
service: Web Services Use Case Response
Generation Version 1

CML00028-01

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1 Introduction

The `service [1]` utility is used to customise responses to web service requests for the purpose of testing client applications. When this tool is designed to be used with the `mod_cml` component of the `StubServices` tool. The program accepts as input a request document and a configuration file. The request document is expected to be saved by `mod_cml` and the configuration file is expected to describe the possible responses to the request and the conditions under which each response is taken. The corresponding output, if any, is placed in a file whose name is also supplied as a command line argument. The program is expected to be called from a script determined by the `mod_cml` configuration process.

2 Running the Program

In order to run the program, the dynamic linking modules need to be resolved. One way to achieve this is with an appropriate value of the environment variable `LD_LIBRARY_PATH` on UNIX/Linux systems.

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$HOME/lib
```

The program accepts a `--help` or `-?` option to list the supported command line options:

```
Code Magus Limited Service V1.0: build 2011-10-31-10.30.59
[./service] $Id: service.c,v 1.16 2010/09/23 13:41:09 hayward Exp $
Copyright (c) 2008 by Code Magus Limited. All rights reserved.
[Contact: stephen@codemagus.com].
Usage: service [OPTION...]
  -v, --verbose                Produce output for all
                               processing
  -i, --input-document=<input-xml-doc>  Input XML document file name
  -o, --output-document=<output-xml-doc> Output XML document file name
  -f, --function-definition=<function-file> Function definition file for
                               service responses

