TriEngine2D v0.0.6

Generated by Doxygen 1.8.3.1

Sun Feb 10 2013 18:59:25

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Main Page

2D general-purpose engine in C#/OpenGL

IRC

TriDevs has an IRC channel, feel free to hop in if you have a question about anything: **Server:** irc.kottnet.net **Port:** 6667, 6697 (SSL) **Channel:** TriDevs

The channel topic contains further info.

License

Copyright © 2013 by Adam Hellberg, Sijmen Schoon and Preston Shumway.

TriEngine2D is licensed under the MIT License, more info can be found in the LICENSE file.

Contributing

You are free to fork this project and make your own changes, as long as you follow the MIT License.

If you want to make a pull request, please do so to the main project and not any of the "official" forks.

For your pull request to be accepted, please follow our coding style:

- · Indent with 4 spaces, not tabs.
- · Curly braces placed on next line.
- All **public** methods, accessors and members must be properly documented.
- Use sensible variable names that describe what they are for.
- · Method declarations written as:

"c# public void Hello(string world) "

• If your method accepts many parameters, it can be useful to put parameters on separate lines, as per this style:

"c# public void Hello(string world, bool print) "

• Please write tests for your code (not strictly required, but it's a plus)

2 Main Page

By looking through the current source code, you should be able to get a good understanding of the formatting we use.

If you're using Visual Studio, you can change the indent behaviour by going to: **Tools** -> **Options** -> **Text Editor** -> **C#** -> **Tabs** and make sure "Insert spaces" is checked.

If you write tests for your code, please place these tests in their own project: "< Namespace >.Tests", create said project if it does not exist (of type Class Library).

We use NUnit as test framework, feel free to use something else if you want to, but make sure you document what framework you are using and that it is freely available for anyone to obtain.

Dependencies

TriEngine2D depends on log4net, which is included in the libs/log4net folder.

TriEngine2D depends on OpenTK, this is not included and you will have to build/install it yourself. OpenTK depends on OpenGL drivers being installed, they are usually in your normal video card drivers.

TriEngine2D depends on Json.NET, this is not included, but is specified in the NuGet package config. If you properly configure your NuGet settings, NuGet will automatically download Json.NET when building any projects that depend on it.

If you want to run the tests you will need to have NUnit installed.

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

IriDevs
TriDevs.TriEngine2D
TriDevs.TriEngine2D.Extensions
TriDevs.TriEngine2D.Helpers
TriDevs.TriEngine2D.Logging
TriDevs.TriEngine2D.Native
TriDevs.TriEngine2D.Serializing

Namespace Index

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

TriDevs.TriEngine2D.Extensions.EnumerationExtensions	
Extensions for System.Enum.	11
TriDevs.TriEngine2D.Native.Helpers	
Helper class with various methods to help native coding and debugging.	13
TriDevs.TriEngine2D.Helpers.IO	
Provides various helper functions for doing IO operations	14
TriDevs.TriEngine2D.Logging.LogManager	
Class to manage logging. ILog interfaces should be obtained from this class' methods, as op-	
posed to calling default log4net methods.	15
TriDevs.TriEngine2D.Serializing.Serializer	
Provides serialization methods.	17
TriDevs.TriEngine2D.Extensions.StringExtensions	
Extensions for System.String	18
TriDevs.TriEngine2D.Helpers.Threading	
Provides various helper functions for doing threading operations	20
TriDevs.TriEngine2D.Version	
Version class specifiying the version of this project.	20
TriDevs.TriEngine2D.Native.WinAPI	
Holds various WinAPI stuff	22

6 Class Index

File Index

4.1 File List

Here is a list of all files with brief descriptions:

TriDevs.TriEngine2D/Version.cs
TriDevs.TriEngine2D/Extensions/EnumerationExtensions.cs
TriDevs.TriEngine2D/Extensions/StringExtensions.cs
TriDevs.TriEngine2D/Helpers/IO.cs
TriDevs.TriEngine2D/Helpers/Threading.cs
TriDevs.TriEngine2D/Logging/LogManager.cs
TriDevs.TriEngine2D/Native/Helpers.cs
TriDevs.TriEngine2D/Native/WinAPI.cs
TriDevs.TriEngine2D/Properties/AssemblyInfo.cs
TriDevs.TriEngine2D/Serializing/Serializer.cs

8 File Index

Namespace Documentation

5.1 Package TriDevs

Namespaces

package TriEngine2D

5.2 Package TriDevs.TriEngine2D

Namespaces

- package Extensions
- package Helpers
- package Logging
- package Native
- package Serializing

Classes

class Version

Version class specifiying the version of this project.

