

# SOAP-WEBSERVICES

Veerle Ongenae

## Overzicht

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- Webservice - definitie

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## Webservice - definitie

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- Software service (dienst)
- Toegankelijk via internet
  - ▣ Via bestaande protocollen bv. HTTP
- Service versus application

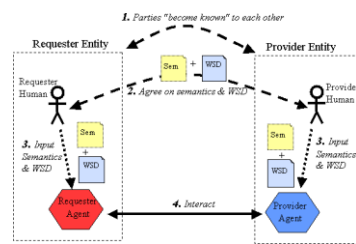


<http://tutorials.jenkov.com/web-services/message-formats.html>

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## Webservice – entities

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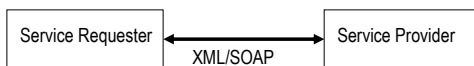


<http://www.w3.org/TR/ws-arch/>

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## Webservice – andere terminologie

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## Overzicht

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- Webservices
  - ▣ Definitie
  - ▣ Technologieën
    - SOAP

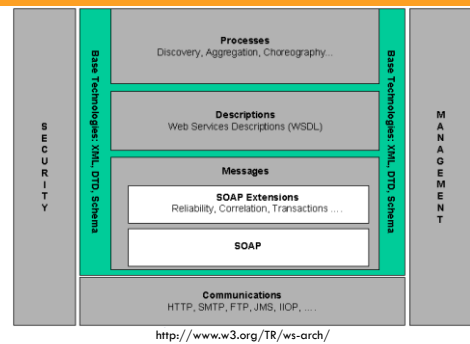
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## Twee types webservices

- RESTfull webservices
  - ▣ Roy Fielding
  - ▣ JAX-RS (Java API for RESTful Web Services)
  - ▣ Web API (.NET)
- SOAP webservices

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## Technologieën



## SOAP webservices



<http://www.codeproject.com/Articles/6399/Securing-web-services-using-SOAP-extensions>  
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## Voorbeeld SOAP-aanvraag

POST /ZwiftBooks HTTP/1.1  
Host: www.zwiftbooks.com  
Content-Type: text/xml  
Content-Length: 134  
SOAP Action: "Some-URI"

```
<Envelope xmlns="http://www.w3.org/2003/05/soap-envelope"
encodingStyle="http://www.w3.org/2003/05/soap-encoding">
  <Body>
    <zwiftbooks:GetGuaranteedDeliveryTime
      xmlns:zwiftbooks="www.zwiftbooks.com">
      <zwiftbooks:isbn>0-13-18188-222-2</zwiftbooks:isbn>
      <zwiftbooks:zipcode>75240</zwiftbooks:zipcode>
    </zwiftbooks:GetGuaranteedDeliveryTime>
  </Body>
</Envelope>
```

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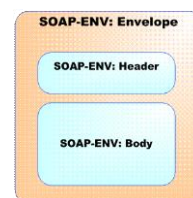
## Voorbeeld SOAP-antwoord

HTTP/1.1 200 OK  
Content-Type: text/xml  
Content-Length: 122

```
<Envelope xmlns="http://www.w3.org/2003/05/soap-envelope">
  <Body>
    <zwiftbooks:GetBestDeliveryTimeResponse
      xmlns:zwiftbooks="www.zwiftbooks.com">
      <zwiftbooks:Time>2 hours</zwiftbooks:Time>
    </zwiftbooks:GetBestDeliveryTimeResponse>
  </Body>
</Envelope>
```

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## Structuur SOAP Bericht



<https://mytechprep.wordpress.com/tag/soap-actor/>  
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## Voorbeeld: SOAP-hoofding

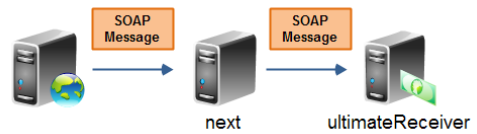
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```
<header>
  <n:alertcontrol
    xmlns:n="http://example.org/alertcontrol">
    <n:priority>1</n:priority>
    <n:expires>2001-06-22T14:00:00-05:00</n:expires>
  </n:alertcontrol>
</header>
```

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## SOAP-berichtenpad

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<https://myshadesofgray.wordpress.com/category/programming/java/>  
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## Voorbeeld: SOAP-hoofding

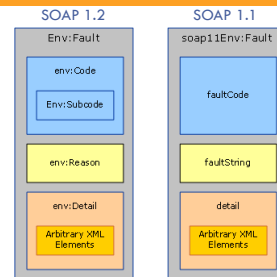
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```
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope">
  <env:Header>
    <m:reservation xmlns:m="http://travelcompany.example.org/reservation"
      env:role="http://www.w3.org/2003/05/soap-envelope/role/next"
      env:mustUnderstand="true">
      <m:reference>uuid:093a2da1-q345-739r-ba5d-pqff98fe8j7d</m:reference>
      <m:dateAndTime>2001-11-29T13:20:00.000-05:00</m:dateAndTime>
    </m:reservation>
    <n:passenger xmlns:n="http://mycompany.example.com/employees"
      env:role="http://www.w3.org/2003/05/soap-envelope/role/next"
      env:mustUnderstand="true">
      <n:name>Åke Jógvan Øyvind</n:name>
    </n:passenger>
  </env:Header>
  <env:Body>...</env:Body></env:Envelope>
```