Help options:
  -?, --help                  Show this help message
  --usage                     Display brief usage message
```

The program operates by reading in a request document and a configuration file. The configuration file may direct the process to read in other XML documents and template documents to be used as a response document. The command line option `--input-document` gives the file name of the input/request XML document and the command option `--output-document` gives the name of the file of where the response document must be stored. The configuration is processed out of the file given by the file named in the `--function-definition` command line option. All three command line arguments are mandatory.

The program returns a return code of zero if the document was successfully placed in the file named by the `--output-document` command line option. If an error occurs,

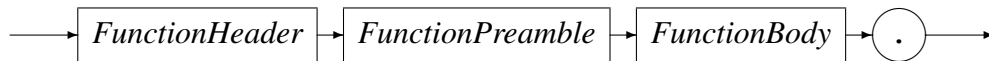
the program will return a non-zero exit code and the contents of the output file should not be used.

3 Configuration Files

A configuration file describes how the mock web service should reply to a specific web services function. The configuration comprises of individual named cases that are designed to deal with a specific use-case and determine the response for that situation. Depending on the case in question, the configuration file includes specific updates that are to be applied to (template) XML documents in making up the responses.

There are three parts to a function configuration file used to configure the responses to service function requests.

ServiceFunction



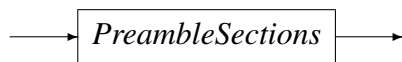
The *FunctionHeader* header is used as an internal identifier of the function that the configuration file services. The *IDENTIFIER* should have the same spelling, included case, of the function for which the configuration file applies.

FunctionHeader

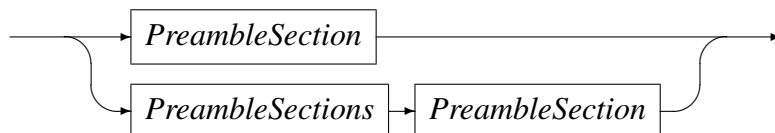


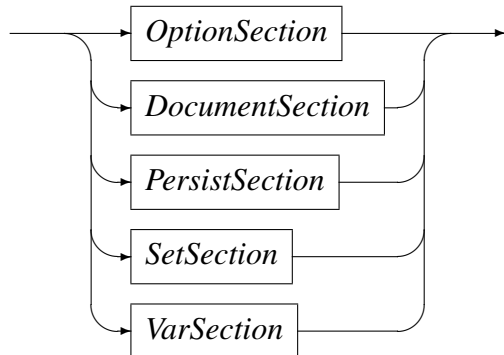
The *FunctionPreamble* is used to declare various documents, variables and environment variable settings used throughout the rest of the configuration file. The various sections of the *FunctionPreamble* (*OptionSection*, *DocumentSection*, *SetSection* and *VarSection*) may appear in any order and the sections may repeat as required by the specific circumstances of the configuration.

FunctionPreamble

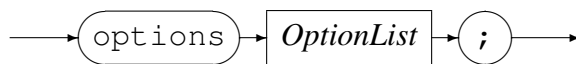
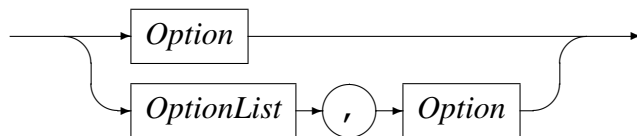
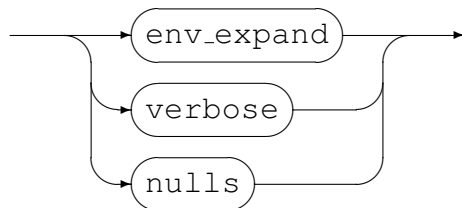


PreambleSections



PreambleSection

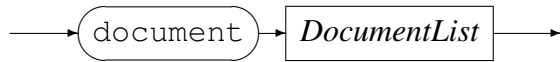
The *OptionSection* in the *PreambleSection* sets the values of certain global processing flags that are to be in effect for the processing of the current service function request. The *OptionList* comprises of a comma-separated list of keywords, with each keyword signifying the corresponding flag options should be in effect.

OptionSection*OptionList**Option*

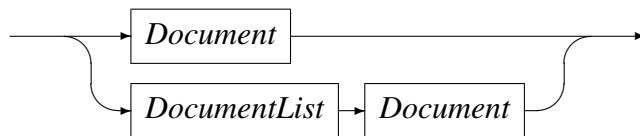
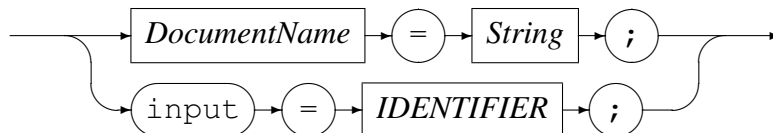
The *env_expand* option indicates that environment variable references within *String* literals should be expanded before the value of the *String* literal is used.

The *verbose* option indicates that all subsequent processing should process as though the `--verbose` command line option were in effect.

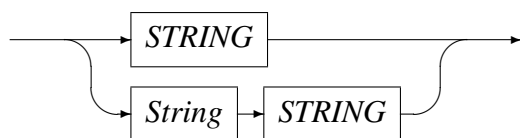
The *nulls* option indicates that variables whose access cause look up errors in documents (for example, if an element or path to an element does not exist in a particular document) then the variable will be assigned a default value dependent on type. For `string` type variables, the default value will be the empty string; and for `number` type variables the default value will be a zero.

