

Interface specification B2BService

Invoice upload and download web services
provided by PostFinance



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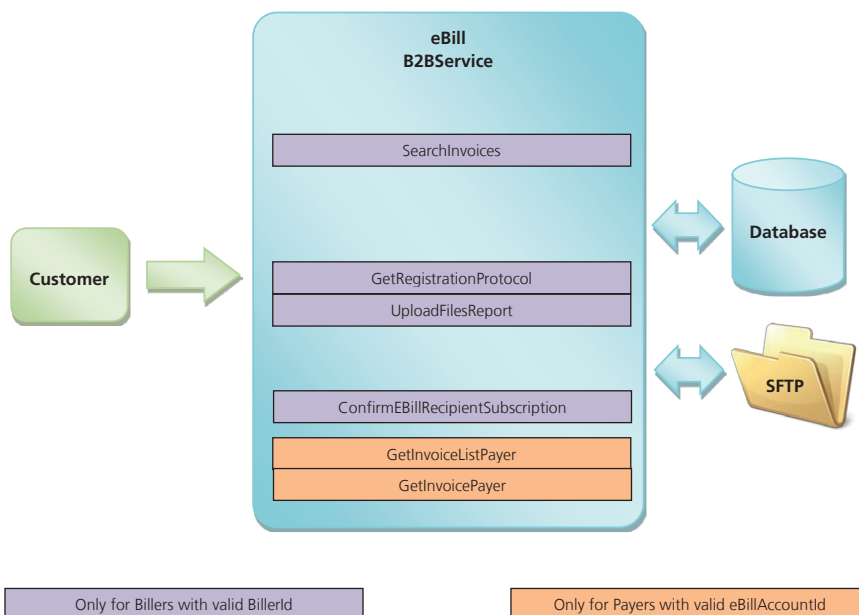
1. Introduction

This document describes the interface and methods of the SOAP web service (B2BService) provided by PostFinance for the invoice upload and download.

1.1 Abbreviations and definitions

Abbreviation	Description
B2B	Business-To-Business
Biller	Customer who acts as a Biller and sends Invoices to a Payer. Has a BillerId.
DB	Database
HTTPS	Hypertext Transfer Protocol Secure
Payer	Customer who acts as a Payer and receives Invoices from a Biller. Has an eBillAccountId.
SOAP	Simple Object Access Protocol
WCF	Windows Communication Foundation

2. Interface overview



2.1 Transport and security

The communication to the web service will be established with a SOAP WebService via HTTPS.

2.2 Authentication

For security reasons this web service must be implemented on the basis of the WCF.NET Security Extensibility. In order to communicate with the web service, a valid username and password or a Certificate must be submitted.

See chapter [.NET Example](#) for further reference.

2.3 Destinations

Integration*	URL UserName & Password authentication	https://ebill-ki.postfinance.ch/B2BService/B2BService.svc
	URL Certificate authentication	https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc
Production	URL UserName & Password authentication	https://ebill.postfinance.ch/B2BService/B2BService.svc
	URL Certificate authentication	https://ebill.postfinance.ch/B2BService/B2BServiceCert.svc

* Due to possible maintenance windows, we cannot guarantee 100% availability of the integration platform.

2.4 Service description

You are a biller or a payer and wish to use the invoice upload or download web services provided by PostFinance. You can implement your client in any programming language you wish as long as the XML requests correspond to the SOAP specifications. Because those XMLs are fairly comprehensive there are a variety of frameworks that simplify implementation of the web services considerably. You therefore do not have to create the SOAP XML "by hand". This document describes the client implementation of the B2BService in C# and Java.

In case of an application error, an error code and description will be returned (see *Error codes*).

If a technical error occurred or the caller cannot be authenticated a FaultException will be thrown.

In the following method description, mandatory fields are written in **bold**. All mandatory fields will be checked.

