



IBM Software Group

Using WebSphere Transformation Extender to call a WebService

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WebSphere® Support Technical Exchange



Agenda

- What is a WebService?
- Software used -
 - ▶ Mandatory
 - ▶ Optional
- Service used
- WSDL
- Import the WSDL into WTX
- Typetree

Agenda continued

- Map
- Adding the Rules - Fail!
- Adding more rules - Success!
- Further mapping possibilities
- Naming conventions and organisation
- Summary
- Q&A

What is a WebService

- A WebService is a method of communication between two electronic devices over the World Wide Web.

The W3C defines a 'WebService' as *"a software system designed to support interoperable machine-to-machine interaction over a network"*.

Software used - Mandatory

- Before you can call a WebService with WTX, certain components need to be installed

- Execution Engine -
 - ▶ Launcher
 - ▶ Command Server
 - ▶ API
 - ▶ Design Studio

- WTX Pack for WebServices

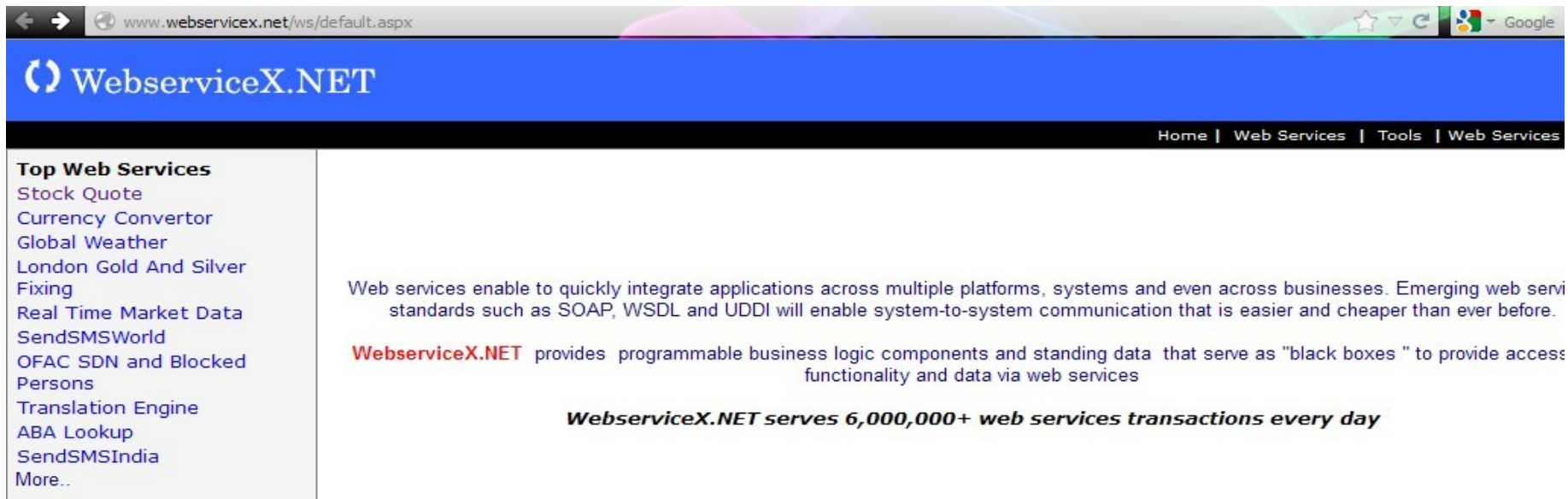


Software used - Optional

- WebService validation tool - Soap Sonar by Crosscheck Networks
<http://www.crosschecknet.com/products/soapsonar.php>
- XML validation tool – XML Spy by Altova
<http://www.altova.com/xml-editor/>

Service used

- **WebServiceX.net**
<http://www.webservicex.net>



The screenshot shows the homepage of WebserviceX.NET. The browser address bar displays "www.webservicex.net/ws/default.aspx". The website header is blue with the "WebserviceX.NET" logo and a navigation menu with links for "Home", "Web Services", "Tools", and "Web Services". A sidebar on the left lists "Top Web Services" including Stock Quote, Currency Converter, Global Weather, London Gold And Silver Fixing, Real Time Market Data, SendSMSWorld, OFAC SDN and Blocked Persons, Translation Engine, ABA Lookup, SendSMSIndia, and More.. The main content area features a paragraph about web services enabling integration across platforms, followed by a statement that WebserviceX.NET provides programmable business logic components and standing data as "black boxes". A bolded claim states: "WebserviceX.NET serves 6,000,000+ web services transactions every day".

www.webservicex.net/ws/default.aspx

Home | Web Services | Tools | Web Services

Top Web Services
Stock Quote
Currency Converter
Global Weather
London Gold And Silver Fixing
Real Time Market Data
SendSMSWorld
OFAC SDN and Blocked Persons
Translation Engine
ABA Lookup
SendSMSIndia
More..