DocumentSection

The *DocumentSection* names and states the path locations of the various document used for processing. This section is also used to name the `input` request document (the path of this document must be supplied as a command line argument).

DocumentList*Document**DocumentName*

A *DocumentName* as with all items that conform to an *IDENTIFIER* is sequence of characters without white space which begins with a letter of the alphabet (upper or lower case) and is followed by zero or more letters of the alphabet (upper or lower case), the digits (0 to 9), or the underscore character (`_`).

String

A *String* is a sequence of one or more *STRING* literals or environment variable references in open code (that is, not within the apostrophe or quotation marks of a string literal).

A *STRING* literal is a sequence of characters delimited by quotation marks which do not contain quotation marks, tab characters or newline characters; or a sequence of characters delimited by apostrophe characters which do not contain apostrophe characters, tab characters or newline characters.

Adjacent *STRING* literals and environment variable references in open code are considered to be grammatically equivalent to a single *STRING* literal.

If the `env_expand` option is in effect, then *STRING* literals are inspected for environment variable references, and are replaced within the string literals with their values.

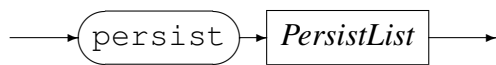
Such referenced environment variables must be defined.

An environment variable reference within a *STRING* literal or open code has the following form (specified as a regular expression):

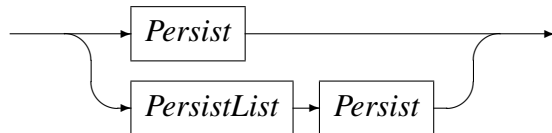
```
\$\{\{[A-Za-z][A-Za-z0-9_]*\}
```

A *PersistSection* allows documents that have been changed to be saved as the same or other documents. This allows, for example, certain responses to be saved for subsequent requests.

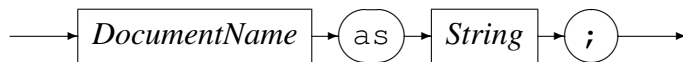
PersistSection



PersistList

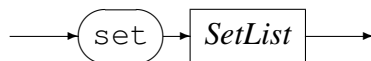


Persist

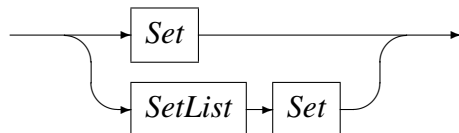


A *PersistSection* is introduced by the keyword `persist` and comprises of one or more *DocumentName-String* pairs where the *DocumentName* is that of one of the previously declared documents and the *String* determines the path where the document is to be stored. It is permissible that other declared documents have the same path *String*. Documents are stored as a result of an update being detected in a statement in the corresponding cases process section, and they are serialised to the supplied path upon being updated.

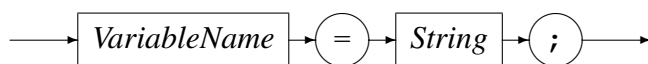
SetSection



SetList



Set



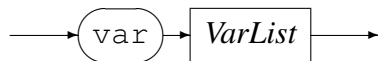
A *SetSection* lists a sequence of one or more environment variable `set` statements. The environment variables referred to in these statements are set to the corresponding value

as soon as they are encountered in the configuration file and any following environment variable references are replaced with the new value in effect.

VariableName

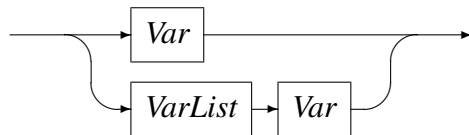


VarSection

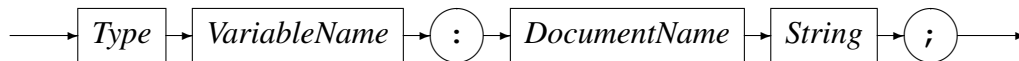


A *VarSection* defines a sequence of one or more variables that the process and predicate clauses can refer to.

VarList

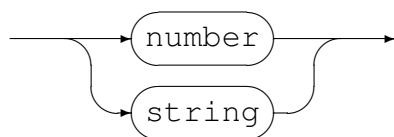


Var



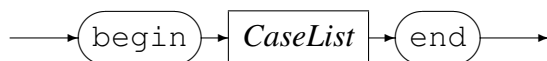
A *Var* definition supplies the *Type* of the variable being defined and also supplies the name of the *Document* and path with *string* within the document in order to associate the variable with a specific element within a specific *Document*. The *Document* must have been defined in a prior *DocumentSection* and the *String* is the XIP path format of an element within a document.