2.5 General Process for downloading data

To download the desired data, please notice that you have to call the "List" method first, then call the appropriate "Get" method with the returned values from the "List" method.

Desired data	1st Method (List available data)	2nd Method (Download data)
Invoice for Billers	GetInvoice List Biller	GetInvoiceBiller
Invoice for Payers	GetInvoice List Payer	GetInvoicePayer
ProcessProtocol	GetProcessProtocol List	GetProcessProtocol
RegistrationProtocol	GetRegistrationProtocol List	GetRegistrationProtocol
Invoice Metadata for Billers	SearchInvoices	–
Subscription Status of eBill Recipient (Look-Up)	GetEBillRecipientSubscriptionStatus	–
Initiate eBill Subscription	InitiateEBillRecipientSubscription	–
Confirm eBill Subscription	ConfirmEBillRecipientSubscription	–

3. Service methods

3.1 ExecutePing

Method	B2BService.ExecutePing		
Input	Used to check the reachability of this web service and to simulate errors		
Output	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Either the BillerID OR the eBillAccountID must be provided.
	eBillAccountID	String	
	ErrorTest	Boolean	If set to true, a unhandled error will be created in the response
ExceptionTest	Boolean	If set to true, a FaultException will be thrown	
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	String	BillerID or eBillAccountID
Exception	FaultException		

4. Service methods for Billers

The following methods provide the biller with several invoice management functions.

A distinction is made between open invoices, protocols and registrations (never downloaded) and archived data (already downloaded). Data already collected remain available in the archive for 40 days after the first download.

4.1 GetInvoiceListBiller (deprecated)

Method	B2BService.GetInvoiceListBiller		
Description	Not anymore being used. Does not anymore deliver any output.		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of InvoiceReport	List of Invoices. See the following table for the definition.
Exception	FaultException		

InvoiceReport*	Type	Description
BillerID	String	BillerID of the Invoice
DeliveryDate	DateTime	DeliveryDate of the Invoice
FileType	String	RGXMLSIG or EDIFACT
TransactionId	String	TransactionId of the Invoice

* Was called InvoiceReportWithId in previous version

4.2 GetInvoiceBiller (deprecated)



Method	B2BService.GetInvoiceBiller		
Description	Not anymore being used. Does not anymore deliver any output.		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	TransactionID	String	TransactionID of the desired Invoice returned from the Method GetInvoiceListBiller
	BillDetail	Boolean	True = Download BillDetail PDF False = Download Invoice only
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of DownloadFile	The Invoice and (if specified and present) the BillDetail PDF. See the following table for the definition.
Exception	FaultException		

DownloadFile	Type	Description
Data	Byte Array	Binary data
Filename	String	Filename of the Invoice or BillDetail PDF

4.3 SearchInvoices

Method	B2BService.SearchInvoices		
Description	Search your own invoices based on various search parameters		
Role	Billor		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	Parameter	SearchInvoiceParameter	See the following table for the definition.
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	SearchInvoicesResponse	See the table on the next page for the definition.
Exception	FaultException		

SearchInvoiceParameter	Type	Description
BillerID	String	Your BillerID
TransactionID	String	
eBillAccountID	String	
AmountFrom	Decimal	
AmountTo	Decimal	
State	Enumeration	Possible values (Case sensitive): Open, Paid, Rejected, Incomplete, Invalid, Deleted, Processing, Unsigned
DeliveryDateFrom	DateTime	Default: Actual date -7 days
DeliveryDateTo	DateTime	Default: Actual date
PaymentDueDateFrom	DateTime	
PaymentDueDateTo	DateTime	

-  **The BillerId has to be specified because it will be used for authentication purposes and for the search. You can only search your own Invoices.**
-  **If no other search parameter is specified, the noted default values are used.**

SearchInvoicesResponse	Type	Description
InvoiceCount	Int	Number of returned Invoices
TotalInvoiceCount	Int	Number of found Invoices
InvoiceList	List of SearchInvoice	See the following table for the definition.

i If no Invoices are found, and empty InvoiceList will be returned. InvoiceCount and TotalInvoiceCount will be 0.

i If more than 200 Invoices were found, only the newest 200 Invoices will be returned and the TotalInvoiceCount will be bigger than 200. Please restrict your search then.

