaceOgre3D()

virtual ~SystemInterfaceOgre3D()

virtual float **GetElapsedTime**()
Gets the number of seconds elapsed since the start of the application.

virtual bool **LogMessage**(Rocket::Core::Log::Type *type*, **const** Rocket::Core::String &*message*)
Logs the specified message.

Private Members

Ogre::Timer **timer**

1.24.70 File ViewportRenderable.h

namespace Gsage

class ViewportRenderData

Public Functions

ViewportRenderData()

virtual ~ViewportRenderData()

void **updatePos**(ImVec2 *pos*)
Update position

void **updateSize**(ImVec2 *size*)
Update size

void **updateUVs**(**const** Texture::UVs &*uvs*)
Update UV

void **updateVertexBuffer**()
Update vertex buffer

void **resetDatablock**()
Removes datablock

void **setDatablock**(**const** *Ogre*::String &*name*)
Set viewport datablock

Ogre::TexturePtr **getRenderTexture**()
Get RTT to render

Private Members

ImVec2 **pos**

ImVec2 **size**

ImDrawCmd **mDrawCmd**

ImDrawVert **mVertexBuffer**[4]

ImDrawIdx **mIndexBuffer**[6]

Ogre::String **mTextureName**

Ogre::TextureUnitState ***mTexUnitState**

ImVec2 **mPos**

ImVec2 **mSize**

bool **mDirty**

Friends

friend Gsage::ImguiRendererV1

1.24.71 File WindowEventListener.h

namespace Gsage

class WindowEventListener : **public** *WindowEventListener*
#include <WindowEventListener.h> Proxy ogre window resize events to the engine

Public Functions

WindowEventListener(*Ogre*::RenderWindow **window*, Engine **engine*)

virtual ~WindowEventListener()

virtual void **windowResized**(*Ogre*::RenderWindow **window*)
windowResized handler

Parameters
- `window`: Ogre::RenderWindow

virtual void **windowClosed**(*Ogre*::RenderWindow **window*)
windowClosed handler

Parameters
- `window`: Ogre::RenderWindow

Private Functions

void **fireWindowEvent**(Event::ConstType *type*, *Ogre*::RenderWindow **window*)

Private Members

Engine ***mEngine**

1.24.72 File WorkspaceEvent.h

namespace Ogre
File: MovableText.h

Description: This creates a billboarding object that display a text. Note: This object must have a dedicated scene node since it will rotate it to face the camera (OGRE 2.1)

Author 2003 by cTh see gavocanov@rambler.ru 2006 by barraq see nospam@barraquand.com 2012 to work with newer versions of OGRE by MindCalamity mindcalamity@gmail.com 2015 to work on OGRE 2.1 (but not on older versions anymore) by Jayray jeremy.richert1@gmail.com

- See "Notes" on: http://www.ogre3d.org/tikiwiki/tiki-editpage.php?page=MovableText

namespace Gsage

class WorkspaceEvent : **public** Event
#include <WorkspaceEvent.h> Fired when a new Ogre::CompositorWorkspace is created

Public Functions

WorkspaceEvent(Event::ConstType *type*, *Ogre*::CompositorWorkspace **workspace*)

virtual ~WorkspaceEvent()

Public Members

Ogre::CompositorWorkspace ***mWorkspace**

Public Static Attributes

const Event::Type **CREATE**
Create event

1.24.73 File imgui_extensions.h

Defines

IMGUI_DEFINE_MATH_OPERATORS

namespace ImGui

Functions

IMGUI_API bool ImGui::Spinner(const char * label, float radius, int thickness, const I

static void **AddConvexPolyFilled**(ImDrawList **drawList*, **const** ImVec2 **points*, **const** int *points_count*, **const** *Gradient* &*gradient*)

static void **PathFillConvex**(ImDrawList **drawList*, **const** *Gradient* &*gradient*)

struct Gradient

Subclassed by *ImGui::VerticalGradient*

Public Functions

virtual ImU32 **Calc**(**const** ImVec2 &*pos*) **const** = 0

struct VerticalGradient : **public** *ImGui*::*Gradient*

Public Functions

VerticalGradient(**const** ImVec2 &*start*, **const** ImVec2 &*end*, **const** ImVec4 &*col0*, **const** ImVec4 &*col1*)

VerticalGradient(**const** ImVec2 &*start*, **const** ImVec2 &*end*, ImU32 *col0*, ImU32 *col1*)

void **evalStep**()

virtual ImU32 **Calc**(**const** ImVec2 &*pos*) **const**

Public Members

ImVec4 **Col0**

ImVec4 **Col1**

ImVec2 **Start**

ImVec2 **End**

float **Len**

1.24.74 File ImGuizmo.h

Warning: doxygenfile: Found multiple matches for file “ImGuizmo.h

1.24.75 File ImguiRenderable.h

Warning: doxygenfile: Found multiple matches for file “ImguiRenderable.h

1.24.76 File ManualObjectWrapper.h

Warning: doxygenfile: Found multiple matches for file “ManualObjectWrapper.h

1.24.77 File MovableText.h

Warning: doxygenfile: Found multiple matches for file “MovableText.h

1.24.78 File ImGuizmo.h

Warning: doxygenfile: Found multiple matches for file “ImGuizmo.h

1.24.79 File ImguiRenderable.h

Warning: doxygenfile: Found multiple matches for file “ImguiRenderable.h

1.24.80 File ManualObjectWrapper.h

Warning: doxygenfile: Found multiple matches for file “ManualObjectWrapper.h

1.24.81 File MovableText.h

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