Type

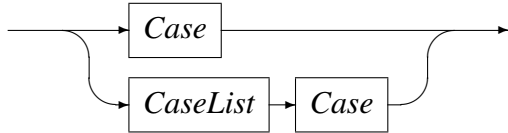


A variable *Type* may be declared as either a `number` or a `string`. This *Type* of the variable will be used for type checking any expression or assignment in which the variable is used.

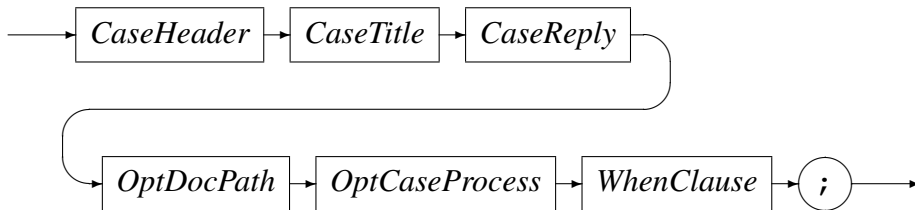
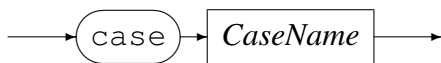
FunctionBody



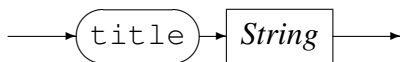
The *FunctionBody* defines a set of cases which are to be used to reply to function requests on service in which the current configuration applies.

CaseList

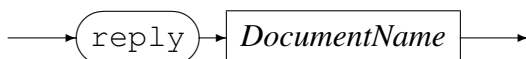
A *Case* is the specification of one function request within a service and specifies the conditions under which this *Case* should be considered to formulate the response to the function request. The *Case* also specifies which document should form the basis of the function reply and which, if any, elements of the reply or other loaded documents should have their values altered.

Case*CaseHeader*

The *CaseName* is intended to be unique *IDENTIFIER* to be used as a reference to the specific *Case*.

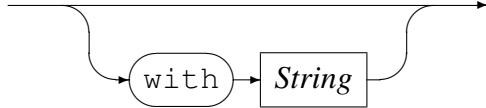
CaseName*CaseTitle*

The *CaseTitle* is intended to be a more verbose and business relevant description of the *Case*.

CaseReply

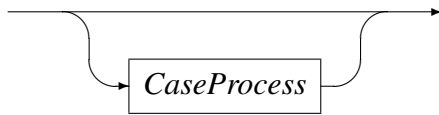
Each *Case* needs to refer to a *reply* document which forms the basis of the function reply should the current *Case* match the function request.

OptDocPath



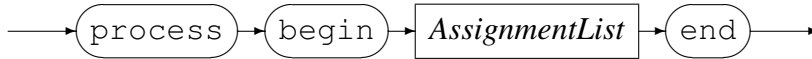
Optionally, a portion of a reply document may form the actual reply to be sent to as the function response. This portion is specified as a *String* prefix of the element of the document that will be used as the root of the response to the function request.

OptCaseProcess

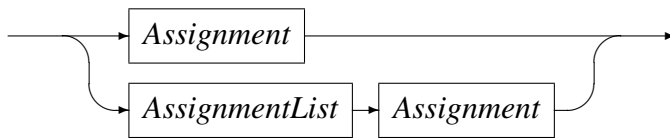


Optionally, once a *Case* is chosen the certain elements in the reply document and the document collection as whole may be updated. These are specified as a sequence of begin-end bracketed list of assignment statements. The assignment statements are executed in the order specified and the resultant expression values are assigned to the elements corresponding to the variables used in the LHS of the expression statements.

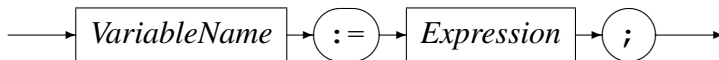
CaseProcess



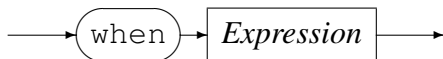
AssignmentList



Assignment

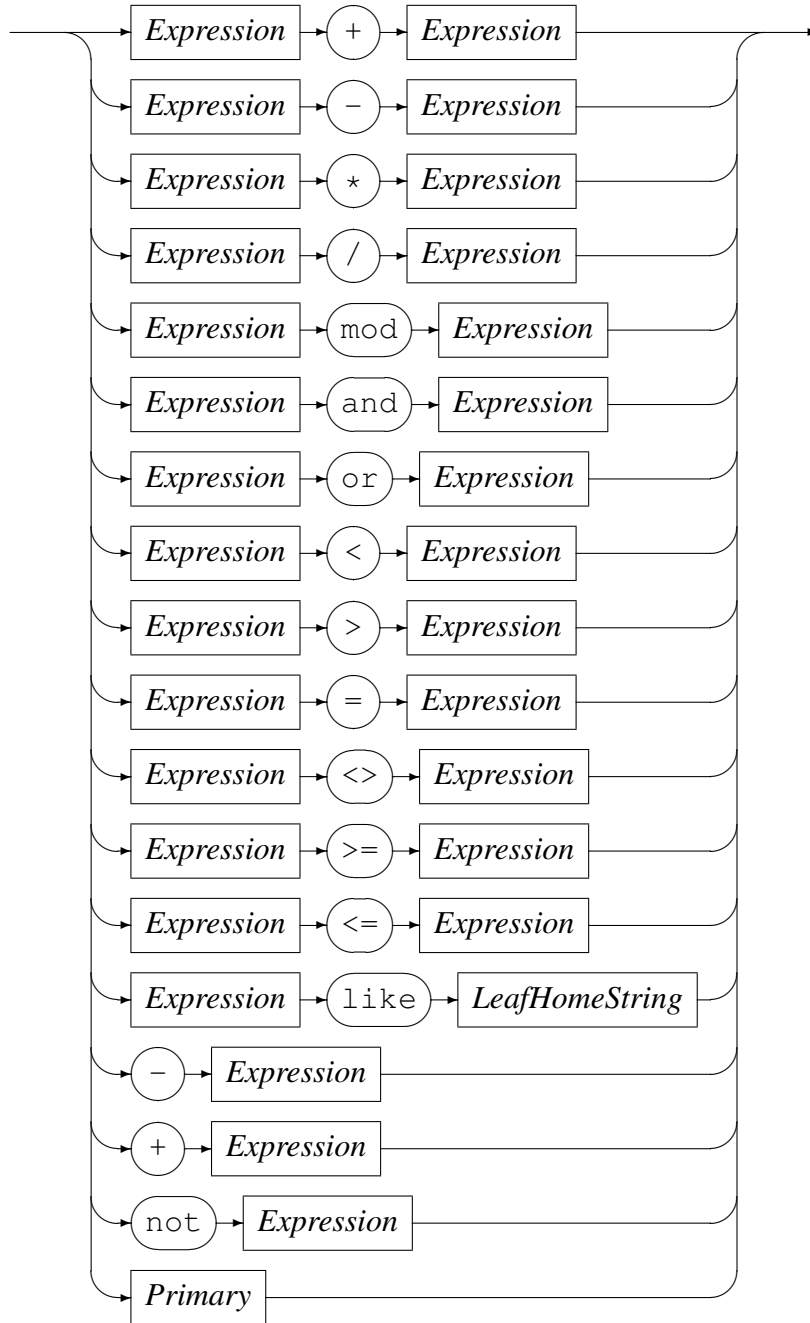


WhenClause

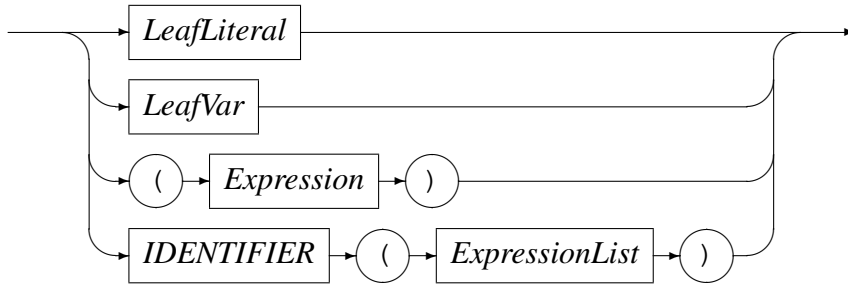


A particular *Case* is chosen as the response to a function request by evaluating the *When*-clause expression for each of the *Cases* in turn. The first *When*-clause that evaluates to true is the one which will be used to formulate the response to the request.

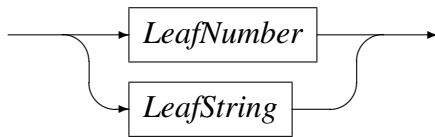
Expression



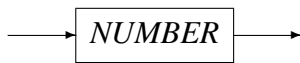
Primary



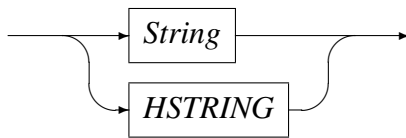
LeafLiteral



LeafNumber



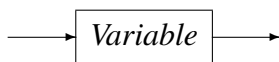
LeafString



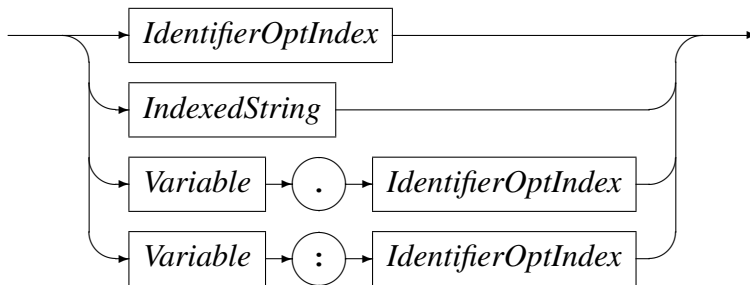
LeafHomeString



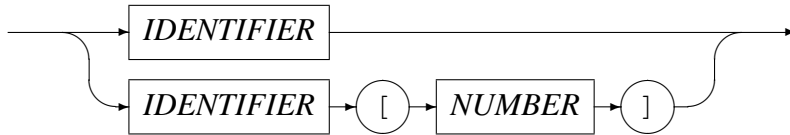
LeafVar



Variable



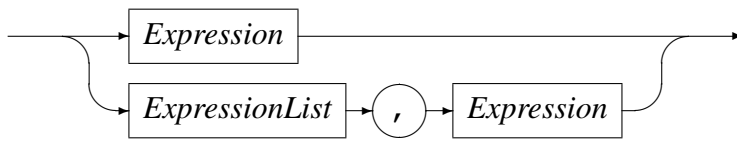
IdentifierOptIndex



IndexedString



ExpressionList



4 Sample Configuration File

The following shows a configuration file in which two cases are known. Once a case is chosen (by evaluation the when-clause of each case until the predicate is true), the simulated process actions are applied and a response XML document or portion of a XML document is written to the output file.

