

## Script generated by TTT

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Web services provide a standard means of communication among distributed software applications based on the Web technology. Standardization by the W3C community.

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### Simple Object Access Protocol (SOAP)



simple and lightweight XML-based mechanism for exchanging data between network applications. **SOAP** is a de-facto standard for XML messaging:

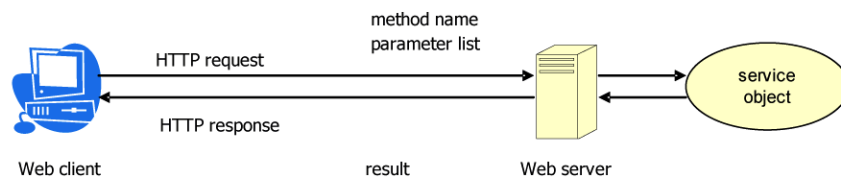
relatively simple.

flexible and extensible.

based on XML.

not bound to a specific protocol; use of Internet protocols such as HTTP, SMTP

may be used for RPC or document transfer.



use of SOAP for sending Web Services messages

#### [Parts of SOAP](#)

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### Parts of SOAP



SOAP consists of three parts:

an envelope.

a set of encoding rules.

a convention for representing remote procedure calls and responses.

#### [SOAP Message](#)

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one-way transmissions from a sender to a receiver.  
combination of SOAP messages to implement interaction patterns such as request/response.

A SOAP application receiving a SOAP message must process the message by performing the following actions

1. Identify all parts of the SOAP message intended for that application; interpret the "SOAP actor" attribute of the SOAP header.
2. Verify that all mandatory parts are supported by the application for this message and process them accordingly.
3. If the SOAP application is not the ultimate destination of the message then remove all parts identified in step 1 before forwarding the message.

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SOAP naturally follows the HTTP request/response message model providing SOAP request parameters in a HTTP request and SOAP response parameters in a HTTP response.

use of media type "text/xml".

[SOAP Message Embedded in HTTP Request](#)

[SOAP Message Embedded in HTTP Response](#)

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```
POST /StockQuote HTTP/1.1
Host: www.stockquoteserver.com
Content-Type: text/xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "Some-URI"

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <m:GetLastTradePrice xmlns:m="Some-URI">
      <symbol>DIS</symbol>
    </m:GetLastTradePrice>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

SOAP request: processed by a servlet, CGI or standalone daemon running on a remote web server.

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SOAP naturally follows the HTTP request/response message model providing SOAP request parameters in a HTTP request and SOAP response parameters in a HTTP response.

use of media type "text/xml".

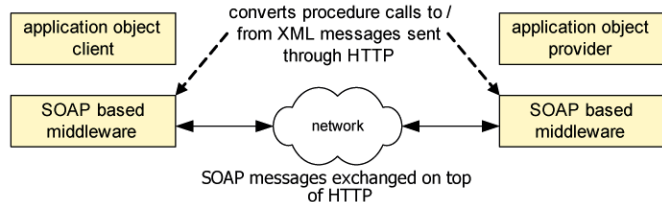
[SOAP Message Embedded in HTTP Request](#)

[SOAP Message Embedded in HTTP Response](#)

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RPC interactions may be mapped to SOAP.



Example

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Java Method

```
public int addFive(int arg);
```

Request Message in SOAP

```
<env:Envelope>
  <env:Body>
    <myNS:addFive xmlns:myNS="http://my-domain.de/"
      enc:encodingStyle="http://">
      <arg xsi:type="xsd:int">33</arg>
    </myNS:addFive>
  </env:Body>
</env:Envelope>
```

Response Message in SOAP

```
<env:Envelope>
  <env:Body>
    <myNS:addFiveResponse xmlns:myNS="http://my-domain.de/"
      xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
      enc:encodingStyle="http://">
      <rpc:result>ret</rpc:result>
      <ret xsi:type="xsd:int">38</ret>
    </myNS:addFiveResponse>
  </env:Body>
</env:Envelope>
```



Example



SOAP-Router



```
<env:Body>
  <myNS:addFive xmlns:myNS="http://my-domain.de/"
    enc:encodingStyle="http://">
    <arg xsi:type="xsd:int">33</arg>
  </myNS:addFive>
</env:Body>
</env:Envelope>
```

*argument of type int*

Response Message in SOAP

```
<env:Envelope>
  <env:Body>
    <myNS:addFiveResponse xmlns:myNS="http://my-domain.de/"
      xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
      enc:encodingStyle="http://">
      <rpc:result>ret</rpc:result>
      <ret xsi:type="xsd:int">38</ret>
    </myNS:addFiveResponse>
  </env:Body>
</env:Envelope>
```

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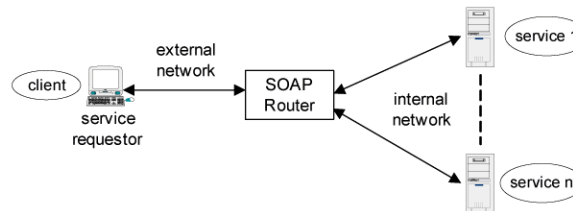


SOAP-Router



Routing is a process of delivering messages through a series of nodes or intermediaries, called **SOAP-Routers** in the context of SOAP.

The SOAP Router is the entity that moves SOAP messages between internal and external networks.



Besides routing capabilities the SOAP-Router may provide value-added services such as logging, auditing and enforcement of security policies.

WS\_Routing is a protocol that defines how SOAP messages can be delivered using various transports.

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