5.3 Package TriDevs.TriEngine2D.Extensions

Classes

• class EnumerationExtensions

Extensions for System. Enum.

• class StringExtensions

Extensions for System.String

5.4 Package TriDevs.TriEngine2D.Helpers

Classes

• class IO

Provides various helper functions for doing IO operations.

· class Threading

Provides various helper functions for doing threading operations.

5.5 Package TriDevs.TriEngine2D.Logging

Classes

class LogManager

Class to manage logging. ILog interfaces should be obtained from this class' methods, as opposed to calling default log4net methods.

5.6 Package TriDevs.TriEngine2D.Native

Classes

· class Helpers

Helper class with various methods to help native coding and debugging.

• class WinAPI

Holds various WinAPI stuff.

5.7 Package TriDevs.TriEngine2D.Serializing

Classes

· class Serializer

Provides serialization methods.

Class Documentation

6.1 TriDevs.TriEngine2D.Extensions.EnumerationExtensions Class Reference

Extensions for System. Enum.

Static Public Member Functions

- static T Include < T > (this Enum value, T append)
 - Includes an enumerated type and returns the new value.
- static T Remove< T > (this Enum value, T remove)
 - Removes an enumerated type and returns the new value.
- static bool Has< T > (this Enum value, T check)
 - Checks if an enumerated type contains a value.
- static bool Missing
 T > (this Enum obj, T value)

Checks if an enumerated type is missing a value.

6.1.1 Detailed Description

Extensions for System.Enum.

6.1.2 Member Function Documentation

6.1.2.1 static bool TriDevs.TriEngine2D.Extensions.EnumerationExtensions.Has < T > (this Enum value, T check) [inline], [static]

Checks if an enumerated type contains a value.

Template Parameters

Т	The enum type.

Parameters

value	The enum to check.
check	Value to check for.

Returns

True if the enum has the value(s), false otherwise.

6.1.2.2 static T TriDevs.TriEngine2D.Extensions.EnumerationExtensions.Include < T > (this Enum value, T append) [inline], [static]

Includes an enumerated type and returns the new value.

Template Parameters

T	The enum type.

Parameters

value	The enum to append to.
append	Value to append.

Returns

New enum T with the new values.

6.1.2.3 static bool TriDevs.TriEngine2D.Extensions.EnumerationExtensions.Missing < T > (this Enum obj, T value) [inline], [static]

Checks if an enumerated type is missing a value.

Template Parameters

T	The enum type.

Parameters

obj	The enum to check.
value	Value to check for.

Returns

True if the enum is missing the value(s), false otherwise.

6.1.2.4 static T TriDevs.TriEngine2D.Extensions.EnumerationExtensions.Remove < T > (this Enum value, T remove) [inline], [static]

Removes an enumerated type and returns the new value.

Template Parameters

T	The enum type.

Parameters

value	The enum to remove from.
remove	Value to remove.

Returns

New enum T with the value(s) removed.

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Extensions/EnumerationExtensions.cs

6.2 TriDevs.TriEngine2D.Native.Helpers Class Reference

Helper class with various methods to help native coding and debugging.

Static Public Member Functions

static int GetLastError ()

Gets the last error that was thrown.

static int GetLastErrorInfo (out string message)

Gets information about the last error that was thrown.

static string GetErrorMessage (int err)

Gets the error message associated with an error code.

• static string GetLastErrorMessage ()

Gets the error message associated with the last thrown error.

static Win32Exception GetWin32Exception (int err)

Gets the Win32Exception associated with the specified error code.

static Win32Exception GetLastWin32Exception ()

Gets the Win32Exception associated with the last thrown error.

6.2.1 Detailed Description

Helper class with various methods to help native coding and debugging.