```
function StockQuote;

  -- File StockQuote.cfg
  --
  -- This file is a sample configuration file used to respond with test
  -- cases to a StockQuote function.
  --
  -- Author: Stephen R. Donaldson [stephen@codemagus.com].
  --
  -- Copyright (c) 2008 by Code Magus Limited. All rights reserved.
  --
  --
  -- $Author: hayward $
  -- $Date: 2010/09/23 13:40:17 $
  -- $Id: StockQuote.cfg,v 1.5 2010/09/23 13:40:17 hayward Exp $
  -- $Name: $
  -- $Revision: 1.5 $
  -- $State: Exp $
  --
  -- $Log: StockQuote.cfg,v $
  -- Revision 1.5  2010/09/23 13:40:17  hayward
  -- Change path to current directory.
  --
  -- Revision 1.4  2008/09/11 07:52:48  stephen
  -- Fix check for nulls option for error variables
  --
  -- Revision 1.3  2008/09/03 11:54:58  stephen
  -- Changes to support persisting of documents
```

```
--  
-- Revision 1.2 2008/08/12 14:28:17 stephen  
-- Update components for documentation  
--  
-- Revision 1.1 2008/08/11 19:32:34 stephen  
-- Complete initial documentation for first trials  
--  
--  
  
options env_expand, nulls;  
  
set TESTPATH = "./";  
  
document  
  input = request;  
  resdoc = ${TESTPATH} "stockquoteresponse_template.xml";  
  
set  
  SOAPREQ = "soapenv:Envelope.1.soapenv:Body.";  
  SOAPREP = "soap:Envelope.1.soap:Body.0.";  
  PREFREP = "GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.";  
  REQROOT = ${SOAPREQ} "0.str:GetStockQuote.0.str:";  
  RESROOT = ${SOAPREP} ${PREFREP};  
  
persist  
  resdoc as ${TESTPATH} "stockquoteresponse_tracker.xml";  
  
var  
  string symbol : request ${REQROOT} "SingleTicker.value";  
  string ticker : resdoc ${RESROOT} "0.TickerSymbol.value";  
  string company: resdoc ${RESROOT} "1.CompanyName.value";  
  number closing: resdoc ${RESROOT} "16.PreviousDayClosePrice.value";  
  string errvar : request ${REQROOT} "16.PreviousDayClosePrices.value";
```

```
begin
  case RedHatStockQuote
    title "Red Hat Inc Stock Quote Request"
    reply resdoc
    process begin
      ticker := symbol;
      company := "RedHat Inc.";
      closing := 200.28;
    end
    when symbol = "RHAT";

    case StockNotFound
      title "The Requested Stock Not Found"
      reply resdoc
      when symbol <> "RHAT";
    end.
end.
```

14

This sample configuration file refers to the stock quote service of StrikeIron, Inc., 15501 Weston Parkway, Suite 150, Cary, NC 27513 USA, +1.919.467.4545 www.strikeiron.com.

The first use-case requires a specific stock price to be returned by requests for the stock with the symbol RHAT; and for which the answers for all other stocks is return the default document unchanged.

5 Sample Execution

Assuming the configuration file from Section 4, and the following contents of the file `stockquoterequest.xml` as the input request document:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ws="http://ws.strikeiron.com" xmlns:str="http://www.strikeiron.com">
  <soapenv:Header>
    <ws:LicenseInfo>
```

```

    <ws:RegisteredUser>
      <ws:UserID>patrick@codemagus.com</ws:UserID>
      <ws>Password>codemagus</ws>Password>
    </ws:RegisteredUser>
  </ws:LicenseInfo>
</soapenv:Header>
<soapenv:Body>
  <str:GetStockQuote>
    <str:SingleTicker>RHAT</str:SingleTicker>
  </str:GetStockQuote>
</soapenv:Body>
</soapenv:Envelope>

