

# Namespace Cobilas

## Classes

### [TypeUtilitarian](#)

Utility static class to obtain type or assembly.

## Structs

### [Interrupter](#)

Represents a list of switches.

### [NullObject](#)

This class represents a null object.

## Interfaces

### [INullObject](#)

This interface is used to demarcate if a specific object is a null representation.

# Cobilas Core

## Description

Cobilas Core Net4x is a utility library for CSharp.

## Json

(namespace:Cobilas.IO.Serialization.Json)

Only present in the NuGet version.

The static class `Json` grants static read and write functions.

## JsonContractResolver

Used by `JsonSerializer` to resolve a `JsonContract` for a given `Type`. Furthermore, `JsonContractResolver` determines how the fields of an `Object` will be serialized.

## ATLF(Arquivo de tradução de leitura facil)

ATLF (Easy to Read Translation File) can be used to create and load translations for apps.

```
#>Header
The use of the header is not mandatory.<#
#! version:/*std:1.0*/
#! encoding:/*utf-8*/

#> Comment <#
#> ATLF format(1.0) <#

#> Uni-line marking <#
#! Tag1:/*value1*/

#> Multi-line marking <#
#! Tag2:/*
value1
value2
value3
value4
*/
```

## How to read ATLF

```
static void Main(string[] args) {
    using ATLFReader reader = ATLFReader.Create(@"C:\folder1\file.txt");
    reader.Reader();
}
```

```

    Console.WriteLine($"tag.value.1:{reader.GetTag("tag.value.1")}");
    Console.WriteLine($"tag.value.2:{reader.GetTag("tag.value.2")}");
    Console.WriteLine($"tag.value.3:{reader.GetTag("tag.value.3")}");
}

```

The other reading functions.

- The `ATLFNode[]:ATLFReader.GetHeader()` function allows you to get the header tags.
- The `ATLFNode[]:ATLFReader.GetAllComments()` function allows you to get all comments. The `ATLFNode[]:ATLFReader.GetTagGroup(string path)` function allows you to obtain tags that belong to the same path.

```

/*C:\folder1\file.txt
* #! version:/*std:1.0* /
* #! encoding:/*utf-8* /
*
* #! tag.value.cop1:/*value1* /
* #! tag.value.map.cop1:/*value1* /
* #! tag.value.map.cop2:/*value1* /
* #! tag.value.cop2:/*value1* /
* #! tag.value.cop3:/*value1* /
*/
static void Main(string[] args) {
    using ATLFReader reader = ATLFReader.Create(@"C:\folder1\file.txt");
    reader.Reader();
    foreach(var item in reader.GetTagGroup("tag.value.map"))
        Console.WriteLine(item);
}

```

## How to write ATLF

```

static void Main(string[] args) {
    using ATLFWriter writer = ATLFWriter.Create(File.OpenWrite(@"C:\folder1\file.txt"));
    writer.WriteHeader();//The header is not mandatory but if you add a header, call this
function first.
    writer.WriteComment("my tag1");
    writer.WriteNode("tag1", "value1");
    writer.WriteWhitespace("\r\n");//This function is called automatically when the `Indent`
property is `true`. By default the `Indent` property is `true`.
    writer.WriteComment("my tag2");
    writer.WriteNode("tag2", "value2");
    writer.WriteWhitespace(2, "\r\n");//This function is called automatically when the
`Indent` property is `true`. By default the `Indent` property is `true`.
    writer.WriteComment("my tag3");
}

```

```
writer.WriteNode("tag3", "value3");  
}
```

## Encoders and decoders

Regarding encoders and decoders, ATLF allows the creation of customized encoders and decoders. To use a custom encoder or decoder, assign a version to your custom encoder or decoder using the `Version` property and then assign the version of the custom encoder or decoder in the `TargetVersion` property of the `ATLFWriter` and `ATLFReader` classes.

### Creating a custom encoding class

To create a custom encoding class, the class must inherit the `ATLFVS10Encoding` class.

### Creating a custom decoding class

To create a custom decoding class, the class must inherit the `ATLFVS10Decoding` class.

## [Cobilas.Core.Net4x](#) is on nuget.org

To include the package, open the `.csproj` file and add it.

```
<ItemGroup>  
  <PackageReference Include="Cobilas.Core.Net4x" Version="2.6.0" />  
</ItemGroup>
```

Or use command line.

```
dotnet add package Cobilas.Core.Net4x --version 2.6.0
```

# Namespace Cobilas.GodotEditor.Utility. Serialization

## Classes

### [BuildSerialization](#)

Class allows to build a serialization list of properties of a node class.

