

# Course : .NET, developing REST Web Services

*Practical course - 3d - 21h00 - Ref. STW*

*Price : 2150 CHF E.T.*



You'll learn how to set up REST Web services using .Net development. You'll see how a client can query the server using the OData protocol, microservices and Docker. You'll also learn about modern authentication methods that enable applications to talk to each other.

## Teaching objectives

**At the end of the training, the participant will be able to:**

- ✓ Master the basics of REST and Web APIs
- ✓ Using OData to query data
- ✓ Modern user and application authentication with OAuth
- ✓ Document a Web Service automatically
- ✓ Discover Docker for lightweight deployment of microservices

## Intended audience

Developers, architects, project managers.

## Prerequisites

Knowledge of C# or good knowledge of an object-oriented language, as well as basic knowledge of HTTP.

## Practical details

### Hands-on work

Realization of several REST Web Services case studies in .Net.

### Teaching methods

Alternating lectures (50%) and practical exercises (50%).

## Course schedule

### PARTICIPANTS

Developers, architects, project managers.

### PREREQUISITES

Knowledge of C# or good knowledge of an object-oriented language, as well as basic knowledge of HTTP.

### TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

### ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more. Participants also complete a placement test before and after the course to measure the skills they've developed.

## 1 Basics of REST Web Services with Web APIs

- Representational State Transfer.
- Serialize objects using Javascript Object Notation.
- Organize with the Model View Controller architecture.
- Use routes to make sense of URLs.
- Express routes with attributes.
- Request a server with HttpClient.
- Server version management.

### Hands-on work

Creation of a Web Service for entity Create-Retrieve-Update-Delete.

## 2 Hosting a Web Service

- Host your service on an IIS server and Microsoft Azure.
- Self-host your application.
- Logging with logging APIs.

### Hands-on work

Self-hosting of the Web Service in a console application.

## 3 Querying a server with OData

- Save bandwidth and enrich the customer experience.
- OData updates.
- Querying with OData and a .Net client.
- Limit data volume.
- Enable joins with \$expand.
- Querying with OData without .Net.

### Hands-on work

Developing an OData site and client with a tool like Postman.

## 4 REST Web services security

- The principles of modern authentication.
- Distinguish between types of customer.
- Azure Active Directory or Active Directory Federation Service?
- Create an OAuth identity provider with Microsoft Identity.

### Hands-on work

Set up OAuth authentication between two applications.

## 5 Site documentation

- Documentation with ASP.Net MVC.
- Documenting an API with Swagger.

### Hands-on work

Site documentation with Swagger.

### TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

### TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

### ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

## 6 Microservices with Docker

- Virtual machine and containerization.
- Writing a DockerFile. Map ports with Docker.
- Docker Compose: orchestrating applications.

### Hands-on work

Creating a docker application with Visual Studio 2017.

## 7 Cross Origin Ressource Sharing

- Browser security restrictions.
- Allow preflight requests.
- Service accessibility.

### Hands-on work

Setting up CORS.

## 8 Web Sockets for bidirectional communication

- Use Web Sockets for bidirectional communication with the browser.
- Set up SignalR and JQuery-SignalR.

### Hands-on work

Creation of a customer relationship management application.

## Dates and locations

### REMOTE CLASS

2026 : 15 June, 23 Nov.