SearchInvoice	Type	Description
BillerID	String	Your BillerID
TransactionID	String	
eBillAccountID	String	
Amount	Decimal	
State	Enumeration	Possible values: Open, Paid, Rejected, Incomplete, Invalid, Deleted, Processing, Unsigned
PaymentType	String	
ESRReferenceNbr	String	Contains Creditor Reference instead of former ESRReferenceNbr
DeliveryDate	DateTime	
PaymentDueDate	DateTime	
ReasonCode	String	
ReasonText	String	

4.4 GetProcessProtocolList

Method	B2BService.GetProcessProtocolList		
Description	Returns a list of available ProcessProtocols		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of ProtocolReport	List of Protocols. See the following table for the definition.
Exception	FaultException		

ProtocolReport	Type	Description
CreateDate	DateTime	Creation date and time of the Protocol
FileType	String	P (ProcessProtocol)

4.5 GetProcessProtocol

Method	B2BService.GetProcessProtocol		
Description	Download the desired ProcessProtocol		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	CreateDate	DateTime	CreateDate of the desired ProcessProtocol returned from the Method GetProcessProtocolList
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of DownloadFile	The ProcessProtocol. See the following table for the definition.
Exception	FaultException		

DownloadFile	Type	Description
Data	Byte Array	Binary data
Filename	String	Filename of the ProcessProtocol

i Please notice that downloaded ProcessProtocols will be marked as delivered in the eBill System

4.6 GetRegistrationProtocollist

Method	B2BService.GetRegistrationProtocollist		
Description	Returns a list of available RegistrationProtocols		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of ProtocolReport	List of Protocols. See the following table for the definition.
Exception	FaultException		

ProtocolReport	Type	Description
CreateDate	DateTime	Creation date of the Protocol
FileType	String	R (RegistrationProtocol)

4.7 GetRegistrationProtocol

Method	B2BService.GetRegistrationProtocol		
Description	Download the desired RegistrationProtocol		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	CreateDate	DateTime	CreateDate of the desired RegistrationProtocol returned from the Method GetRegistrationProtocolList
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of DownloadFile	The RegistrationProtocol. See the following table for the definition.
Exception	FaultException		

DownloadFile	Type	Description
Data	Byte Array	Binary data
Filename	String	Filename of the RegistrationProtocol

i Please notice that downloaded RegistrationProtocols will be marked as delivered in the eBill System

4.8 UploadFilesReport

This method is intended for billers and provides functionality to upload bill files. Only the following invoice types are supported. The FileType determinate the file extension of the uploaded file. This is important for further processing.

Format Type	FileType (File Extension)
PDF bill detail for presentment	"PDF"
XML like yblInvoice, iDOC, FSCM	"XML"
EDIFACT like Invoice D01B	"EDI"
Structured PDF like QR-bill, Faktur X	"Struct.PDF"

In the response detailed information about the transmission status of the files is given.

Method	B2BService.UploadFilesReport		
Description	Upload your Invoices for further processing		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String	Your BillerID
	invoices	Array of Invoice	The Invoices. See the following table for the definition.
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of ProcessedInvoice	Report of the uploaded Invoices. See the following table for the definition.
Exception	FaultException		

Invoice	Type	Description
FileType	String	PDF, XML, EDI, Struct.PDF
TransactionID	String	
Data	Byte Array	Binary data

ProcessedInvoice	Type	Description
FileType	String	PDF, XML, EDI, Struct.PDF
ProcessingState	String	OK if the invoice was successfully submitted, otherwise NOK
SubmitDate	DateTime	Submit Date and Time
TransactionID	String	Extracted TransactionID from the Invoice

4.9 GetEBillRecipientSubscriptionStatus

4.9.1 BulkSearch

Up to 100 entry can be set in one call but may also be used for single search. We recommend using this method.