### [HidePropertyAttribute](#)

The attribute allows you to hide and save the value of a field or property in the editor.

### [MemberItem](#)

Represents a property or field.

### [PropertyItem](#)

The class stores the information for drawing in the editor.

### [SerializationCache](#)

Class to handle property caching.

### [SerializeFieldAttribute](#)

Base attribute for field and property serialization attributes.

### [ShowPropertyAttribute](#)

The attribute allows you to show a field or property in the editor.

### [ShowRangePropertyAttribute](#)

The attribute allows you to display a field or property in the editor in range form.

## Structs

### [SNInfo](#)

Represents the information of a [SerializedNode](#).

## Interfaces

### [ISerializedPropertyManipulation](#)

The interface allows property manipulation.

# Cobilas Godot Utility

## Description

The package contains utility classes in csharp for godot engine(Godot3.5)

## RunTimeInitialization

(namespace: Cobilas.GodotEngine.Utility.Runtime)

The `RunTimeInitialization` class allows you to automate the `Project>Project Settings>AutoLoad` option.

To use the `RunTimeInitialization` class, you must create a class and make it inherit `RunTimeInitialization`.

```
using Cobilas.GodotEngine.Utility.Runtime;
//The name of the class is up to you.
public class RunTimeProcess : RunTimeInitialization {}
```

And remember to add the class that inherits `RunTimeInitialization` in `Project>Project Settings>AutoLoad` .

Remembering that the `RunTimeInitialization` class uses the virtual method `_Ready()` to perform the initialization of other classes.

And to initialize other classes along with the `RunTimeInitialization` class, the class must inherit the `Godot.Node` class or some class that inherits `Godot.Node` and use the `RunTimeInitializationClassAttribute` attribute.

```
using Godot;
using Cobilas.GodotEngine.Utility.Runtime;
[RunTimeInitializationClass]
public class ClassTest : Node {}
```

## RunTimeInitializationClass

```
/*
bootPriority: Represents the boot order
{ (enum Priority)values
    StartBefore,
    StartLater
}
name:The name of the object
subPriority: And the execution priority order.
*/
```

```
//RunTimeInitializationClassAttribute(string? name, Priority bootPriority =
Priority.StartBefore, int subPriority = 0, bool lastBoot = false)
[RunTimeInitializationClassAttribute(string?, [Priority:Priority.StartBefore],
[int:0], [bool:false])]
[RunTimeInitializationClass()]
```

## CoroutineManager

The `CoroutineManager` class is responsible for creating and managing coroutines for godot.  
How to create a coroutine?

```
using Godot;
using System.Collections;
using Cobilas.GodotEngine.Utility;

public class ClassTest : Node {
    private Coroutine coroutine;
    public override void _Ready() {
        coroutine = CoroutineManager.StartCoroutine(Corroutine1());
        coroutine = CoroutineManager.StartCoroutine(Corroutine2());
        coroutine = CoroutineManager.StartCoroutine(Corroutine3());
    }

    private IEnumerator Corroutine1() {
        GD.Print("Zé da manga");
        //When the return is null, by default the coroutine is executed as
        _Process().
        yield return null;
    }

    private IEnumerator Corroutine2() {
        GD.Print("Zé da manga");
        //When the return is RunTimeSecond the coroutine is executed as _Process()
        with a pre-defined delay.
        yield return new RunTimeSecond(3);
    }

    private IEnumerator Corroutine3() {
        GD.Print("Zé da manga");
        When the return is RunTimeSecond the coroutine is executed as
        _PhysicProcess() with a pre-defined delay.
        yield return new FixedRunTimeSecond(3);
    }
}
```

With the `IYieldVolatile` interface you can switch coroutine execution between `_Process(float)` and `_PhysicsProcess(float)`.

## IYield Classes

- `RunTimeSecond` is a framework that allows you to delay your coroutine in seconds. This class inherits `IYieldUpdate`.
- `FixedRunTimeSecond` is a framework that allows you to delay your coroutine in seconds. This class inherits `IYieldFixedUpdate`.
- `IYieldUpdate` is an interface that allows the coroutine to run in the `_Process(float)` function.
- `IYieldFixedUpdate` is an interface that allows the coroutine to run in the `_PhysicsProcess(float)` function.
- `IYieldVolatile` is an interface that allows the coroutine to run in the `Process(float)` or `_PhysicsProcess(float)` function.
- `IYieldCoroutine` is the base interface for Yield interfaces.

