

## What is WebService?

Web Services is the mechanism or the medium of communication through which two applications / machines will exchange the data irrespective of their underline architecture and the technology.

Web Services can be implemented in different ways, but the following two are the popular implementations approaches.

1. SOAP (Simple Object Access Protocol)
2. REST (Representational State Transfer architecture)

### SOAP

SOAP is a standard protocol defined by the W3C (World Wide Web Consortium) Standard for sending and receiving web service requests and responses.

SOAP uses the **XML format to send and receive the request** and hence the data is platform independent data. SOAP messages are exchanged between the provider applications and receiving application within the SOAP envelops.

As SOAP uses the simple http transport protocol, its messages are not got blocked by the firewalls.

### REST

REST means REpresentational State Transfer; it is an architecture that generally runs over HTTP. The REST style emphasizes the interactions between clients and services, which are enhanced by having a limited number of operations. REST is an alternative to SOAP (Simple Object Access Protocol) and instead of using XML for request REST uses simple URL in some cases. Unlike SOAP, RESTFUL applications uses HTTP build in headers to carry meta-information.

There are various code that REST use to determine whether user has access to API or not like code 200 or 201 indicates successful interaction with response body while 400 indicates a bad request or the request URI does not match the APIs in the system. All API request parameters and method parameters can be sent via either **POST** or **GET** variables.

Rest API supports both XML and JSON format. It is usually preferred for Mobile and web apps as it makes app work faster and smoother

## WSDL

WSDL (Web Services Description Language) is an XML based language which will be used to describe the services offered by a web service.

WSDL describes all the operations offered by the particular web service in the XML format. It also defines how the services can be called, i.e what input value we have to provide and what will be the format of the response it is going to generate for each kind of service.

## What is Web Service Testing?

Web Services Testing is testing of Web services and its Protocols like SOAP & REST. To test a Webservice you can

1. Test Manually
2. Create your own Automation Code
3. Use an automation tool like SoapUI.

WebService Testing involves following steps -

1. **Understand the WSDL file**
2. **Determine the operations that particular web service provides**
3. **Determine the XML request format which we need to send**
4. **Determine the response XML format**
5. **Using a tool or writing code to send request and validate the response**

## Using a tool or writing code to send request and validate the response

There are lots of tools available to test web services. SoapUI is one of the popular tool which will help us to test the web services. In fact you can use the any programming language which is capable of sending the XML request to the web service provider application over the http and able to parse and validate the response XML against the expected result. In our case, we will test the Webservice

1. Using Java
2. Using SoapUI