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## SOAP-fouten

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<https://msdn.microsoft.com/en-us/library/ms789039%28v=vs.110%29.aspx>  
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## Voorbeeld SOAP-fouten

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```
<?xml version='1.0' ?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-rpc">
  <env:Body> <env:Fault>
    <env:Code>
      <env:Value>env:Sender</env:Value>
      <env:Subcode><env:Value>rpc:BadArguments</env:Value></env:Subcode></env:Code>
    <env:Reason>
      <env:Text xml:lang="en-US">Processing error</env:Text></env:Reason>
    <env:Detail>
      <e:myFaultDetails xmlns:e="http://travelcompany.example.org/faults">
        <e:message>Name does not match card number</e:message><e:errorcode>999</e:message>
      </e:myFaultDetails>
    </env:Detail>
  </env:Fault> </env:Body>
</env:Envelope>
```

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## Overzicht

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- Webservices
  - Definitie
  - Technologieën
    - SOAP
    - WSDL

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## WSDL

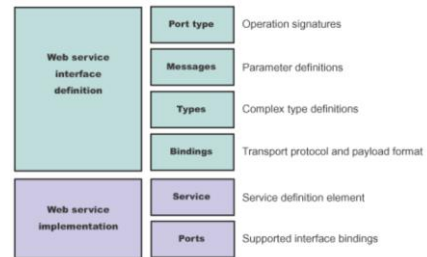
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- Web Service Description Language
- XML-standaard W3C
- Twee versies
  - WSDL 1.1 (<http://www.w3.org/TR/2001/NOTE-wsdl-20010315>)
  - WSDL 2.0 (<http://www.w3.org/TR/2007/REC-wsdl20-primer-20070626/>)

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## WSDL 1.1

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[https://www-01.ibm.com/support/knowledgecenter/SSAW57\\_8.0.0/com.ibm.websphere.nd.doc/info/ae/ae/cwbs\\_wsdl.html](https://www-01.ibm.com/support/knowledgecenter/SSAW57_8.0.0/com.ibm.websphere.nd.doc/info/ae/ae/cwbs_wsdl.html)  
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## Voorbeeld WSDL 1.1

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```
<?xml version="1.0"?>
<definitions names="StockQuote"
  targetNamespace="http://example.com/stockquote.wsdl"
  xmlns:tns="http://example.com/stockquote.wsdl"
  xmlns:xsd="http://example.com/stockquote.xsd"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns="http://schemas.xmlsoap.org/wsdl/">
  <types>
    <schema targetNamespace="http://example.com/stockquote.xsd"
      xmlns="http://www.w3.org/2000/10/XMLSchema">
      <element name="TradePriceRequest">
        <complexType>...</complexType>
      </element>
      <element name="TradePrice">
        <complexType> ...</complexType>
      </element>
    </schema>
  </types>
```

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## Voorbeeld WSDL 1.1

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```
<message name="GetLastTradePriceInput">
  <part name="body" element="xsd1:TradePriceRequest"/>
</message>

<message name="GetLastTradePriceOutput">
  <part name="body" element="xsd1:TradePrice"/>
</message>

<portType name="StockQuotePortType">
  <operation name="GetLastTradePrice">
    <input message="tns:GetLastTradePriceInput"/>
    <output message="tns:GetLastTradePriceOutput"/>
  </operation>
</portType>
```

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## Message Exchange Patterns

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- MEP
  - One-way
  - Request-response
  - Solicit-response
  - Notification
- Bepaald door <input> en <output>

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## Voorbeeld WSDL 1.1

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```
<binding name="StockQuoteSoapBinding"
  type="tns:StockQuotePortType">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="GetLastTradePrice">
    <soap:operation
      soapAction="http://example.com/GetLastTradePrice"/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
</binding>
```

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## Voorbeeld WSDL 1.1

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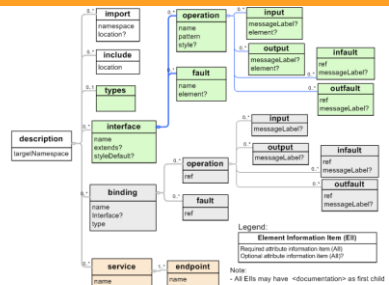
```
<service name="StockQuoteService">
  <documentation>My first service</documentation>
  <port name="StockQuotePort" binding="tns:StockQuoteBinding">
    <soap:address location="http://example.com/stockquote"/>
  </port>
</service>

</definitions>
```

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## WSDL 2.0 -structuur

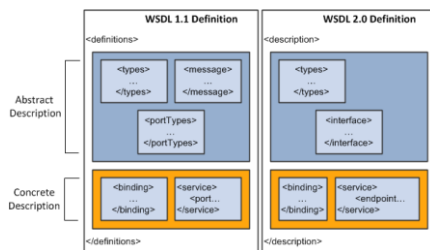
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<http://www.w3.org/TR/wsdl20-primer/>  
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## WSDL 1.0 versus 2.0

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[http://docs.oracle.com/cd/E41633\\_01/p853pbh1/eng/pt/tbr/concept\\_UnderstandingProvidingWSDLDocuments-076201.htm](http://docs.oracle.com/cd/E41633_01/p853pbh1/eng/pt/tbr/concept_UnderstandingProvidingWSDLDocuments-076201.htm)  
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## REST ↔ SOAP

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<http://www.etched.in/testing-web-services-1/>

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