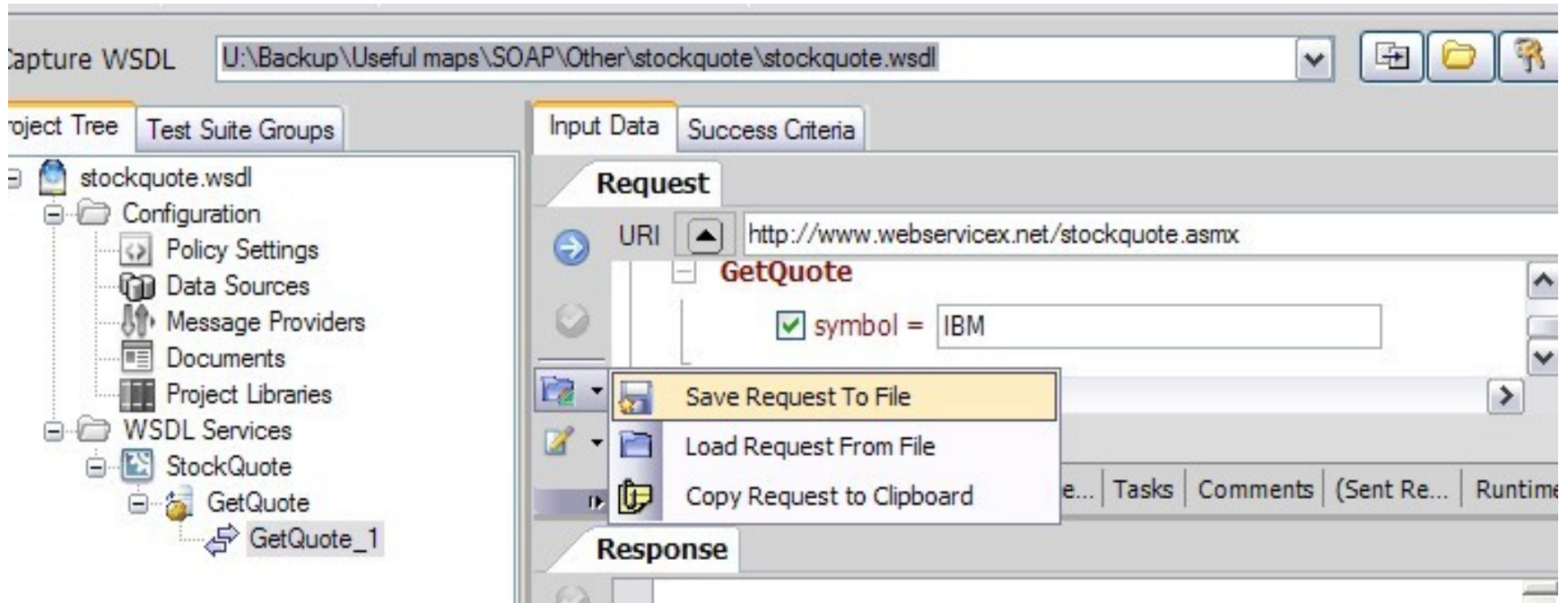
Web services enable to quickly integrate applications across multiple platforms, systems and even across businesses. Emerging web service standards such as SOAP, WSDL and UDDI will enable system-to-system communication that is easier and cheaper than ever before.

WebserviceX.NET provides programmable business logic components and standing data that serve as "black boxes " to provide access functionality and data via web services

WebserviceX.NET serves 6,000,000+ web services transactions every day

WSDL

- **Stock Quote** - *Get Stock quote for a company symbol by using this web service*
- WSDL Schema Location - <http://www.websvcx.net/stockquote.asmx?WSDL>