```

Then executing the following command:

```

[stephen@nomad service]$ ./service --function-definition=StockQuote.cfg \
  --input-document=stockquoterequest.xml \
  --output-document=stockquoteresponse.xml \
  > stockquote.out 2>&1

```

produces the following execution report

```

[./service] $Id: stockquote.out,v 1.4 2010/02/01 10:02:03 hayward Exp $
Copyright (c) 2008 by Code Magus Limited. All rights reserved.
[Contact: stephen@codemagus.com].
Loaded document request from stockquoterequest.xml:
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:str="http://www.strikeiron.com" xmlns:ws="http://ws.strikeiron.com">
  <soapenv:Header>
    <ws:LicenseInfo>
      <ws:RegisteredUser>
        <ws:UserID>patrick@codemagus.com</ws:UserID>
        <ws>Password>codemagus</ws>Password>
      </ws:RegisteredUser>
    </ws:LicenseInfo>
  </soapenv:Header>
  <soapenv:Body>
    <str:GetStockQuote>
      <str:SingleTicker>RHAT</str:SingleTicker>
    </str:GetStockQuote>
  </soapenv:Body>
</soapenv:Envelope>

```

Document Element Names and Values:


```
[soapenv:Envelope.attributes.xmlns:soapenv]
  = "http://schemas.xmlsoap.org/soap/envelope/"
[soapenv:Envelope.attributes.xmlns:str]
  = "http://www.strikeiron.com"
[soapenv:Envelope.attributes.xmlns:ws]
  = "http://ws.strikeiron.com"
[soapenv:Envelope.0.soapenv:Header.0.ws:LicenseInfo.0.ws:RegisteredUser.0.ws:UserID.value]
  = "patrick@codemagus.com"
[soapenv:Envelope.0.soapenv:Header.0.ws:LicenseInfo.0.ws:RegisteredUser.1.ws:Password.value]
  = "codemagus"
[soapenv:Envelope.1.soapenv:Body.0.str:GetStockQuote.0.str:SingleTicker.value]
  = "RHAT"
End of dump of document content.
```

Loaded document resdoc from /home/stephen/service/stockquoteresponse_template.xml:

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?><soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header xmlns="http://schemas.xmlsoap.org/soap/envelope/">
    <SubscriptionInfo xmlns="http://ws.strikeiron.com">
      <LicenseStatusCode>0</LicenseStatusCode>
      <LicenseStatus>Valid license key</LicenseStatus>
      <LicenseActionCode>0</LicenseActionCode>
      <LicenseAction>Decrement hit count</LicenseAction>
      <RemainingHits>24</RemainingHits>
      <Amount>0</Amount>
    </SubscriptionInfo>
  </Header>
  <soap:Body>
    <GetStockQuoteResponse xmlns="http://www.strikeiron.com">
      <GetStockQuoteResult>
        <ServiceStatus>
          <StatusNbr>210</StatusNbr>
          <StatusDescription>Found</StatusDescription>
        </ServiceStatus>
        <ServiceResult>
          <TickerSymbol>MSFT</TickerSymbol>
          <CompanyName>Microsoft Corporation - Common Stock</CompanyName>
          <StockExchange>NASDAQ</StockExchange>
          <Status>15 minute delayed</Status>
          <StockQuote>28.20</StockQuote>
          <LastUpdated>8/11/2008 11:05:11 AM</LastUpdated>
          <TradeVolume>700</TradeVolume>
          <DayLowPrice>15.50</DayLowPrice>
          <DayHighPrice>28.34</DayHighPrice>
          <DayVolume>18139148</DayVolume>
          <PreviousTradePrice>28.20</PreviousTradePrice>
          <ChangeFromPreviousTradePrice>0.00</ChangeFromPreviousTradePrice>
          <PercentChangeFromPreviousTradePrice>0%</PercentChangeFromPreviousTradePrice>
          <OpenPrice>28.13</OpenPrice>
          <ChangeFromOpenPrice>0.07</ChangeFromOpenPrice>
          <PercentChangeFromOpenPrice>0.25%</PercentChangeFromOpenPrice>
          <PreviousDayClosePrice>28.13</PreviousDayClosePrice>
          <ChangeFromPreviousDayClosePrice>0.07</ChangeFromPreviousDayClosePrice>
          <PercentChangeFromPreviousDayClosePrice>0.25%</PercentChangeFromPreviousDayClosePrice>
          <BidPrice>28.20</BidPrice>
          <BidSize>103</BidSize>
          <AskPrice>28.21</AskPrice>
          <AskSize>236</AskSize>
          <Spread>0.01</Spread>
        </ServiceResult>
      </GetStockQuoteResult>
    </GetStockQuoteResponse>
  </soap:Body>
</Envelope>
```

