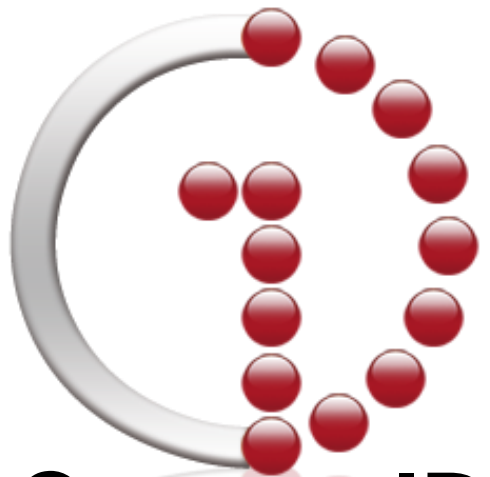


C# - JSON



CampusID

Sophia Antipolis

Slides Roadmap

- Serialization/Deserialization
- Read/Write JSON
- Linq to JSON



JSON.NET

- Install-Package Newtonsoft.Json
- Json.NET is a popular high-performance JSON framework for .NET
- Documentation:
<http://james.newtonking.com/json/help>



Serialization

- Class JsonConvert
- Namespace: Newtonsoft.Json

```
Student student = new Student();  
student.Id = 1;  
student.FirstName = "Student1";  
student.LastName = "Student1";  
  
string json = JsonConvert.SerializeObject(student);
```

Serialization

- Class JsonSerializer
- Namespace: Newtonsoft.Json

```
Student student = new Student();
student.Id = 1;
student.FirstName = "Student1";
student.LastName = "Student1";

var serializer = JsonSerializer.Create();
using (StreamWriter sw = new StreamWriter(@"c:\json.txt"))
{
    using (JsonWriter writer = new JsonTextWriter(sw))
    {
        serializer.Serialize(writer, student);
    }
}
```

Deserialization

- Class JsonConvert

```
var json = "{\"FirstName\":\"Student1\",\"Id\":1,\"LastName\":\"Student1\"}";  
var student = JsonConvert.DeserializeObject<Student>(json);
```

- Class JsonSerializer

```
var serializer = JsonSerializer.Create();  
using (StreamReader sr = new StreamReader(@"c:\json.txt"))  
{  
    using (JsonReader reader = new JsonTextReader(sr))  
    {  
        var student = serializer.Deserialize<Student>(reader);  
    }  
}
```

Linq to JSON

- LINQ to JSON is an API for working with JSON objects.
 - JObject: parsing a json object
 - JArray: parsing a json array
 - JToken: parsing from a file

Linq to JSON

- Examples:

```
var json = "{\"FirstName\":\"Student1\",\"Id\":1,\"LastName\":\"Student1\"}";
var o = JObject.Parse(json);

var array = "[{\"FirstName\":\"Student1\",\"Id\":1,\"LastName\":\"Student1\"}, {\"FirstName\":\"Student2\",\"Id\":2,\"LastName\":\"Student2\"}]";
var a = JArray.Parse(array);

using (StreamReader reader = File.OpenText(@"c:\json.txt"))
{
    var f = (JObject)JToken.ReadFrom(new JsonTextReader(reader));
}
```


Linq to JSON

- Read JObject:

```
string firstName = (string)o["FirstName"];
```

- Read JArray:

```
var query = from item in a.Children()  
            select new { Id = item["Id"], Value = item["FirstName"] };  
  
foreach (var item in query)  
{  
    Console.WriteLine(item.Id + ": " + item.Value);  
}
```

Converters

- JsonConverterAttribute
 - Converts an object to and from JSON.
 - CanConvert method
 - ReadJson method
 - WriteJson method

Conditional Property Serialization

- ShouldSerialize{Property} method on a class

```
1 reference
public class Employee
{
    0 references
    public string Name { get; set; }
    1 reference
    public Employee Manager { get; set; }

    0 references
    public bool ShouldSerializeManager()
    {
        return (Manager != this);
    }
}
```

Exercices

- Serialization/Deserialization JSON
- Console app Twitter:
 - <https://dev.twitter.com/oauth/application-only>