6.2.2 Member Function Documentation

6.2.2.1 static string TriDevs.TriEngine2D.Native.Helpers.GetErrorMessage (int err) [inline], [static]

Gets the error message associated with an error code.

Parameters

err The error code to get information about.

Returns

The error message.

6.2.2.2 static int TriDevs.TriEngine2D.Native.Helpers.GetLastError() [inline], [static]

Gets the last error that was thrown.

Returns

The error code associated with the thrown error.

6.2.2.3 static int TriDevs.TriEngine2D.Native.Helpers.GetLastErrorInfo (out string message) [inline], [static]

Gets information about the last error that was thrown.

Parameters

message | Will be set to the error message.

Returns

The error code associated with the thrown error.

6.2.2.4 static string TriDevs.TriEngine2D.Native.Helpers.GetLastErrorMessage() [inline], [static]

Gets the error message associated with the last thrown error.

Returns

The error message.

6.2.2.5 static Win32Exception TriDevs.TriEngine2D.Native.Helpers.GetLastWin32Exception() [inline], [static]

Gets the Win32Exception associated with the last thrown error.

Returns

The Win32Exception.

6.2.2.6 static Win32Exception TriDevs.TriEngine2D.Native.Helpers.GetWin32Exception (int err) [inline], [static]

Gets the Win32Exception associated with the specified error code.

Parameters

err	The error code.

Returns

The Win32Exception for the provided error code.

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Native/Helpers.cs

6.3 TriDevs.TriEngine2D.Helpers.IO Class Reference

Provides various helper functions for doing IO operations.

Static Public Member Functions

static string GetAbsolutePath (string path)
 Resolves the absolute path from a relative path.

6.3.1 Detailed Description

Provides various helper functions for doing IO operations.

6.3.2 Member Function Documentation

6.3.2.1 static string TriDevs.TriEngine2D.Helpers.IO.GetAbsolutePath (string path) [inline], [static]

Resolves the absolute path from a relative path.

Parameters

path The relative path to resolve.

Returns

The absolute path to the item.

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Helpers/IO.cs

6.4 TriDevs.TriEngine2D.Logging.LogManager Class Reference

Class to manage logging. ILog interfaces should be obtained from this class' methods, as opposed to calling default log4net methods.

Static Public Member Functions

• static void LoadConfig (string file=null)

Load a config to use with log4net.

static ILog GetLogger (object sender)

Gets an ILog object for the specified object.

• static void SetupConsole ()

Set up a new console for this process. Will not set up a console if a debugger is attached. This method does nothing if DEBUG is not #defined.

• static void DestroyConsole ()

Destroys the console associated with the process, if loaded. This method does nothing if DEBUG is not #defined.

• static void ClearOldLogs (int daysOld=7, string logsDir="logs")

Clear logs that are older than the specified amount of days.

6.4.1 Detailed Description

Class to manage logging. ILog interfaces should be obtained from this class' methods, as opposed to calling default log4net methods.

6.4.2 Member Function Documentation

6.4.2.1 static void TriDevs.TriEngine2D.Logging.LogManager.ClearOldLogs (int *daysOld* = 7, string *logsDir* = "logs") [inline], [static]

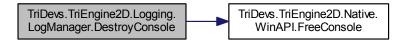
Clear logs that are older than the specified amount of days.

Parameters

daysOld	Logs older than this amount of days will be deleted.
logsDir	The directory to clear.

6.4.2.2 static void TriDevs.TriEngine2D.Logging.LogManager.DestroyConsole() [inline], [static]

Destroys the console associated with the process, if loaded. This method does nothing if DEBUG is not #defined. Here is the call graph for this function:



6.4.2.3 static | Log TriDevs.TriEngine2D.Logging.LogManager.GetLogger (object sender) [inline], [static]

Gets an ILog object for the specified object.

To get the logger object for a static class, or from static context, call GetLogger(typeof(YourClass)).

Parameters

sender	The object or Type to get an ILog object for.
	, ,, ,,

Returns

The ILog object.

6.4.2.4 static void TriDevs.TriEngine2D.Logging.LogManager.LoadConfig (string file = null) [inline], [static]

Load a config to use with log4net.