```

        <YearLowPrice>12.00</YearLowPrice>
        <YearHighPrice>37.50</YearHighPrice>
        <Trailing3MonthAvgVolume>56849949</Trailing3MonthAvgVolume>
    </ServiceResult>
</GetStockQuoteResult>
</GetStockQuoteResponse>
</soap:Body>
</soap:Envelope>

```

Document Element Names and Values:

```

[soap:Envelope.attributes.xmlns:soap]
  = "http://schemas.xmlsoap.org/soap/envelope/"
[soap:Envelope.attributes.xmlns:xsd]
  = "http://www.w3.org/2001/XMLSchema"
[soap:Envelope.attributes.xmlns:xsi]
  = "http://www.w3.org/2001/XMLSchema-instance"
[soap:Envelope.0.Header.attributes.xmlns]
  = "http://schemas.xmlsoap.org/soap/envelope/"
[soap:Envelope.0.Header.0.SubscriptionInfo.attributes.xmlns]
  = "http://ws.strikeiron.com"
[soap:Envelope.0.Header.0.SubscriptionInfo.0.LicenseStatusCode.value]
  = "0"
[soap:Envelope.0.Header.0.SubscriptionInfo.1.LicenseStatus.value]
  = "Valid license key"
[soap:Envelope.0.Header.0.SubscriptionInfo.2.LicenseActionCode.value]
  = "0"
[soap:Envelope.0.Header.0.SubscriptionInfo.3.LicenseAction.value]
  = "Decrement hit count"
[soap:Envelope.0.Header.0.SubscriptionInfo.4.RemainingHits.value]
  = "24"
[soap:Envelope.0.Header.0.SubscriptionInfo.5.Amount.value]
  = "0"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.attributes.xmlns]
  = "http://www.strikeiron.com"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.0.ServiceStatus.0.StatusNbr.value]
  = "210"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.0.ServiceStatus.1.StatusDescription.value]
  = "Found"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.0.TickerSymbol.value]
  = "MSFT"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.1.CompanyName.value]
  = "Microsoft Corporation - Common Stock"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.2.StockExchange.value]
  = "NASDAQ"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.3.Status.value]
  = "15 minute delayed"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.4.StockQuote.value]
  = "28.20"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.5.LastUpdated.value]
  = "8/11/2008 11:05:11 AM"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.6.TradeVolume.value]
  = "700"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.7.DayLowPrice.value]
  = "15.50"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.8.DayHighPrice.value]
  = "28.34"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.9.DayVolume.value]

```

```
= "18139148"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.10.PreviousTradePrice.value]
= "28.20"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.11.ChangeFromPreviousTradePrice.value]
= "0.00"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.12.PercentChangeFromPreviousTradePrice.value]
= "0%"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.13.OpenPrice.value]
= "28.13"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.14.ChangeFromOpenPrice.value]
= "0.07"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.15.PercentChangeFromOpenPrice.value]
= "0.25%"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.16.PreviousDayClosePrice.value]
= "28.13"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.17.ChangeFromPreviousDayClosePrice.value]
= "0.07"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.18.PercentChangeFromPreviousDayClosePrice.value]
= "0.25%"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.19.BidPrice.value]
= "28.20"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.20.BidSize.value]
= "103"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.21.AskPrice.value]
= "28.21"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.22.AskSize.value]
= "236"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.23.Spread.value]
= "0.01"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.24.YearLowPrice.value]
= "12.00"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.25.YearHighPrice.value]
= "37.50"
[soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.26.Trailing3MonthAvgVolume.value]
= "56849949"
```

End of dump of document content.

Use case RedHatStockQuote selected to determine function response.
Title: Red Hat Inc Stock Quote Request

Variable Update:

```
Variable ticker (soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.0.TickerSymbol.value)
Set to "RHAT"
```

Variable Update:

```
Variable company (soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.1.CompanyName.value)
Set to "RedHat Inc."
```

Variable Update:

