Joint EU-MNE Programme for
Employment, Education and Social Welfare

WP 4 - Creation of innovative IT solution which will reduce diclofenac prescribing

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DEV 4.2 - Report

"Definition of SOAP Web services for communication between PHC IS and CInMED IS"

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Monitoring the prescription of diclofenac with the aim of optimization of its safe use

CALIMS
Agencija za lijekove i medicinska sredstva Crne Gore

MG SOFT
engineering-software

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1. SOAP

SOAP web services enable communication between Information Systems, by providing web service server and client module for communication.

SOAP (Simple Object Access Protocol) is a messaging protocol specification for exchanging structured information in the implementation of web services in computer networks. It uses XML Information Set for its message format, and relies on application layer protocols, most often Hypertext Transfer Protocol (HTTP), although some legacy systems communicate over Simple Mail Transfer Protocol (SMTP), for message negotiation and transmission.

SOAP allows developers to invoke processes running on disparate operating systems (such as Windows, macOS, and Linux) to authenticate, authorize, and communicate using Extensible Markup Language (XML). Since Web protocols like HTTP are installed and running on all operating systems, SOAP allows clients to invoke web services and receive responses independent of language and platforms.

SOAP provides the Messaging Protocol layer of a web services protocol stack for web services. It is an XML-based protocol consisting of three parts:

- an envelope, which defines the message structure and how to process it
- a set of encoding rules for expressing instances of application-defined datatypes
- a convention for representing procedure calls and responses

SOAP has three major characteristics:

- extensibility (security and WS-Addressing are among the extensions under development)
- neutrality (SOAP can operate over any protocol such as HTTP, SMTP, TCP, UDP)
- independence (SOAP allows for any programming model)

An application can send a SOAP request to a server that has web services enabled with the parameters for a search. The server then returns a SOAP response (an XML-formatted document with the resulting data). Since the generated data comes in a standardized machine-parsable format, the requesting application can then integrate it directly.

The SOAP architecture consists of several layers of specifications for:

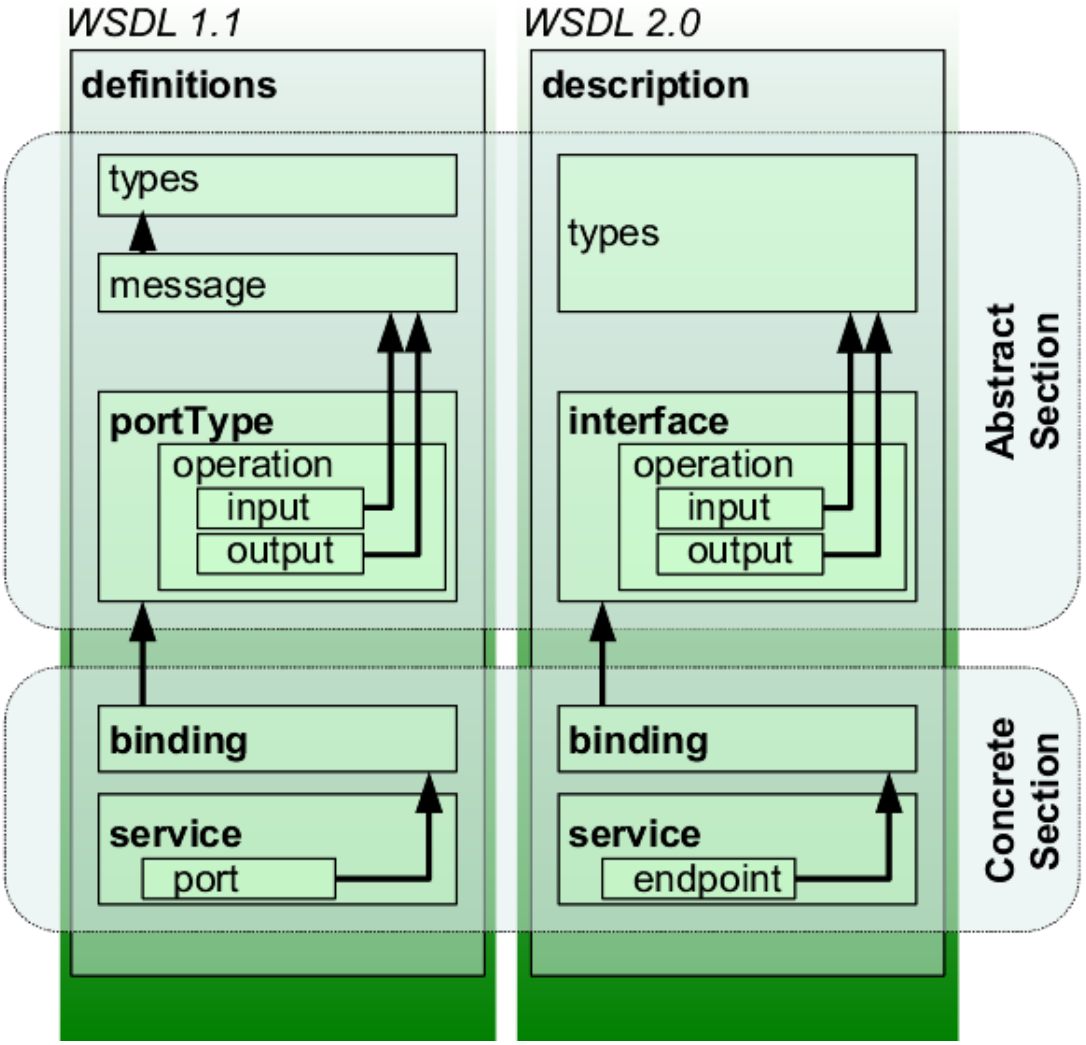
- message format
- Message Exchange Patterns (MEP)
- underlying transport protocol bindings
- message processing models
- protocol extensibility

2. WSDL

The Web Services Description Language (WSDL) is an XML-based interface description language that is used for describing the functionality offered by a web service. The acronym is also used for any specific WSDL description of a web service (also referred to as a WSDL file), which provides a machine-readable description of how the service can be called, what parameters it expects, and what data structures it returns. Therefore, its purpose is roughly similar to that of a type signature in a programming language.

The WSDL describes services as collections of network endpoints, or ports. The WSDL specification provides an XML format for documents for this purpose. The abstract definitions of ports and messages are separated from their concrete use or instance, allowing the reuse of these definitions. A port is defined by associating a network address with a reusable binding, and a collection of ports defines a service. Messages are abstract descriptions of the data being exchanged, and port types are abstract collections of supported operations. The concrete protocol and data format specifications for a particular port type constitutes a reusable binding, where the operations and messages are then bound to a concrete network protocol and message format. In this way, WSDL describes the public interface to the Web service.

WSDL is often used in combination with SOAP and an XML Schema to provide Web services over the Internet. A client program connecting to a Web service can read the WSDL file to determine what operations are available on the server. Any special datatypes used are embedded in the WSDL file in the form of XML Schema. The client can then use SOAP to actually call one of the operations listed in the WSDL file, using for example XML over HTTP.


WSDL 1.1
WSDL 2.0
definitions
description
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message
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operation
input
output
types
interface
operation
input
output
Abstract Section
binding
service
port
binding
service
endpoint
Concrete Section