## Stop coroutines

Now to stop a coroutine.

```
public static void StopCoroutine(Coroutine Coroutine);  
public static void StopAllCoroutines();
```

## SerializedPropertyCustom

Now a class has been added for custom serialization of properties in the Godot inspector.

With the `HideProperty` and `ShowProperty` attributes you can serialize properties in the Godot inspector.

## Example

Below is an example of usage.

```
public class Exe1 : Node {  
    [ShowProperty] string var1;  
    [ShowProperty] string var2;  
    [ShowProperty] string var3;  
    //The property will not be shown but its value will be saved.  
    [HideProperty] string var4;  
    [ShowProperty] vec2d var5;  
  
    public override GDArrary _GetPropertyList() =>  
SerializedNode.GetPropertyList(BuildSerialization.Build(this).GetPropertyList());  
    public override bool _Set(string property, object value) =>  
BuildSerialization.Build(this).Set(property, value);  
}
```



```

        public override object _Get(string property) =>
BuildSerialization.Build(this).Get(property);
    }
    [Serializable]
    public struct vec2d {
        //When ShowProperty or HideProperty has its parameter true the value will be saved
in cache.
        [ShowProperty(true)] public float x;
        [ShowProperty(true)] public float y;
    }

```

## The [Cobilas Godot Utility](#) is on nuget.org

To include the package, open the `.csproj` file and add it.

```

<ItemGroup>
    <PackageReference Include="Cobilas.Godot.Utility" Version="6.2.3" />
</ItemGroup>

```

Or use command line.

```

dotnet add package Cobilas.Godot.Utility --version 6.2.3

```

# Namespace Cobilas.GodotEngine.Component

## Classes

### [InternalComponentHub](#)

Inner class for handling [IComponentHub](#).

### [NullComponentHub](#)

Represents a null ComponentHub.

### [RequireComponentAttribute](#)

Signals to the [AddRequireComponent\(Node?\)](#) method which components to add to the Godot.Node object.

## Interfaces

### [IComponentHub](#)

An interface to transform a Godot.Node object into a pseudo Component.

### [IInternalComponentHub](#)

Interface for inner class for handling [IComponentHub](#).

# Cobilas Godot IComponent

This package aims to transform a **Node** object into a pseudo-component in the style of the **Unity Engine** to facilitate obtaining objects and adding child objects.

## Usage

To use the **IComponentHub** interface, it must be inherited by a **Node** object, and you can also use the serializable **InternalComponentHub** class to automate the addition, removal, and retrieval of child **Node** objects. However, implementing the **IComponentHub** interface manually will only require a little work.

## Exemplo

```
using Godot;
using Cobilas.GodotEngine.Component;

public class MonoNode : Node, IComponentHub {
    private InternalComponentHub components;

    public Node Parent => components.Parent;
    public int ComponentsCount => components.ComponentsCount;
    public IComponentHub ParentComponent => components.ParentComponent;

    public Node AddComponent(Type component) => components.AddComponent(component);
    public T AddComponent<T>() where T : Node => ((IComponentHub)components).AddComponent<T>
    ();
    public void AddComponents(params Type[] components) =>
    this.components.AddComponents(components);
    public void AddNodeComponent(Node component) => components.AddNodeComponent(component);
    public void AddNodeComponents(params Node[] components) =>
    this.components.AddNodeComponents(components);
    public Node GetComponent(Type component) => components.GetComponent(component);
    public Node GetComponent(Type component, bool recursive) =>
    components.GetComponent(component, recursive);
    public T GetComponent<T>() where T : Node => ((IComponentHub)components).GetComponent<T>
    ();
    public T GetComponent<T>(bool recursive) where T : Node =>
    ((IComponentHub)components).GetComponent<T>(recursive);
    public Node[] GetComponents(Type component) => components.GetComponents(component);
    public Node[] GetComponents(Type component, bool recursive) =>
    components.GetComponents(component, recursive);
    public T[] GetComponents<T>() where T : Node =>
    ((IComponentHub)components).GetComponents<T>();
    public T[] GetComponents<T>(bool recursive) where T : Node =>
    ((IComponentHub)components).GetComponents<T>(recursive);
```

```

    public IEnumerator<Node> GetEnumerator() => components.GetEnumerator();
    public bool RemoveComponent(Node component) => components.RemoveComponent(component);
    public void RemoveComponents(params Node[] components) =>
this.components.RemoveComponents(components);
    IEnumerator IEnumerable.GetEnumerator() => ((IEnumerable)components).GetEnumerator();

    protected override void Dispose(bool disposing) {
        base.Dispose(disposing);
        components?.Dispose();
    }
}

