RSCG nr 3 : System.Text.Json

Info

Nuget : https://www.nuget.org/packages/System.Text.Json/

You can find more details at : https://learn.microsoft.com/en-us/dotnet/standard/serialization/system-text-json/source-generation

Author :Microsoft

Source : https://github.com/dotnet/runtime

About

Json Serialize without reflection

How to use

Add reference to the System.Text.Json in the csproj

```
<Project Sdk="Microsoft.NET.Sdk">

  <PropertyGroup>
    <OutputType>Exe</OutputType>
    <TargetFramework>net7.0</TargetFramework>
    <ImplicitUsings>enable</ImplicitUsings>
    <Nullable>enable</Nullable>
  </PropertyGroup>
    <PropertyGroup>
        <EmitCompilerGeneratedFiles>true</EmitCompilerGeneratedFiles>

 <CompilerGeneratedFilesOutputPath>$(BaseIntermediateOutputPath)\GX</CompilerGenerated
FilesOutputPath>
    </PropertyGroup>

</Project>
```

This was for me the starting code

I have **coded** the file Program.cs

```
using JsonSerializerOptionsExample;
using System.Text.Json;
//for asp.net core
//services.AddControllers().AddJsonOptions(options =>
options.JsonSerializerOptions.AddContext<MyJsonContext>());
//https://learn.microsoft.com/en-us/dotnet/csharp/language-reference/tokens/raw-string

string jsonString ="""
{
  "date": "2019-08-01T00:00:00",
  "temperatureCelsius": 25,
  "summary": "Hot"
}
""";
        WeatherForecast? weatherForecast= JsonSerializer.Deserialize(
            jsonString,
            typeof(WeatherForecast),
            new OptionsExampleContext(
                new JsonSerializerOptions(JsonSerializerDefaults.Web)))
                as WeatherForecast;
        Console.WriteLine($"Date={weatherForecast?.Date}");
        // output:
        //Date=8/1/2019 12:00:00 AM

        jsonString = JsonSerializer.Serialize(
            weatherForecast,
            typeof(WeatherForecast),
            new OptionsExampleContext(
                new JsonSerializerOptions(JsonSerializerDefaults.Web)));
        Console.WriteLine(jsonString);
jsonString = JsonSerializer.Serialize(
    weatherForecast,
    typeof(WeatherForecast),
    new OptionsExampleContext(
        new JsonSerializerOptions(JsonSerializerDefaults.General)));
Console.WriteLine(jsonString);
// output:
//{ "date":"2019-08-01T00:00:00","temperatureCelsius":25,"summary":"Hot"}
```

I have **coded** the file WeatherForecast.cs

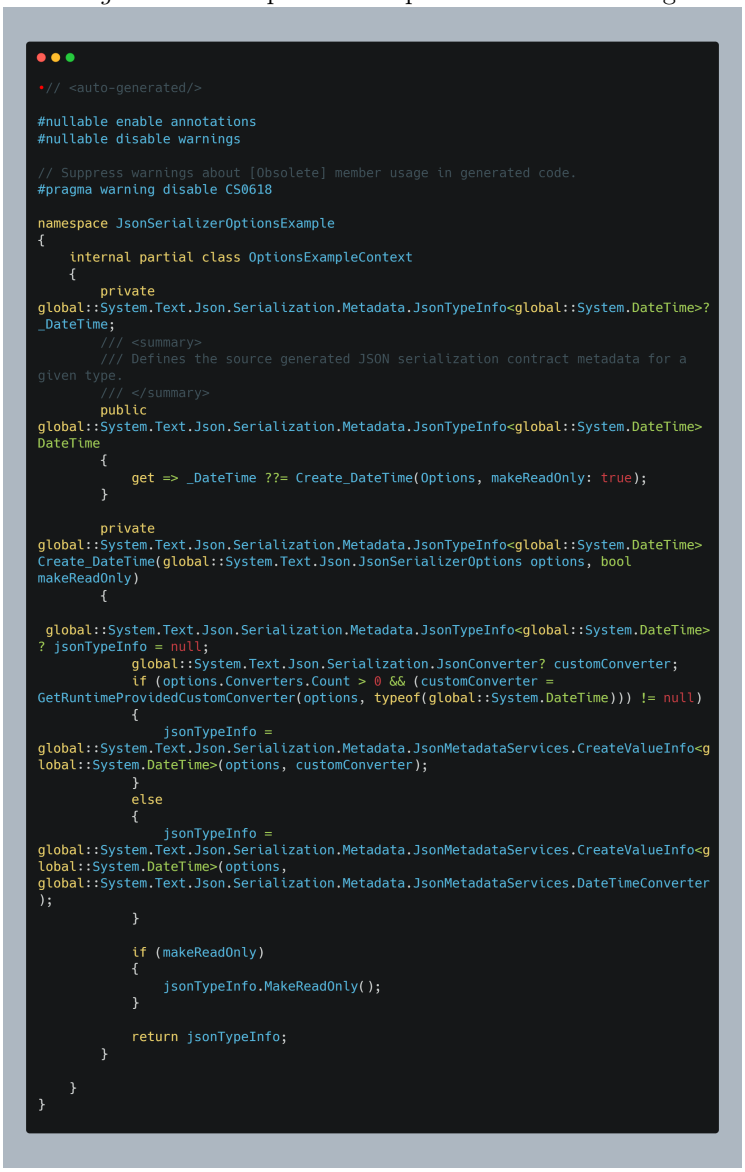
```
namespace JsonSerializerOptionsExample;

public class WeatherForecast
{
    public DateTime Date { get; set; }
    public int TemperatureCelsius { get; set; }
    public string? Summary { get; set; }
}
```