WSDL continued



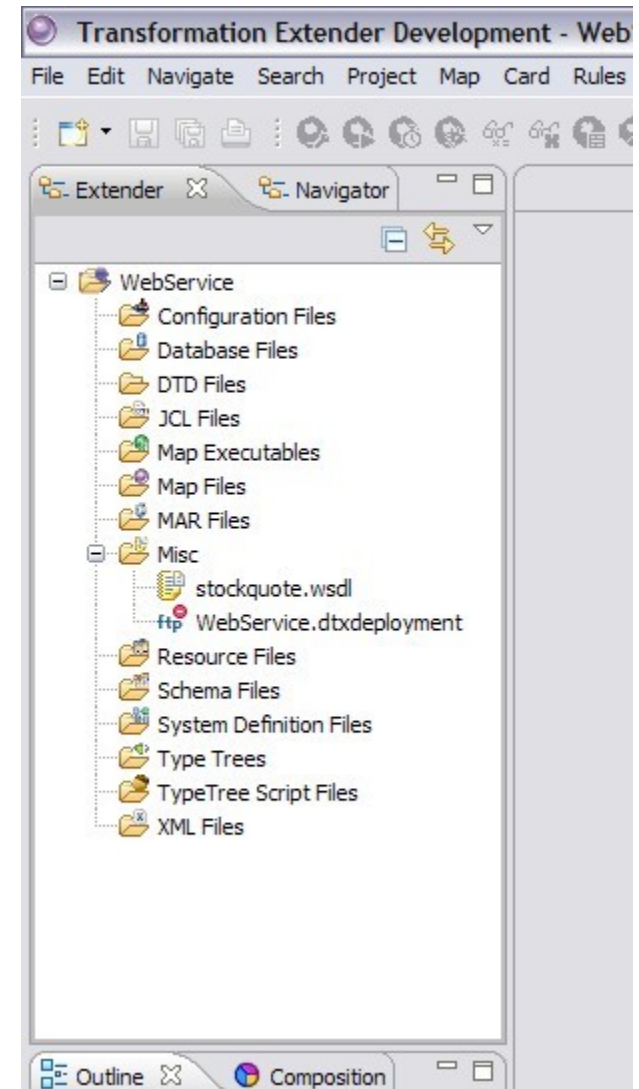
The screenshot shows a Notepad window titled "soapsonar_request.xml *". The window contains the following XML code:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://www.webserviceX.NET">
  <soap:Body>
    <tns:GetQuote>
      <tns:symbol>IBM</tns:symbol>
    </tns:GetQuote>
  </soap:Body>
</soap:Envelope>
```

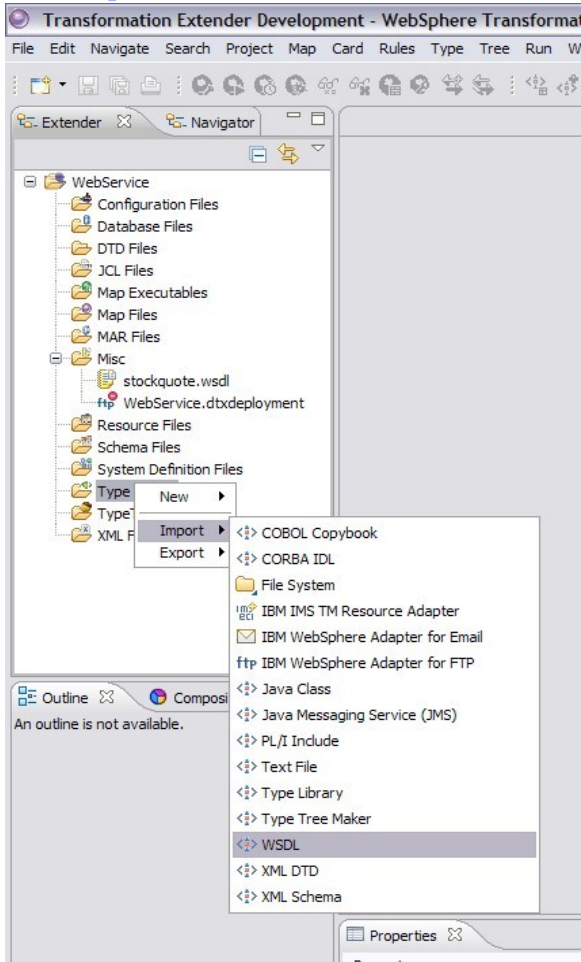
The window has a standard Windows interface with a title bar, a scroll bar, and a tab bar at the bottom. The tab bar shows "Text" as the active tab, with other tabs labeled "Schema/WSDL", "Authentic", and "Browser".