```

## The [Cobilas Godot IComponent](#) is on nuget.org

To include the package, open the `.csproj` file and add it.

```

<ItemGroup>
    <PackageReference Include="Cobilas.Godot.IComponent" Version="1.1.0" />
</ItemGroup>

```

Or use command line.

```
dotnet add package Cobilas.Godot.IComponent --version 1.1.0
```

# Cobilas.Godot.Lua

## Quick Start

### Executing Lua Code

```
// Create a Lua container with default configuration
var config = LuaContainerConfig.Default;
using var lua = new LuaContainer(config);

// Build and execute Lua code
lua.DoString("print('Hello from Lua!')")
    .InitField("playerName", "John Doe")
    .InitFunction("greet", "print('Hello, ' .. playerName)", "playerName")
    .FlushToLua();

// Invoke the function
lua.InvokeFunction("greet");
```

### Working with Lua Files

```
// Load and execute a Lua script file
var fileConfig = new LuaFileConfig("path/to/script.lua");
using var luaFile = new LuaFile(fileConfig);

// Access fields from the Lua script
var playerHealth = luaFile.GetField("player.health");
int healthValue = (int)playerHealth;

// Invoke functions defined in the script
var result = luaFile.InvokeFunction("calculateDamage", 10, 2.5f);
```

### Creating Lua Tables

```
// Create complex Lua table structures
var playerTable = new LuaTableItem("player",
    new LuaTableValue("name", "Hero"),
    new LuaTableValue("health", 100),
    new LuaTableValue("level", 5),
    new LuaTableItem("inventory",
        new LuaTableValue("sword", 1),
        new LuaTableValue("potion", 3)
    )
);
```

```
var config = LuaContainerCfg.Default;
using var lua = new LuaContainer(config);
lua.InitTable(playerTable).FlushToLua();
```

# Core Components

## Configuration

- `LuaContainerCfg` - Configuration for in-memory Lua execution
- `LuaFileCfg` - Configuration for file-based Lua scripts

## Main Classes

- `LuaContainer` - Dynamic Lua code builder and executor
- `LuaFile` - File-based Lua script manager
- `LuaField` - Type-safe Lua field access with conversion capabilities
- `LuaTableItem` & `LuaTableValue` - Lua table structure builders

## Interfaces

- `ILuaFile` - Core operations for Lua file interaction
- `ILuaTable` & `ILuaTableItem` - Lua table element contracts

# Advanced Usage

## Custom Serialization

```
[LuaSerializable(typeof(PlayerData))]
public class PlayerDataConverter : ObjectToLuaTable
{
    public override void ToLuaTable(object obj, NLua.LuaTable table)
    {
        var player = (PlayerData)obj;
        table["name"] = player.Name;
        table["level"] = player.Level;
    }

    public override object ToObject(object obj, NLua.LuaTable table)
    {
        return new PlayerData
        {
            Name = (string)table["name"],
            Level = (int)table["level"]
        };
    }
}
```

```

    }
}

// Usage
var playerData = new PlayerData { Name = "Warrior", Level = 10 };
lua.SetField("player", playerData);

```

## CLR Integration

```

var config = new LuaContainerCfg(useCLRPackage: true);
using var lua = new LuaContainer(config);

lua.InitCLRPackage("System.Math")
    .DoString("print('PI value: ' .. Math.PI)")
    .FlushToLua();

```

## API Documentation

Comprehensive XML documentation is included with the library. Key methods include:

- `GetField()` / `SetField()` - Access and modify Lua variables
- `InvokeFunction()` - Call Lua functions with parameters
- `LuaTableToObject<T>()` - Convert Lua tables to C# objects
- `InitFunction()` - Define Lua functions programmatically
- `FlushToLua()` - Execute accumulated Lua code

## Examples

Check the `Examples/` folder for complete usage examples:

- Basic Lua execution
- Game data configuration
- Save/load system implementation
- Custom object serialization

The [Cobilas Godot Lua](#) is on [nuget.org](#)

To include the package, open the `.csproj` file and add it.

```

<ItemGroup>
    <PackageReference Include="Cobilas.Godot.Lua" Version="1.1.0" />
</ItemGroup>

```

Or use command line.

```
dotnet add package Cobilas.Godot.Lua --version 1.1.0
```