

# XML SOAP WSDL UDDI

## 1. XML — Data Format

### What is it?

*XML = Extensible Markup Language*

A structured text format used to store and exchange data.

### Why do we use it?

Because it is:

- Human readable
- Machine readable
- Platform independent

### When is it used?

Whenever data is sent between client ↔ web service.

### Relation to others

- SOAP uses XML inside its message body.
- WSDL is written in XML.
- UDDI provides XML-based descriptions.

👉 **XML is the foundation on which SOAP, WSDL, and UDDI are built.**

## 2. SOAP — Messaging Protocol

### What is it?

*SOAP = Simple Object Access Protocol*

A protocol that defines **how messages are packaged and transported**.

### Why do we use it?

To ensure that communication:

- Follows a standard structure
- Works across different systems
- Uses XML to format all message content

### When is it used?

Whenever a web service sends or receives a request/response.

### Relation to others

- SOAP messages contain XML.
- WSDL defines the SOAP operations contract.
- UDDI stores information about SOAP-based services.

👉 **SOAP uses XML to transfer data across the network.**

## 3. WSDL — Service Description Language

### What is it?

*WSDL = Web Services Description Language*

An XML document that describes **what the web service does**.

### Why do we use it?

Because clients need to know:

- What methods are available
- What parameters they take
- What the service returns

- How to call the service

#### When is it used?

When generating a **proxy** or adding a **service reference** in .NET.

#### Relation to others

- WSDL is written in XML.
- WSDL describes SOAP messages.
- UDDI stores WSDL files.

👉 **WSDL tells the client how to use the SOAP web service.**

## 📁 4. UDDI — Directory of Web Services

#### What is it?

UDDI = *Universal Description, Discovery, and Integration*

A **registry** (like a yellow pages) for web services.

#### Why do we use it?

To publish and discover web services.

#### When is it used?

When companies want to list their web services publicly or privately.

#### Relation to others

- UDDI stores **WSDL** descriptions.
- UDDI describes services using **XML**.
- SOAP is often the protocol used for communication.

👉 **UDDI is the phone directory where services are listed and described.**

#### 🔗 How They All Work Together (Simple Diagram)