WSDL continued

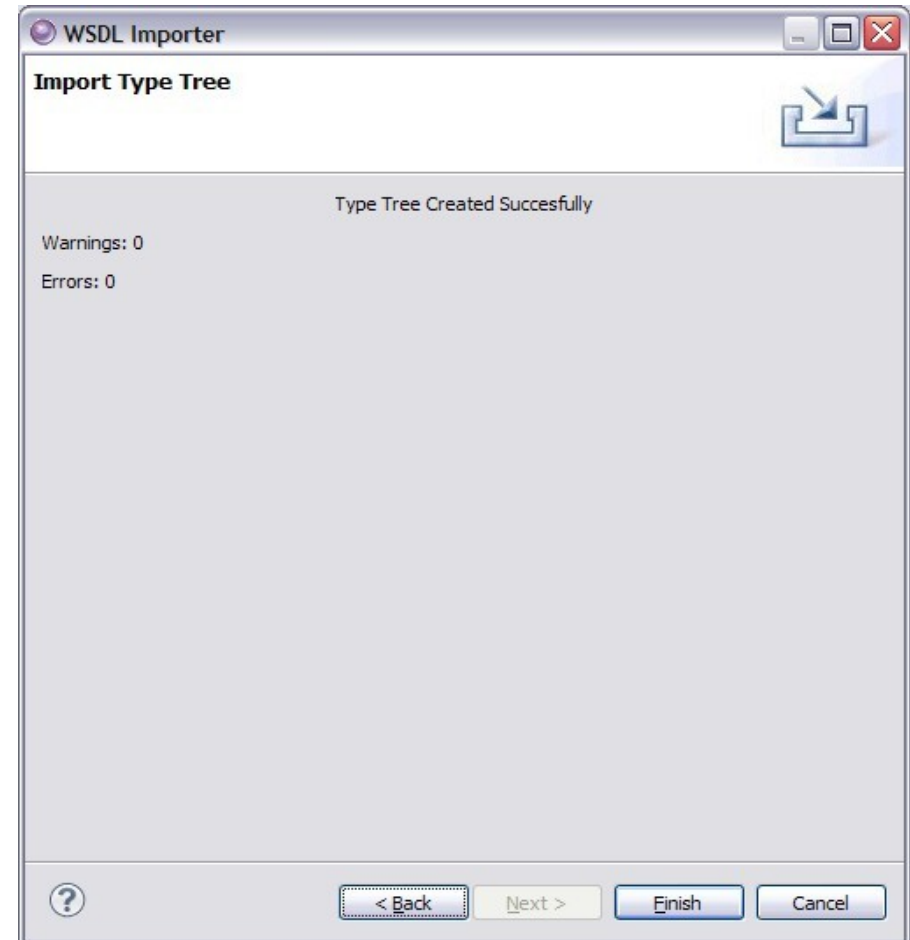
- Manually copy into workspace for WTX project
- WSDL appears under 'Misc' in the Extender Navigator



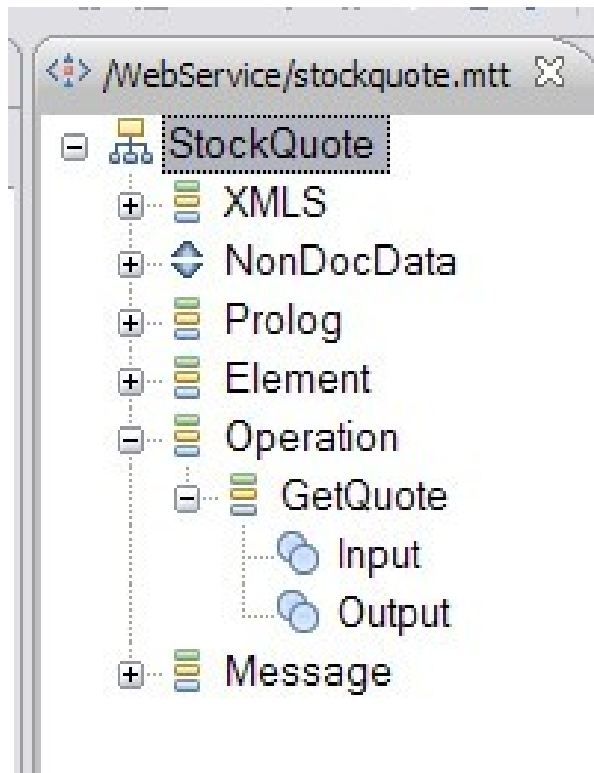
Import the WSDL into WTX



Import the WSDL into WTX continued

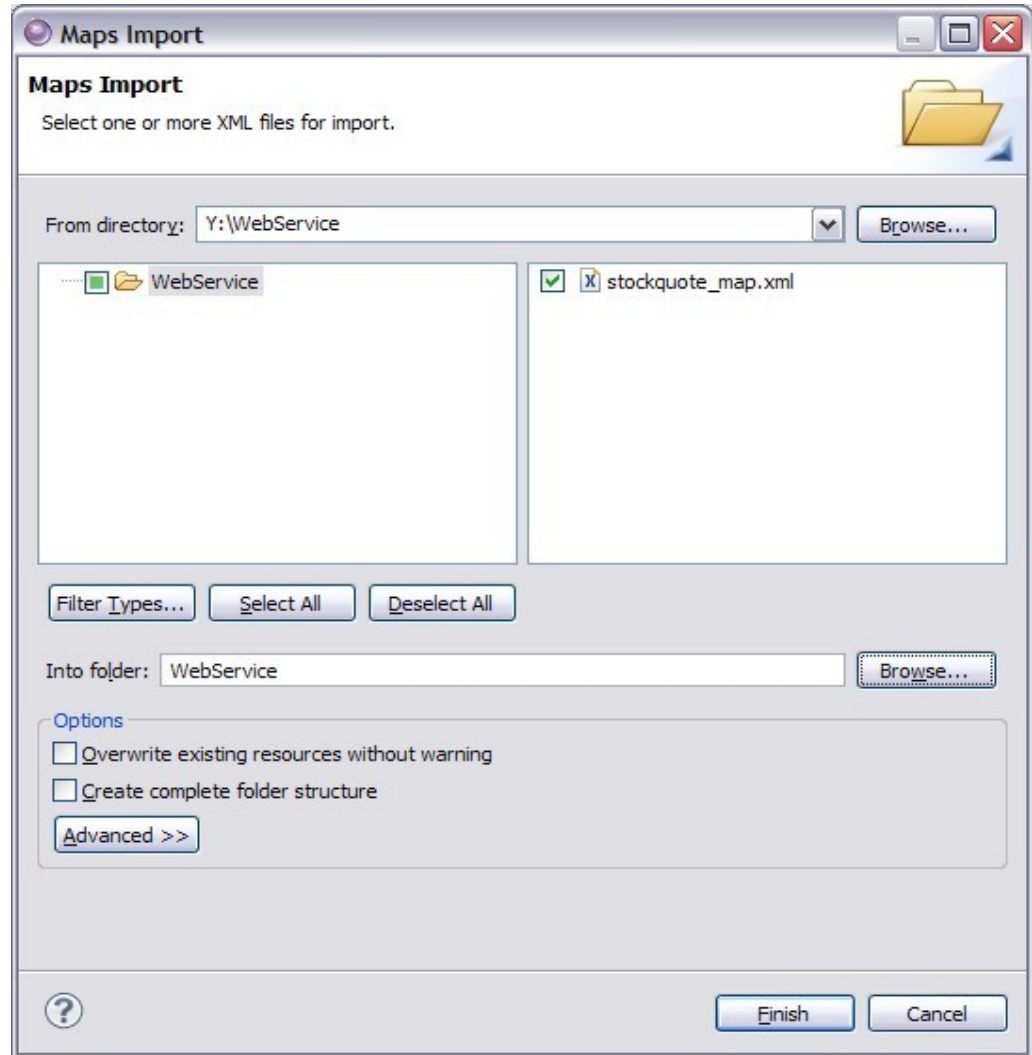
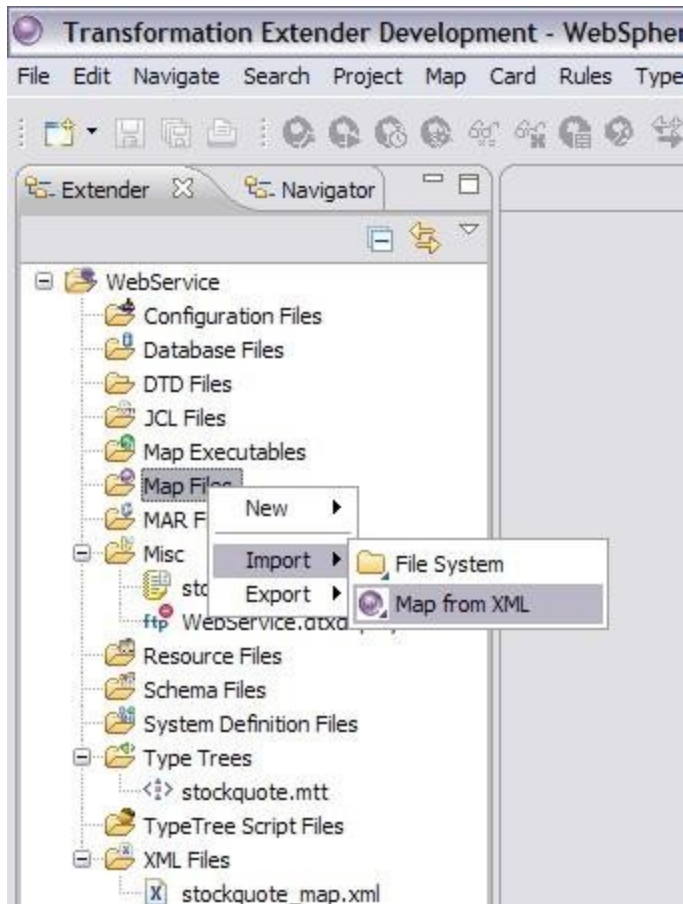


Typetree

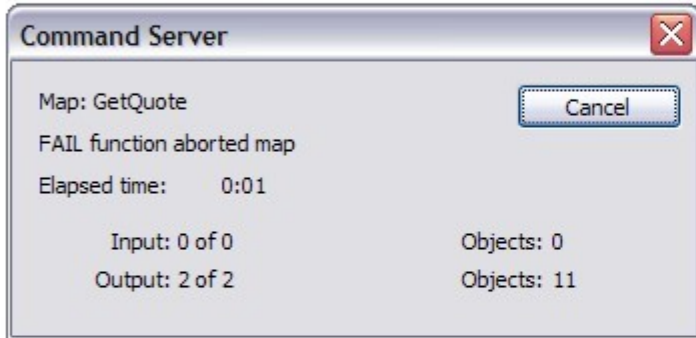


- Typetree objects mostly standard at the top level
- Root object is named after the WSDL
- All available operations should be listed under the category object 'Operation'.

