

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)**