LoadConfig will first try to load the specified file, if not null. If it is unable to find the specified file, it will call itself again with file set to null. If no file is specified, it will attempt to load a config file following the pattern: "(Assembly-Name).config" If it is unable to load the config, it will default to BasicConfigurator.

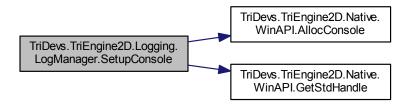
Parameters

file	The config file to load, null if automatic loading is preferred.
------	--

6.4.2.5 static void TriDevs.TriEngine2D.Logging.LogManager.SetupConsole() [inline], [static]

Set up a new console for this process. Will not set up a console if a debugger is attached. This method does nothing if DEBUG is not #defined.

Here is the call graph for this function:



The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Logging/LogManager.cs

6.5 TriDevs.TriEngine2D.Serializing.Serializer Class Reference

Provides serialization methods.

Static Public Member Functions

- static string Serialize < T > (T data)
 - Serialize an object to string.
- $\bullet \ \ \text{static void } \\ \textbf{Serialize} \\ < \\ \textbf{T} \\ > \\ (\\ \textbf{T} \ \ \text{data, string file, Formatting formatting=Formatting.Indented)} \\$

Serializes an object to file.

static T Deserialize < T > (string file)

Deserialize a serialized object from file.

6.5.1 Detailed Description

Provides serialization methods.

6.5.2 Member Function Documentation

6.5.2.1 static T TriDevs.TriEngine2D.Serializing.Serializer.Deserialize < T > (string file) [inline], [static]

Deserialize a serialized object from file.

Template Parameters

T	Type of the object being deserialized.

Parameters

file	File to read from.

Returns

The deserialized object.

6.5.2.2 static string TriDevs.TriEngine2D.Serializing.Serialize<T>(T data) [inline], [static]

Serialize an object to string.

Template Parameters

T	ype of data.	1

Parameters

data	Data to serialize.

Returns

The serialized object in string format.

6.5.2.3 static void TriDevs.TriEngine2D.Serializing.Serializer.Serialize< T > (T data, string file, Formatting formatting = Formatting.Indented) [inline], [static]

Serializes an object to file.

Template Parameters

7 1 1	Τ	Type of the data.
--	---	-------------------

Parameters

data	Data to serialize.	
file	File to serialize to.	
formatting	The formatting to use for the JSON output.	

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Serializing/Serializer.cs

6.6 TriDevs.TriEngine2D.Extensions.StringExtensions Class Reference

Extensions for System.String

Static Public Member Functions

- static string ReplaceFirst (this string s, string search, string replace, bool caseInsensitive=false)

 Returns a string in which the first occurrence of a specified string is replaced with another string.
- static string Replace (this string s, string search, string replace, int count, bool caseInsensitive=false)

 Returns a string in which the N first occurrences of a specified string are replaced with another string.
- static string Replace (this string s, string search, string replace, bool caseInsensitive=false)

 Returns a string in which all occurrences of a specified string are replaced with another string.

6.6.1 Detailed Description

Extensions for System.String

6.6.2 Member Function Documentation

6.6.2.1 static string TriDevs.TriEngine2D.Extensions.StringExtensions.Replace (this string s, string search, string replace, int count, bool caseInsensitive = false) [inline], [static]

Returns a string in which the N first occurrences of a specified string are replaced with another string.

Parameters

s	String to modify.
search	String to search for.
replace	String to replace the match(es) with.
count	Number of occurrences to replace.
caseInsensitive	True for case insensitive search, false for case sensitive.

Returns

The supplied string with the N first occurrences of the specified string replaced with the other.

6.6.2.2 static string TriDevs.TriEngine2D.Extensions.StringExtensions.Replace (this string s, string search, string replace, bool caseInsensitive = false) [inline], [static]

Returns a string in which all occurrences of a specified string are replaced with another string.

This extension method supports case insensitive searches.

Parameters

s	String to modify.
search	String to search for.
replace	String to replace the match(es) with.
caseInsensitive	True for case insensitive search, false for case sensitive.

Returns

The supplied string with all occurrences of the specified string replaced with the other.