Method	B2BService.GetEBillRecipientSubscriptionStatusBulk		
Description	Returns the information whether invoices can be sent to a list of eBill recipients		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String (N17)	Your BillerID
	RecipientID	Array of RecipientIDs	Up to 100 entry can be set in one call. Details see below.
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillRecipient	Array of BillRecipient	ID of eBillRecipient
	Message	String	Contains a message in the following cases: – Biller not enabled → Biller is not enabled to deliver invoices to eBill SIX – Exception message when an error occurs while calling eBill SIX: %Exception%
Exception	FaultException		

RecipientIDs	Type	Description
RecipientID	String	eBillRecipientID (N17) or eBillRecipient email address (^S+@S+\$) or eBillRecipient UIDHR (CHE[0-9]{9})

BillRecipient	Type	Description
EbillAccountID	String	ID of eBillRecipient
EmailAddress	String	eMailAddress of eBillRecipient Only provided if used as a search term.
UIDHR	String	enterpriseIdentificationNumber of eBillRecipient Only provided if used as a search term.
SubmissionStatus	String	ALLOWED, NOT_ALLOWED

4.9.2 Single search

Only one single search per call is possible. We recommend to use the bulk search (see 4.9.1) method for any kind of search.

Method	B2BService.GetEBillRecipientSubscriptionStatus		
Description	Returns the information whether invoices can be sent to a specific eBill recipient		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String (N17)	Your BillerID
	RecipientID	String	eBillRecipientID (N17) or eBillRecipient email address (^S+@S+\$) or eBillRecipient UIDHR (CHE[0-9]{9})
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	eBillAccountID	String (N17)	ID of eBillRecipient Will be returned when a relation is agreed
	emailAddress	String (AN255)	eMailAddress of eBillRecipient Will be returned when a relation is agreed. Only provided if used as a search term.
	UIDHR	String (AN12)	enterpriseIdentificationNumber of eBillRecipient Will be returned when a relation is agreed. Only provided if used as a search term.
	Message	String	Contains a message in the following cases: – Biller not enabled → Biller is not enabled to deliver invoices to eBill SIX – Subscription not found → Biller to bill recipient relation not agreed – Exception message when an error occurs while calling eBill SIX: %Exception%
Exception	FaultException		

4.10 InitiateEBillRecipientSubscription

Method	B2BService.InitiateEBillRecipientSubscription		
Description	Initiates the subscription of an eBill recipient at eBill network. Must be confirmed by B2BService. ConfirmEBillRecipientSubscription.		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String (N17)	YourBillerID
	SubscriptionInitiationEmailAddress	String	eMailAdress of eBillRecipient (^S+@S+\$)
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	SubscriptionInitiationToken	String (AN36)	SubscriptionInitiationToken Example: "0dc2ff79-db4c-4635-a4aa-f93f36ab5dbf"
	Message	String	A human readable explanation specific of this occurrence of the problem
Exception	FaultException		

4.11 ConfirmEBillRecipientSubscription

Method	B2BService.ConfirmEBillRecipientSubscription		
Description	Confirms the subscription of an eBill recipient at eBill network by sending the activation code entered by the eBill recipient. Requires B2BService.InitiateEBillRecipientSubscription		
Role	Biller		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	BillerID	String (N17)	YourBillerID
	SubscriptionInitiationToken	String (AN36)	SubscriptionInitiationToken returned in B2BService.InitiateEBillRecipientSubscription
	SubscriptionInitiationActivation Code	String (6)	activation code provided by the user
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	eBillAccountID	String (N17)	ID of eBillRecipient
	eMailAddress	String (AN255)	eMailAddress of eBillRecipient
	UIDHR	String (AN12)	enterpriseldentificationNumber of eBillRecipient
	Type	Enum	PRIVATE, COMPANY
	Language	String (3)	ISO-639-2/B
	Party	PartyType	Refer to yblInvoice_V*.xsd
	Party/Address/CompanyName	String (AN70)	In case of Type=COMPANY
	Party/Address/LastName	String (AN50)	In case of Type=PRIVATE
	Party/Address/GivenName	String (AN50)	In case of Type=PRIVATE
	Party/Address/Address1	String (50)	
	Party/Address/ZIP	String (AN10)	
	Party/Address/City	String (AN50)	
	Party/Address/Country	Enum (ISO 3166-1 alpha 2)	
Message	String	A human readable explanation specific of this occurrence of the problem	
Exception	FaultException		