Map



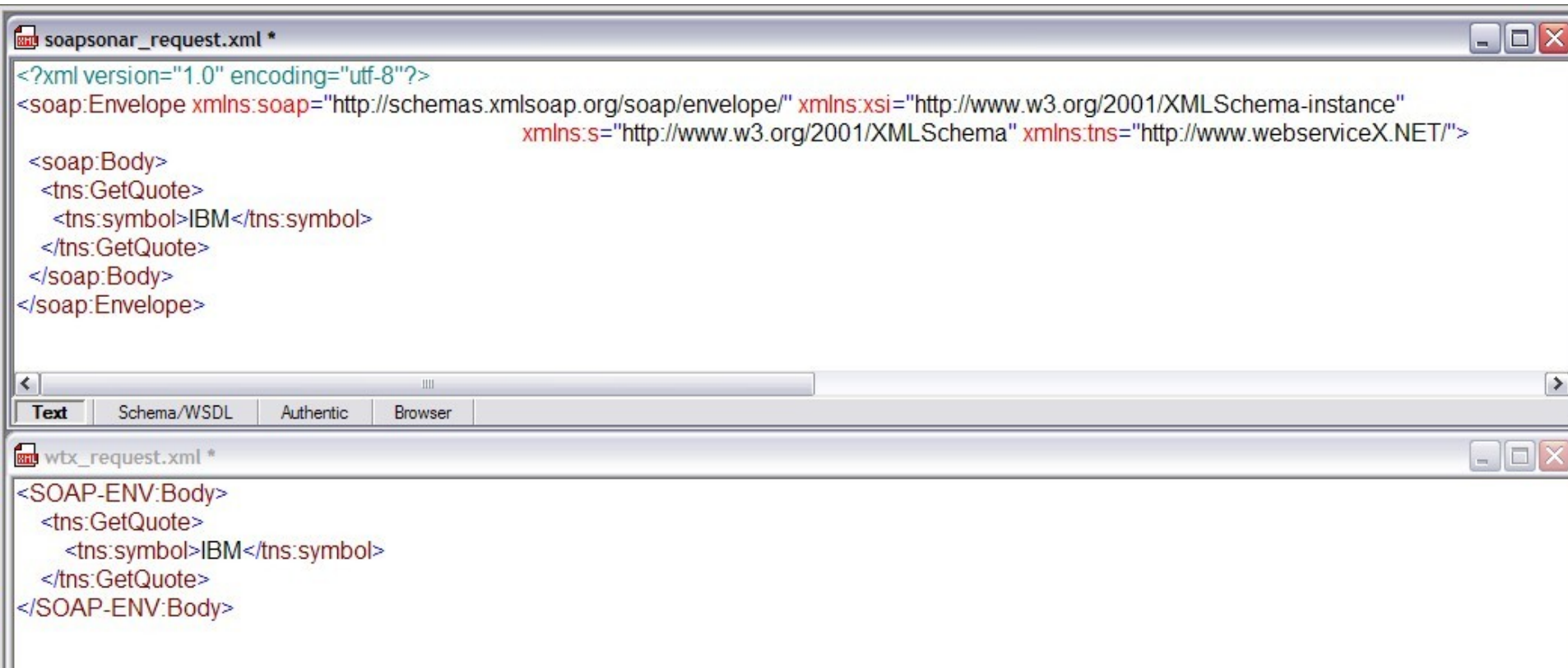
Adding the rules - Fail!



1-2# BuildRequest (Body GetQuoteSoapIn Message StockQuote)	
Output	Rule
BuildRequest	
BodyAttrs AttList	=NONE
GetQuoteSoapIn	
GetQuotePart	
MsgAttrs AttList	=NONE
EncodingStyle Attribute (0:1)	
MsgXmlns Attribute (0:1)	
AttrList XMLS (0:2)	
TypeDef GetQuote Element	
AttrList	=NONE
Seq	
ElemDecl symbol Comp (0:1)	
AttrList	=NONE
Value	= "IBM"

2-2# CallWS (Response Message StockQuote)	
Output	Rule
CallWS	=VALID(GET("SOAP", "-SA http://www.webserviceX.NET/GetQuote -TRA...

Adding the rules - Fail! continued