I have **coded** the file OptionsExampleContext.cs

```
using System.Text.Json.Serialization;

namespace JsonSerializerOptionsExample;

[JsonSerializable(typeof(WeatherForecast))]
internal partial class OptionsExampleContext : JsonSerializerContext
{
}
```

And here are the *generated* files

The file *generated* is OptionsExampleContext.DateTime.g.cs



```
// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{
    internal partial class OptionsExampleContext
    {
        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.DateTime>?
_DateTime;
        /// <summary>
        /// Defines the source generated JSON serialization contract metadata for a
given type.
        /// </summary>
        public
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.DateTime>
DateTime
        {
            get => _DateTime ??= Create_DateTime(Options, makeReadOnly: true);
        }

        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.DateTime>
Create_DateTime(global::System.Text.Json.JsonSerializerOptions options, bool
makeReadOnly)
        {

 global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.DateTime>
? jsonTypeInfo = null;
            global::System.Text.Json.Serialization.JsonConverter? customConverter;
            if (options.Converters.Count > 0 && (customConverter =
GetRuntimeProvidedCustomConverter(options, typeof(global::System.DateTime))) != null)
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.DateTime>(options, customConverter);
            }
            else
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.DateTime>(options,
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.DateTimeConverter
);
            }

            if (makeReadOnly)
            {
                jsonTypeInfo.MakeReadOnly();
            }

            return jsonTypeInfo;
        }

    }
}
```

The file *generated* is OptionsExampleContext.g.cs

```
•// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{


[global::System.CodeDom.Compiler.GeneratedCodeAttribute("System.Text.Json.SourceGenera
tion", "7.0.8.17405")]
    internal partial class OptionsExampleContext
    {

        private static global::System.Text.Json.JsonSerializerOptions s_defaultOptions
{ get; } = new global::System.Text.Json.JsonSerializerOptions()
        {
            DefaultIgnoreCondition =
global::System.Text.Json.Serialization.JsonIgnoreCondition.Never,
            IgnoreReadOnlyFields = false,
            IgnoreReadOnlyProperties = false,
            IncludeFields = false,
            WriteIndented = false,
        };

        private static global::JsonSerializerOptionsExample.OptionsExampleContext?
s_defaultContext;

        /// <summary>
        /// The default <see
cref="global::System.Text.Json.Serialization.JsonSerializerContext"/> associated with
a default <see cref="global::System.Text.Json.JsonSerializerOptions"/> instance.
        /// </summary>
        public static global::JsonSerializerOptionsExample.OptionsExampleContext
Default => s_defaultContext ??= new
global::JsonSerializerOptionsExample.OptionsExampleContext(new
global::System.Text.Json.JsonSerializerOptions(s_defaultOptions));

        /// <summary>
        /// The source-generated options associated with this context.
        /// </summary>
        protected override global::System.Text.Json.JsonSerializerOptions?
GeneratedSerializerOptions { get; } = s_defaultOptions;

        /// <inheritdoc/>
        public OptionsExampleContext() : base(null)
        {
        }

        /// <inheritdoc/>
        public OptionsExampleContext(global::System.Text.Json.JsonSerializerOptions
options) : base(options)
        {
        }

        private static global::System.Text.Json.Serialization.JsonConverter?
GetRuntimeProvidedCustomConverter(global::System.Text.Json.JsonSerializerOptions
options, global::System.Type type)
        {

 global::System.Collections.Generic.IList<global::System.Text.Json.Serialization.JsonC
onverter> converters = options.Converters;

            for (int i = 0; i < converters.Count; i++)
            {
                global::System.Text.Json.Serialization.JsonConverter? converter =
converters[i];

                if (converter.CanConvert(type))
                {
                    if (converter is
global::System.Text.Json.Serialization.JsonConverterFactory factory)
                    {
                        converter = factory.CreateConverter(type, options);
                        if (converter == null || converter is
global::System.Text.Json.Serialization.JsonConverterFactory)
                        {
                            throw new
global::System.InvalidOperationException(string.Format("The converter '{0}' cannot
return null or a JsonConverterFactory instance.", factory.GetType()));
                        }
                    }

                    return converter;
                }
            }

            return null;
        }
    }
}
```