6.6.2.3 static string TriDevs.TriEngine2D.Extensions.StringExtensions.ReplaceFirst (this string s, string search, string replace, bool caseInsensitive = false) [inline], [static]

Returns a string in which the first occurrence of a specified string is replaced with another string.

Parameters

s	String to modify.
search	String to search for.
replace	String to replace the match with.
caseInsensitive	True for case insensitive search, false for case sensitive.

Returns

The supplied string with the first occurrence of the specified string replaced with the other.

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Extensions/StringExtensions.cs

6.7 TriDevs.TriEngine2D.Helpers.Threading Class Reference

Provides various helper functions for doing threading operations.

Static Public Member Functions

static void SetCurrentThreadName (string name)

Sets the name of the current thread, does nothing if the thread already has a name.

6.7.1 Detailed Description

Provides various helper functions for doing threading operations.

6.7.2 Member Function Documentation

6.7.2.1 static void TriDevs.TriEngine2D.Helpers.Threading.SetCurrentThreadName (string *name*) [inline], [static]

Sets the name of the current thread, does nothing if the thread already has a name.

Parameters

name The new name for the current thread

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Helpers/Threading.cs

6.8 TriDevs.TriEngine2D.Version Class Reference

Version class specifiying the version of this project.

Public Attributes

• const int Major = 0

Major version of the project.

• const int Minor = 0

Minor version of the project.

• const int Patch = 6

Patch version of the project.

• const string Suffix = ""

Optional suffix, empty if no suffix for this version.

- const string VersionStringFormat = "{0}.{1}.{2}"
 - The format string used when formatting major, minor and patch version to their string representation.
- const string VersionStringFormatWithSuffix = VersionStringFormat + "-{3}"

The format string used when formatting major, minor and patch version to their string representation (with suffix).

Properties

static string VersionString [get]
 String representation of the current project version.

6.8.1 Detailed Description

Version class specifiying the version of this project.

6.8.2 Member Data Documentation

6.8.2.1 const int TriDevs.TriEngine2D.Version.Major = 0

Major version of the project.

6.8.2.2 const int TriDevs.TriEngine2D.Version.Minor = 0

Minor version of the project.

6.8.2.3 const int TriDevs.TriEngine2D.Version.Patch = 6

Patch version of the project.

6.8.2.4 const string TriDevs.TriEngine2D.Version.Suffix = ""

Optional suffix, empty if no suffix for this version.

Example values could be "beta" and "alpha".

6.8.2.5 const string TriDevs.TriEngine2D.Version.VersionStringFormat = "{0}.{1}.{2}"

The format string used when formatting major, minor and patch version to their string representation.

6.8.2.6 const string TriDevs.TriEngine2D.Version.VersionStringFormatWithSuffix = VersionStringFormat + "-{3}"

The format string used when formatting major, minor and patch version to their string representation (with suffix).

6.8.3 Property Documentation

6.8.3.1 string TriDevs.TriEngine2D.Version.VersionString [static], [get]

String representation of the current project version.

The documentation for this class was generated from the following file:

TriDevs.TriEngine2D/Version.cs

6.9 TriDevs.TriEngine2D.Native.WinAPI Class Reference

Holds various WinAPI stuff.

Public Member Functions

• static IntPtr GetStdHandle (int nStdHandle)

Retrieves a handle to the specified standard device (standard input, standard output, or standard error).

static bool AllocConsole ()

Allocates a new console for the calling process.

static int FreeConsole ()

Detaches the calling process from its console.

Public Attributes

• const int STD_OUTPUT_HANDLE = -11

The standard output device. Initially, this is the active console screen buffer, CONOUT\$.

• const int CODE PAGE = 437

The code page to use for the console.

6.9.1 Detailed Description

Holds various WinAPI stuff.

6.9.2 Member Function Documentation

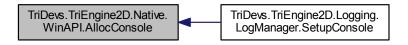
6.9.2.1 static bool TriDevs.TriEngine2D.Native.WinAPI.AllocConsole ()

Allocates a new console for the calling process.

Returns

If the function succeeds, the return value is nonzero. If the function fails, the return value is zero. To get extended error information, call GetLastError.

Here is the caller graph for this function:



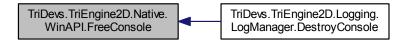
6.9.2.2 static int TriDevs.TriEngine2D.Native.WinAPI.FreeConsole ()

Detaches the calling process from its console.