```
soapsonar_request.xml *
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://www.webserviceX.NET/">
  <soap:Body>
    <tns:GetQuote>
      <tns:symbol>IBM</tns:symbol>
    </tns:GetQuote>
  </soap:Body>
</soap:Envelope>

wtx_request.xml *
<SOAP-ENV:Body>
  <tns:GetQuote>
    <tns:symbol>IBM</tns:symbol>
  </tns:GetQuote>
</SOAP-ENV:Body>
```


Adding more rules - Success!

The screenshot shows a tree view of XML rules. The selected node is 'AttrList XMLS (0:2)'. A context menu is open over this node, showing options: 'Add Index', 'Insert Symbol...', 'Insert Functions', 'Insert NONE', 'Insert NONE if Empty', 'Copy', 'Delete', 'Add', 'Show All', 'Show Rules', and 'Show as Root'. Below the tree view, there is a table with columns 'Output' and 'Rule'.

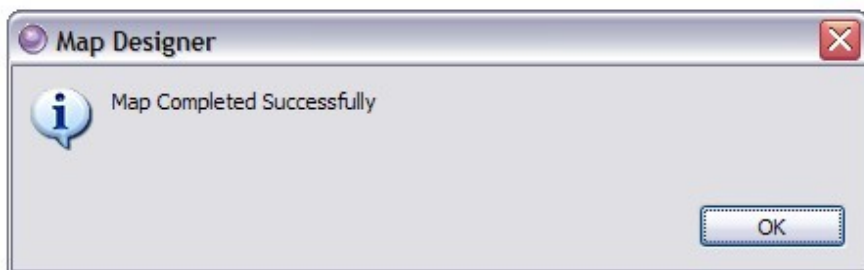
Output	Rule
CallWS	=VALID(GET("SOAP", "-SA h

The screenshot shows a tree view of XML rules. The selected node is 'Xmlns (s)'. A context menu is open over this node, showing options: 'Add Index', 'Insert Symbol...', 'Insert Functions', 'Insert NONE', 'Insert NONE if Empty', 'Copy', 'Delete', 'Add', 'Show All', 'Show Rules', and 'Show as Root'. The 'Nil (0:1)' node under 'Xmlns (s)' has a tooltip that reads 'Xmlns:AttrList XMLS'.

Adding more rules - Success! continued

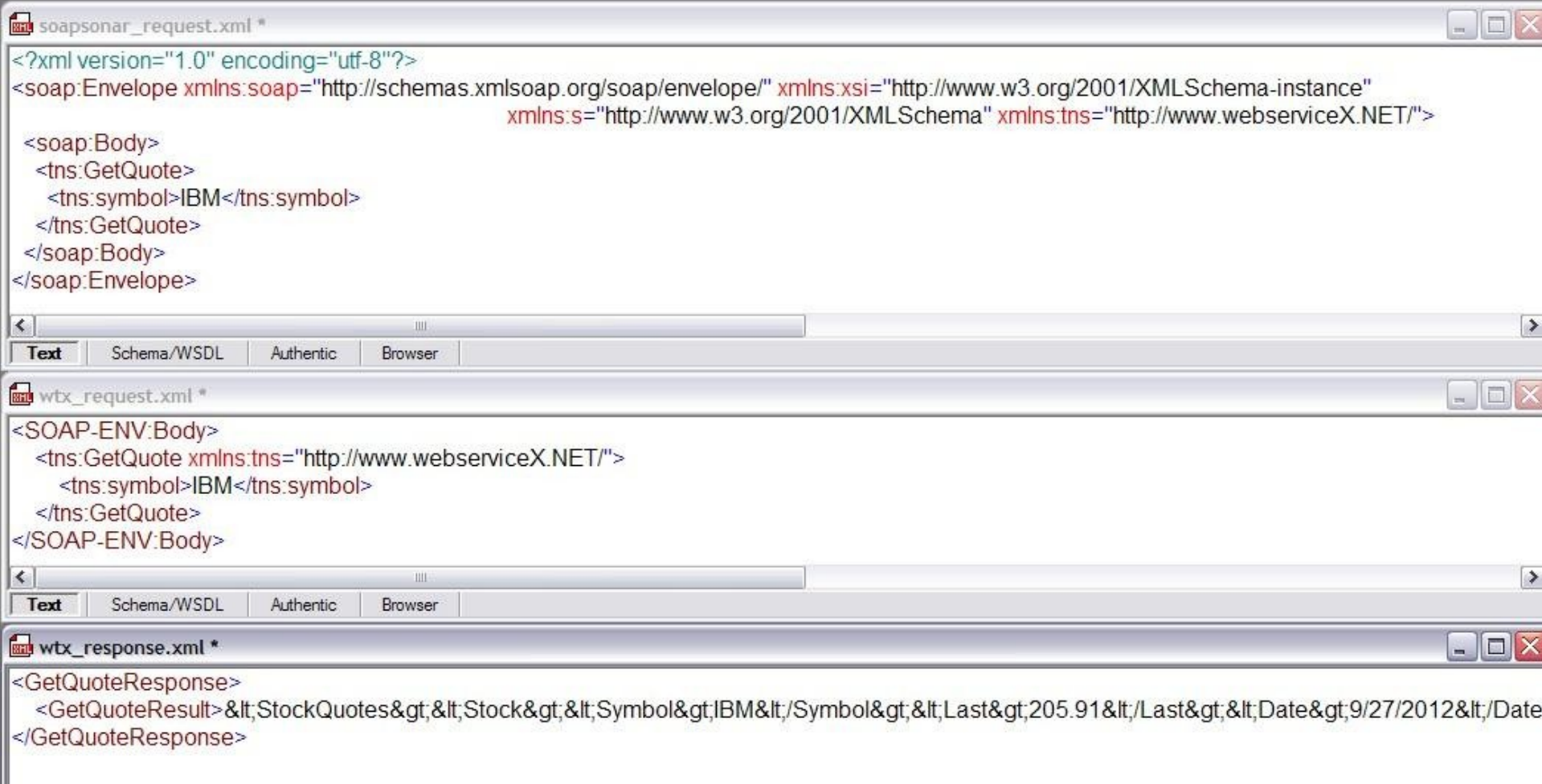
GetQuoteSoapIn	
GetQuotePart	
MsgAttrs AttList	
EncodingStyle Attribute (0:1)	=NONE
MsgXmlns Attribute (0:1)	=NONE
AttrList XMLS [1]	
Xmlns [1]	
Prefix	= "tns"
Uri	= "http://www.webserviceX.NET/"
Xmlns (s)	=NONE
SI (0:1)	=NONE
Nil (0:1)	=NONE
AttrList XMLS (0:1)	=NONE
TypeDef GetQuote Element	
AttrList	=NONE
Seq	

Adding more rules - Success! continued



BodyAttrs AttList	=NONE
GetQuoteSoapIn	
GetQuotePart	
MsgAttrs AttList	
EncodingStyle Attribute (0:1)	=NONE
MsgXmlns Attribute (0:1)	=NONE
AttrList XMLS [1]	
Xmlns [1]	
Prefix	="tns"
Uri	="http://www.webserviceX.NET/"
Xmlns (s)	=NONE
SI (0:1)	=NONE
Nil (0:1)	=NONE
AttrList XMLS (0:1)	=NONE
TypeDef GetQuote Element	
AttrList	=NONE
Seq	

Adding more rules - Success! continued



The image shows three overlapping text editor windows displaying XML code. The top window, titled 'soapsonar_request.xml', shows a SOAP request with a 'GetQuote' action and the symbol 'IBM'. The middle window, titled 'wtx_request.xml', shows a similar SOAP request but with the namespace 'http://www.webserviceX.NET/'. The bottom window, titled 'wtx_response.xml', shows the corresponding SOAP response with a 'GetQuoteResult' containing stock quote data for IBM.

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://www.webserviceX.NET/">
  <soap:Body>
    <tns:GetQuote>
      <tns:symbol>IBM</tns:symbol>
    </tns:GetQuote>
  </soap:Body>
</soap:Envelope>
```

```
<SOAP-ENV:Body>
  <tns:GetQuote xmlns:tns="http://www.webserviceX.NET/">
    <tns:symbol>IBM</tns:symbol>
  </tns:GetQuote>
</SOAP-ENV:Body>
```

```
<GetQuoteResponse>
  <GetQuoteResult>&lt;StockQuotes&gt;&lt;Stock&gt;&lt;Symbol&gt;IBM&lt;/Symbol&gt;&lt;Last&gt;205.91&lt;/Last&gt;&lt;Date&gt;9/27/2012&lt;/Date&gt;&lt;/GetQuoteResult&gt;
</GetQuoteResponse>
```