```
Variable closing (soap:Envelope.1.soap:Body.0.GetStockQuoteResponse.0.GetStockQuoteResult.1.ServiceResult.16.PreviousDayClosePrice.value)
Set to "200.28"
```

Updated Response Document:

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header xmlns="http://schemas.xmlsoap.org/soap/envelope/">
    <SubscriptionInfo xmlns="http://ws.strikeiron.com">
      <LicenseStatusCode>0</LicenseStatusCode>
      <LicenseStatus>Valid license key</LicenseStatus>
      <LicenseActionCode>0</LicenseActionCode>
      <LicenseAction>Decrement hit count</LicenseAction>
    </SubscriptionInfo>
  </Header>
</soap:Envelope>
```

```

    <RemainingHits>24</RemainingHits>
    <Amount>0</Amount>
  </SubscriptionInfo>
</Header>
<soap:Body>
  <GetStockQuoteResponse xmlns="http://www.strikeiron.com">
    <GetStockQuoteResult>
      <ServiceStatus>
        <StatusNbr>210</StatusNbr>
        <StatusDescription>Found</StatusDescription>
      </ServiceStatus>
      <ServiceResult>
        <TickerSymbol>RHAT</TickerSymbol>
        <CompanyName>RedHat Inc.</CompanyName>
        <StockExchange>NASDAQ</StockExchange>
        <Status>15 minute delayed</Status>
        <StockQuote>28.20</StockQuote>
        <LastUpdated>8/11/2008 11:05:11 AM</LastUpdated>
        <TradeVolume>700</TradeVolume>
        <DayLowPrice>15.50</DayLowPrice>
        <DayHighPrice>28.34</DayHighPrice>
        <DayVolume>18139148</DayVolume>
        <PreviousTradePrice>28.20</PreviousTradePrice>
        <ChangeFromPreviousTradePrice>0.00</ChangeFromPreviousTradePrice>
        <PercentChangeFromPreviousTradePrice>0%</PercentChangeFromPreviousTradePrice>
        <OpenPrice>28.13</OpenPrice>
        <ChangeFromOpenPrice>0.07</ChangeFromOpenPrice>
        <PercentChangeFromOpenPrice>0.25%</PercentChangeFromOpenPrice>
        <PreviousDayClosePrice>200.28</PreviousDayClosePrice>
        <ChangeFromPreviousDayClosePrice>0.07</ChangeFromPreviousDayClosePrice>
        <PercentChangeFromPreviousDayClosePrice>0.25%</PercentChangeFromPreviousDayClosePrice>
        <BidPrice>28.20</BidPrice>
        <BidSize>103</BidSize>
        <AskPrice>28.21</AskPrice>
        <AskSize>236</AskSize>
        <Spread>0.01</Spread>
        <YearLowPrice>12.00</YearLowPrice>
        <YearHighPrice>37.50</YearHighPrice>
        <Trailing3MonthAvgVolume>56849949</Trailing3MonthAvgVolume>
      </ServiceResult>
    </GetStockQuoteResult>
  </GetStockQuoteResponse>
</soap:Body>
</soap:Envelope>

```

Updated document saved as:
stockquoteresponse.xml

Processing complete.

and places the following in the output response file stockquoteresponse.xml:

```

<?xml version="1.0" encoding="UTF-8" standalone="no" ?><soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header xmlns="http://schemas.xmlsoap.org/soap/envelope/">
    <SubscriptionInfo xmlns="http://ws.strikeiron.com">

```

```
<LicenseStatusCode>0</LicenseStatusCode>
<LicenseStatus>Valid license key</LicenseStatus>
<LicenseActionCode>0</LicenseActionCode>
<LicenseAction>Decrement hit count</LicenseAction>
<RemainingHits>24</RemainingHits>
<Amount>0</Amount>
</SubscriptionInfo>
</Header>
<soap:Body>
  <GetStockQuoteResponse xmlns="http://www.strikeiron.com">
    <GetStockQuoteResult>
      <ServiceStatus>
        <StatusNbr>210</StatusNbr>
        <StatusDescription>Found</StatusDescription>
      </ServiceStatus>
      <ServiceResult>
        <TickerSymbol>RHAT</TickerSymbol>
        <CompanyName>RedHat Inc.</CompanyName>
        <StockExchange>NASDAQ</StockExchange>
        <Status>15 minute delayed</Status>
        <StockQuote>28.20</StockQuote>
        <LastUpdated>8/11/2008 11:05:11 AM</LastUpdated>
        <TradeVolume>700</TradeVolume>
        <DayLowPrice>15.50</DayLowPrice>
        <DayHighPrice>28.34</DayHighPrice>
        <DayVolume>18139148</DayVolume>
        <PreviousTradePrice>28.20</PreviousTradePrice>
        <ChangeFromPreviousTradePrice>0.00</ChangeFromPreviousTradePrice>
        <PercentChangeFromPreviousTradePrice>0%</PercentChangeFromPreviousTradePrice>
        <OpenPrice>28.13</OpenPrice>
        <ChangeFromOpenPrice>0.07</ChangeFromOpenPrice>
        <PercentChangeFromOpenPrice>0.25%</PercentChangeFromOpenPrice>
        <PreviousDayClosePrice>200.28</PreviousDayClosePrice>
        <ChangeFromPreviousDayClosePrice>0.07</ChangeFromPreviousDayClosePrice>
        <PercentChangeFromPreviousDayClosePrice>0.25%</PercentChangeFromPreviousDayClosePrice>
        <BidPrice>28.20</BidPrice>
        <BidSize>103</BidSize>
        <AskPrice>28.21</AskPrice>
        <AskSize>236</AskSize>
        <Spread>0.01</Spread>
        <YearLowPrice>12.00</YearLowPrice>
        <YearHighPrice>37.50</YearHighPrice>
        <Trailing3MonthAvgVolume>56849949</Trailing3MonthAvgVolume>
      </ServiceResult>
    </GetStockQuoteResult>
  </GetStockQuoteResponse>
</soap:Body>
</soap:Envelope>
```

References

- [1] service: Web Services Use Case Response Generation Version 1. CML Document CML00028-01, Code Magus Limited, July 2008. [PDF](#).