5. Service methods for Payers

The following methods provide the payer with invoice management functions.

A distinction is made between outstanding invoice (never downloaded and thus not yet paid) and archived invoices (already downloaded). Data already collected remain available in the archive for 40 days after the first download.

5.1 GetInvoiceListPayer

Method	B2BService. GetInvoiceListPayer		
Description	Returns a list of available invoices for a Payer		
Role	Payer		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	eBillAccountID	String	Your eBillAccountID
	ArchiveData	Boolean	False = Never downloaded data True = Already downloaded data
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	Array of InvoiceReport	List of Invoices. See the following table for the definition.
Exception	FaultException		

InvoiceReport*	Type	Description
BillerID	String	BillerID of the Invoice
DeliveryDate	DateTime	DeliveryDate of the Invoice
FileType	String	RGXMLSIG, EDIFACT, PDF, ZIP
TransactionId	String	TransactionId of the Invoice

* Was called InvoiceReportWithId in previous version

5.2 GetInvoicePayer

Method	B2BService.GetInvoicePayer		
Description	Download an Invoice for a Payer		
Role	Payer		
Input	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	eBillAccountID	String	Your eBillAccountID
	BillerID	String	BillerID of the desired Invoice returned from the Method GetInvoiceListPayer
	TransactionID	String	TransactionID of the desired Invoice returned from the Method GetInvoiceListPayer
	FileType	String	FileType of the desired Invoice returned from the Method GetInvoiceListPayer
Output	<i>Parameter</i>	<i>Type</i>	<i>Description</i>
	<i>Return value</i>	DownloadFile	The Invoice. See the following table for the definition.
Exception	FaultException		

DownloadFile	Type	Description
Data	Byte Array	Binary data
Filename	String	Filename of the Invoice

 Please notice that downloaded Invoices will be marked as delivered in the eBill System

6. Comparison between previous and new methods

If you are already using our Webservices, based on a documentation dated before 2016, you will find in the following table, how the previous methods refer to the new methods.

Previous method(s)	New method
For Billers	
GetInvoiceList / GetInvoiceListWithIDs	GetInvoiceListBiller
GetInvoice / GetInvoiceByID	GetInvoiceBiller
–	SearchInvoices
GetProcessProtocollist	GetProcessProtocollist
GetProcessProtocol	GetProcessProtocol
GetRegistrationList	GetRegistrationProtocollist
GetRegistration	GetRegistrationProtocol
UploadFiles / UploadFilesReport	UploadFilesReport
–	GetEBillRecipientSubscriptionStatus
–	InitiateEBillRecipientSubscription
–	ConfirmEBillRecipientSubscription
For Payers	
GetArchiveList / GetOpenList / GetInvoiceListWithIDs	GetInvoiceListPayer
GetInvoicesArchive / GetInvoices / GetPDF / GetPDFArchive / GetInvoiceByID	GetInvoicePayer

7. Error Codes

Code	Description
000	Unspecified Error.
001	No Customer.
002	Currently not in use.
003	Missing Parameter.
004	No Application.
005	No Process Service.
006	Invalid Parameter.

8. .NET Example (C#)

You can use either Username and Password authentication or Certificate authentication.
Please notice the **marked** differences.