Further mapping possibilities

The screenshot displays the IBM WebSphere Integration Developer interface. On the left, a project tree shows folders for JCL Files, Map Executables, Map Files, MAR Files, Misc, Resource Files, Schema Files, System Definition Files, Type Trees, and XML Files. Below this is an 'Outline' and 'Composition' view showing a 'stockquote_map' project with 'GetQuote' and 'ParseResponse' components.

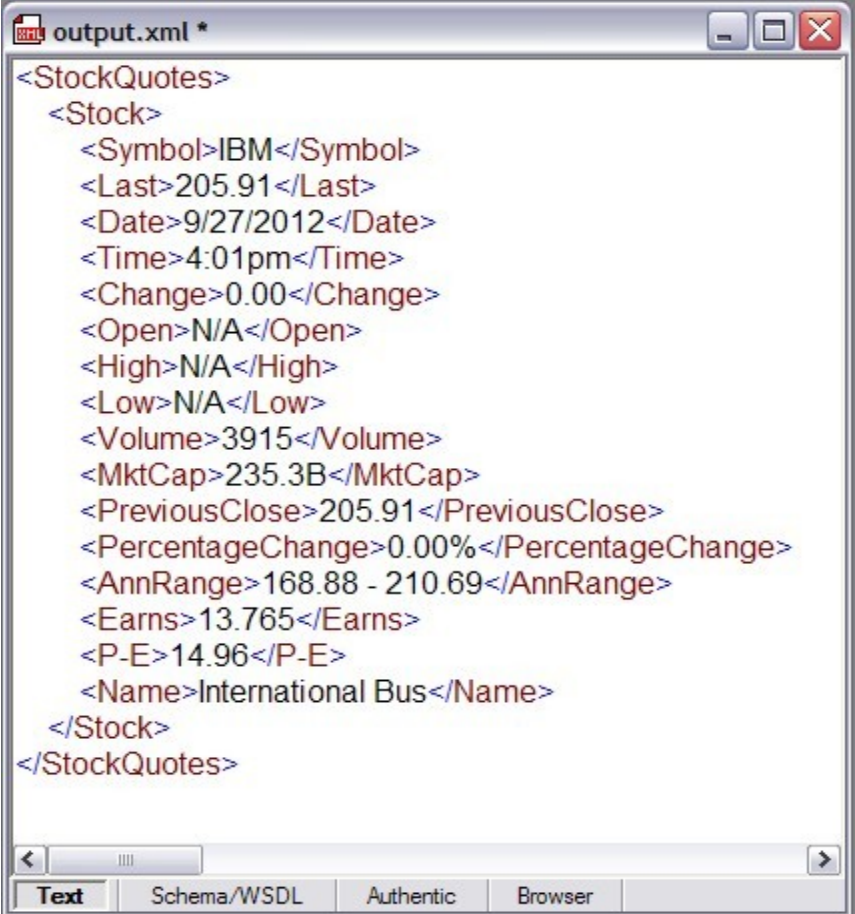
The main 'Map' view shows a sequence of elements for '1-1# WsResponse (GetQuoteSoapOut GetQuote)'. The elements are: WsResponse, GetQuoteResponsePart, MsgAttrs AttrList, TypeDef GetQuoteResponse Element, AttrList, Seq, ElemDecl GetQuoteResult Comp (0:1), AttrList, and Value.