Returns

If the function succeeds, the return value is nonzero. If the function fails, the return value is zero. To get extended error information, call GetLastError.

Here is the caller graph for this function:



6.9.2.3 static IntPtr TriDevs.TriEngine2D.Native.WinAPI.GetStdHandle (int nStdHandle)

Retrieves a handle to the specified standard device (standard input, standard output, or standard error).

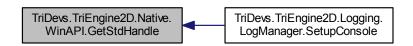
Parameters

nStdHandle	The standard device.
------------	----------------------

Returns

If the function succeeds, the return value is a handle to the specified device, or a redirected handle set by a previous call to SetStdHandle. The handle has GENERIC_READ and GENERIC_WRITE access rights, unless the application has used SetStdHandle to set a standard handle with lesser access. If the function fails, the return value is INVALID_HANDLE_VALUE. To get extended error information, call GetLastError. If an application does not have associated standard handles, such as a service running on an interactive desktop, and has not redirected them, the return value is NULL.

Here is the caller graph for this function:



6.9.3 Member Data Documentation

6.9.3.1 const int TriDevs.TriEngine2D.Native.WinAPI.CODE_PAGE = 437

The code page to use for the console.

6.9.3.2 const int TriDevs.TriEngine2D.Native.WinAPI.STD_OUTPUT_HANDLE = -11

The standard output device. Initially, this is the active console screen buffer, CONOUT\$.

The documentation for this class was generated from the following file:

• TriDevs.TriEngine2D/Native/WinAPI.cs

File Documentation

- 7.1 README.md File Reference
- 7.2 TriDevs.TriEngine2D/Extensions/EnumerationExtensions.cs File Reference

Classes

class TriDevs.TriEngine2D.Extensions.EnumerationExtensions
 Extensions for System.Enum.

Namespaces

• package TriDevs.TriEngine2D.Extensions

7.3 TriDevs.TriEngine2D/Extensions/StringExtensions.cs File Reference

Classes

class TriDevs.TriEngine2D.Extensions.StringExtensions
 Extensions for System.String

Namespaces

• package TriDevs.TriEngine2D.Extensions

7.4 TriDevs.TriEngine2D/Helpers/IO.cs File Reference

Classes

class TriDevs.TriEngine2D.Helpers.IO
 Provides various helper functions for doing IO operations.

Namespaces

· package TriDevs.TriEngine2D.Helpers

26 File Documentation

7.5 TriDevs.TriEngine2D/Helpers/Threading.cs File Reference

Classes

· class TriDevs.TriEngine2D.Helpers.Threading

Provides various helper functions for doing threading operations.

Namespaces

• package TriDevs.TriEngine2D.Helpers

7.6 TriDevs.TriEngine2D/Logging/LogManager.cs File Reference

Classes

· class TriDevs.TriEngine2D.Logging.LogManager

Class to manage logging. ILog interfaces should be obtained from this class' methods, as opposed to calling default log4net methods.

Namespaces

· package TriDevs.TriEngine2D.Logging

7.7 TriDevs.TriEngine2D/Native/Helpers.cs File Reference

Classes

• class TriDevs.TriEngine2D.Native.Helpers

Helper class with various methods to help native coding and debugging.

Namespaces

· package TriDevs.TriEngine2D.Native

7.8 TriDevs.TriEngine2D/Native/WinAPI.cs File Reference

Classes

• class TriDevs.TriEngine2D.Native.WinAPI

Holds various WinAPI stuff.

Namespaces

· package TriDevs.TriEngine2D.Native

7.9 TriDevs.TriEngine2D/Properties/AssemblyInfo.cs File Reference

7.10 TriDevs.TriEngine2D/Serializing/Serializer.cs File Reference

Classes

class TriDevs.TriEngine2D.Serializing.Serializer
 Provides serialization methods.

Namespaces

· package TriDevs.TriEngine2D.Serializing

7.11 TriDevs.TriEngine2D/Version.cs File Reference

Classes

class TriDevs.TriEngine2D.Version
 Version class specifiying the version of this project.

Namespaces

• package TriDevs.TriEngine2D

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