8.1 Username & Password authentication

8.1.1 Configuration

```
<system.serviceModel>
  <bindings>
    <wsHttpBinding>
      <binding name="WSHttpBinding_B2BService">
        <security mode="TransportWithMessageCredential">
          <transport clientCredentialType="None" />
          <message clientCredentialType="UserName" establishSecurityContext="false" />
        </security>
      </binding>
    </wsHttpBinding>
  </bindings>
  <client>
    <endpoint address="https://XXX/B2BService/B2BService.svc"
      binding="wsHttpBinding" bindingConfiguration="WSHttpBinding_B2BService"
      contract="B2BServiceCert" name="WSHttpBinding_B2BService" />
  </client>
</system.serviceModel>
```

Replace the endpoint address with an address for Username & Password authentication provided in chapter [destinations](#).

8.1.2 Code

```
B2BServiceClient client = new B2BServiceClient();
client.ClientCredentials.UserName.UserName = "XXX";
client.ClientCredentials.UserName.Password = "YYY";

// Example for Billers
string billerId = "YOUR BILLERID";
string id = client.ExecutePing(billerId, null, false, false);

// Example for Payers
string eBillAccountID = "YOUR eBillAccountID";
string id = client.ExecutePing(null, eBillAccountID, false, false);
```

A valid BillerId (or eBillAccountID), UserName and Password and RequestID must be used.

8.2 Certificate authentication

Use the URL for Certificate authentication provided in chapter 2.3.

8.2.1 Configuration

```
<system.serviceModel>
  <bindings>
    <wsHttpBinding>
      <binding name="WSHttpBinding_B2BServiceCert">
        <security mode="TransportWithMessageCredential">
          <transport clientCredentialType="None" />
          <message clientCredentialType="Certificate" establishSecurityContext="false" />
        </security>
      </binding>
    </wsHttpBinding>
  </bindings>
  <client>
    <endpoint address="https://XXX/B2BService/B2BServiceCert.svc"
      binding="wsHttpBinding" bindingConfiguration="WSHttpBinding_B2BServiceCert"
      contract="B2BService" name="WSHttpBinding_B2BServiceCert" />
  </client>
</system.serviceModel>
```

Replace the endpoint address with an address for Certificate authentication provided in chapter [destinations](#).

8.2.2 Code

```
X509Certificate2 certificate = new X509Certificate2("PATH TO CERTIFICATE", "CERTIFICATE PASSWORD");

B2BServiceClient client = new B2BServiceClient();
client.ClientCredentials.ClientCertificate.Certificate = certificate;

// Example for Billers
string billerId = "YOUR BILLERID";
string id = client.ExecutePing(billerId, null, false, false);

// Example for Payers
string eBillAccountID = "YOUR eBillAccountID";
string id = client.ExecutePing(null, eBillAccountID, false, false);
```

A valid BillerId (or eBillAccountID) and Certificate must be used.

9. JAVA Example

You can use either UserName and Password authentication or Certificate authentication.

Please notice the marked differences.

We currently only support the 3 most used Java WebService frameworks on the market.

- Axis2
- CXF
- JAX-WS

Minimum requirement of Java SE Development Kit is version 7.

In the following chapters you can find descriptions, how to use these frameworks, related to this particular WebService (B2BService).

There are also java test projects available for Eclipse IDE. Please don't hesitate to contact us, that we can handover these test projects to you.