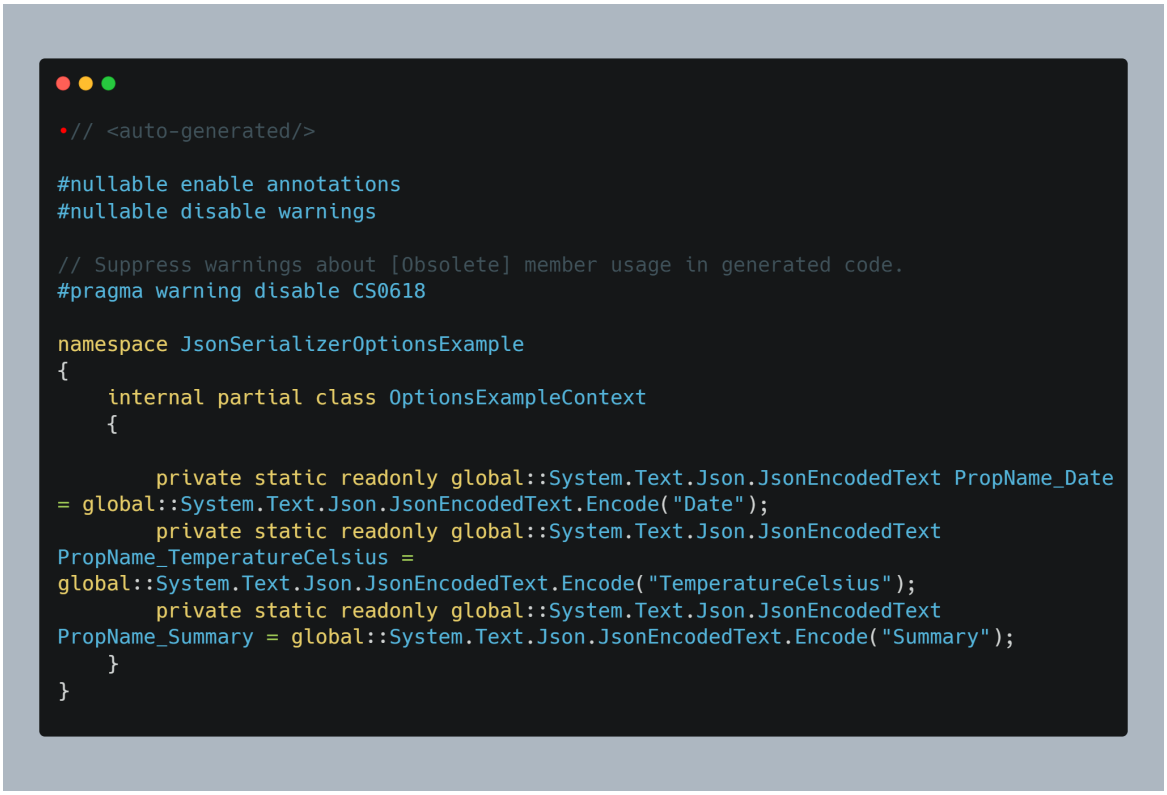
The file *generated* is OptionsExampleContext.GetJsonTypeInfo.g.cs

```
// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{
    internal partial class OptionsExampleContext:
global::System.Text.Json.Serialization.Metadata.IJsonTypeInfoResolver
    {
        /// <inheritdoc/>
        public override global::System.Text.Json.Serialization.Metadata.JsonTypeInfo
GetTypeInfo(global::System.Type type)
        {
            if (type == typeof(global::JsonSerializerOptionsExample.WeatherForecast))
            {
                return this.WeatherForecast;
            }

            if (type == typeof(global::System.DateTime))
            {
                return this.DateTime;
            }

            if (type == typeof(global::System.Int32))
            {
                return this.Int32;
            }

            if (type == typeof(global::System.String))
            {
                return this.String;
            }

            return null!;
        }

        global::System.Text.Json.Serialization.Metadata.JsonTypeInfo?
global::System.Text.Json.Serialization.Metadata.IJsonTypeInfoResolver.GetTypeInfo(glob
al::System.Type type, global::System.Text.Json.JsonSerializerOptions options)
        {
            if (type == typeof(global::JsonSerializerOptionsExample.WeatherForecast))
            {
                return Create_WeatherForecast(options, makeReadOnly: false);
            }

            if (type == typeof(global::System.DateTime))
            {
                return Create_DateTime(options, makeReadOnly: false);
            }

            if (type == typeof(global::System.Int32))
            {
                return Create_Int32(options, makeReadOnly: false);
            }

            if (type == typeof(global::System.String))
            {
                return Create_String(options, makeReadOnly: false);
            }

            return null;
        }

    }
}
```