The 'Edit Input Card (WsResponse)' dialog is open, showing the following properties and values:

Property	Value
[-] Schema	
CardName	WsResponse
TypeTree	stockquote.mtt
Type	GetQuoteSoapOut GetQuoteSoapOut Message StockQuote
[-] SourceRule	
FetchAs	Integral
WorkArea	Create
FetchUnit	S
[-] GET	
Source	File
FilePath	wx_response.xml
[-] Transaction	
OnSuccess	Keep
OnFailure	Rollback
Scope	Map
[-] Retry	
Switch	OFF
MaxAttempts	0
Interval	0
[-] DocumentVerification	
Classic	Never
Xerces	Never

Further mapping possibilities continued

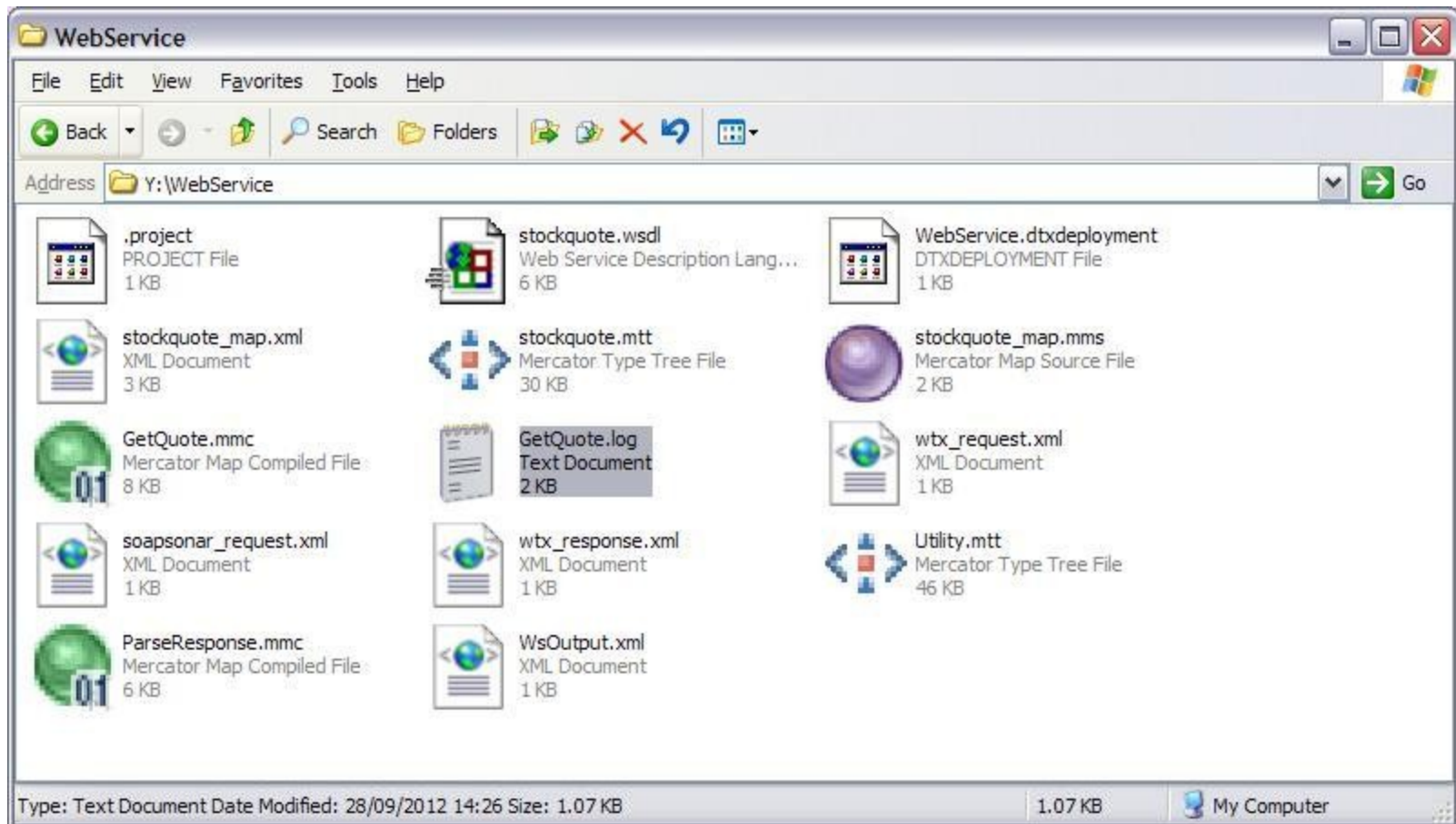
- In this case the output is also XML
- After extraction the output can be sent on to other maps via the RUN() function for further mapping or delivery to 3rd party systems using the WTX adapters.



```
<StockQuotes>
  <Stock>
    <Symbol>IBM</Symbol>
    <Last>205.91</Last>
    <Date>9/27/2012</Date>
    <Time>4:01pm</Time>
    <Change>0.00</Change>
    <Open>N/A</Open>
    <High>N/A</High>
    <Low>N/A</Low>
    <Volume>3915</Volume>
    <MktCap>235.3B</MktCap>
    <PreviousClose>205.91</PreviousClose>
    <PercentageChange>0.00%</PercentageChange>
    <AnnRange>168.88 - 210.69</AnnRange>
    <Earns>13.765</Earns>
    <P-E>14.96</P-E>
    <Name>International Bus</Name>
  </Stock>
</StockQuotes>
```

The screenshot shows a window titled "output.xml *" with a text area containing the XML data. At the bottom, there is a toolbar with buttons for "Text", "Schema/WSDL", "Authentic", and "Browser".

Naming conventions and organisation



Summary

- Importing a WSDL does some of the work for you.
- 3rd party tools can help you identify missing elements from your WebService requests
- Additional maps can be made using the Typetree imported from the WSDL



Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
http://www.ibm.com/software/websphere/support/supp_tech.html
- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
<http://www.ibm.com/developerworks/websphere/community/>
- Join the Global WebSphere Community:
<http://www.websphereusergroup.org>
- Access key product show-me demos and tutorials by visiting IBM® Education Assistant:
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
<http://www.ibm.com/software/websphere/support/d2w.html>
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<http://www.ibm.com/software/support/einfo.html>

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Questions and Answers