The file *generated* is OptionsExampleContext.Int32.g.cs

```
// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{
    internal partial class OptionsExampleContext
    {
        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.Int32>?
_Int32;
        /// <summary>
        /// Defines the source generated JSON serialization contract metadata for a
given type.
        /// </summary>
        public
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.Int32>
Int32
        {
            get => _Int32 ??= Create_Int32(Options, makeReadOnly: true);
        }

        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.Int32>
Create_Int32(global::System.Text.Json.JsonSerializerOptions options, bool
makeReadOnly)
        {

 global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.Int32>?
jsonTypeInfo = null;
            global::System.Text.Json.Serialization.JsonConverter? customConverter;
            if (options.Converters.Count > 0 && (customConverter =
GetRuntimeProvidedCustomConverter(options, typeof(global::System.Int32))) != null)
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.Int32>(options, customConverter);
            }
            else
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.Int32>(options,
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.Int32Converter);
            }

            if (makeReadOnly)
            {
                jsonTypeInfo.MakeReadOnly();
            }

            return jsonTypeInfo;
        }

    }
}
```

The file *generated* is OptionsExampleContext.PropertyNames.g.cs



```
// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{
    internal partial class OptionsExampleContext
    {

        private static readonly global::System.Text.Json.JsonEncodedText PropName_Date
= global::System.Text.Json.JsonEncodedText.Encode("Date");
        private static readonly global::System.Text.Json.JsonEncodedText
PropName_TemperatureCelsius =
global::System.Text.Json.JsonEncodedText.Encode("TemperatureCelsius");
        private static readonly global::System.Text.Json.JsonEncodedText
PropName_Summary = global::System.Text.Json.JsonEncodedText.Encode("Summary");
    }
}
```

The file *generated* is OptionsExampleContext.String.g.cs

```
// <auto-generated/>

#nullable enable annotations
#nullable disable warnings

// Suppress warnings about [Obsolete] member usage in generated code.
#pragma warning disable CS0618

namespace JsonSerializerOptionsExample
{
    internal partial class OptionsExampleContext
    {
        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.String>?
_String;
        /// <summary>
        /// Defines the source generated JSON serialization contract metadata for a
given type.
        /// </summary>
        public
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.String>
String
        {
            get => _String ??= Create_String(Options, makeReadOnly: true);
        }

        private
global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.String>
Create_String(global::System.Text.Json.JsonSerializerOptions options, bool
makeReadOnly)
        {

 global::System.Text.Json.Serialization.Metadata.JsonTypeInfo<global::System.String>?
jsonTypeInfo = null;
            global::System.Text.Json.Serialization.JsonConverter? customConverter;
            if (options.Converters.Count > 0 && (customConverter =
GetRuntimeProvidedCustomConverter(options, typeof(global::System.String))) != null)
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.String>(options, customConverter);
            }
            else
            {
                jsonTypeInfo =
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.CreateValueInfo<g
lobal::System.String>(options,
global::System.Text.Json.Serialization.Metadata.JsonMetadataServices.StringConverter);
            }

            if (makeReadOnly)
            {
                jsonTypeInfo.MakeReadOnly();
            }

            return jsonTypeInfo;
        }

    }
}
```

The file *generated* is OptionsExampleContext.WeatherForecast.g.cs

You can download the code and this page as pdf from https://ignatandrei.github.io/RSCG_Examples/v2/docs/System.Text.Json

You can see the whole list at https://ignatandrei.github.io/RSCG_Examples/v2/docs/List-of-RSCG