9.1 Username & Password authentication

9.1.1 Configuration for Axis2

- Generate service client stub code with wsdl2java tool of Axis2.
- Create axis2-policy.xml file and place it in the resources folder of your java client project:

```
<?xml version="1.0" encoding="UTF-8"?>
<wsp:Policy wsu:Id="B2BService_UserNamePassword_policy"
  xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
  xmlns:w3="http://www.w3.org/2006/05/addressing/wsdl">
  <wsp:ExactlyOne>
    <wsp>All>
      <sp:TransportBinding xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy>
          <sp:TransportToken>
            <wsp:Policy>
              <sp:HttpsToken RequireClientCertificate="false"/>
            </wsp:Policy>
          </sp:TransportToken>
          <sp:AlgorithmSuite>
            <wsp:Policy>
              <sp:Basic256/>
            </wsp:Policy>
          </sp:AlgorithmSuite>
          <sp:Layout>
            <wsp:Policy>
              <sp:Strict/>
            </wsp:Policy>
          </sp:Layout>
          <sp:IncludeTimestamp/>
        </wsp:Policy>
      </sp:TransportBinding>
      <sp:SignedSupportingTokens xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy>
          <sp:UsernameToken
            sp:IncludeToken="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy/IncludeToken/AlwaysToRecipient">
            <wsp:Policy>
              <sp:WssUsernameToken10/>
            </wsp:Policy>
          </sp:UsernameToken>
        </wsp:Policy>
      </sp:SignedSupportingTokens>
      <sp:Wss11 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy/>
      </sp:Wss11>
      <sp:Trust10 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy>
          <sp:MustSupportIssuedTokens/>
          <sp:RequireClientEntropy/>
          <sp:RequireServerEntropy/>
        </wsp:Policy>
      </sp:Trust10>
      <wsaw:UsingAddressing/>
      <ramp:RampartConfig xmlns:ramp="http://ws.apache.org/rampart/policy">
        <ramp:user>userid</ramp:user>

        <ramp:rampartConfigCallbackClass>b2bservice.ebill.swisspost.ch.SecurityConfigCallbackHandler</ramp:rampartConfigCallbackClass>
      </ramp:RampartConfig>
    </wsp>All>
  </wsp:ExactlyOne>
</wsp:Policy>
```

Please change the yellow marked entries according your needs.

9.1.2 Code for Axis2

- Create new Java code file, which has the following code:

```
package b2bservice.ebill.swisspost.ch;

import org.apache.rampart.RampartConfigCallbackHandler;
import org.apache.rampart.policy.model.RampartConfig;

public class SecurityConfigCallbackHandler implements
    RampartConfigCallbackHandler {

    @Override
    public void update(RampartConfig rampartConfig)
    {
        rampartConfig.setPwCbClass(PasswordCallbackHandler.class.getName());
    }
}
```

Please change the yellow marked entries according your needs.

- Make sure you put the name incl. package path to `ramp:rampartConfigCallbackClass` element (see chapter 8.1.1).
- Create new Java code file, which has the following code:

```
package b2bservice.ebill.swisspost.ch;

import java.io.IOException;

import javax.security.auth.callback.Callback;
import javax.security.auth.callback.CallbackHandler;
import javax.security.auth.callback.UnsupportedCallbackException;

import org.apache.ws.security.WSPasswordCallback;

public class PasswordCallbackHandler implements CallbackHandler {

    @Override
    public void handle(Callback[] callbacks) throws IOException,
        UnsupportedCallbackException {

        for (int i = 0; i < callbacks.length; i++) {

            // To use the private key to sign messages, we need to provide
            // the private key password
            WSPasswordCallback pwcb = (WSPasswordCallback) callbacks[i];

            if (pwcb.getIdentifier().equals("userid")) {
                pwcb.setPassword("password");
                return;
            }

        }

    }
}
```

Please change the yellow marked entries according your needs.

– Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;

import org.apache.axiom.om.impl.builder.StAXOMBuilder;
import org.apache.axis2.client.ServiceClient;
import org.apache.neethi.Policy;
import org.apache.neethi.PolicyEngine;
import org.apache.rampart.RampartMessageData;
import org.apache.xmlbeans.XmlObject;

/**
 * B2BServiceTest Junit test case
 */

public class B2BServiceTest extends junit.framework.TestCase {

    /**
     * Auto generated test method
     */
    public void testExecutePing() throws java.lang.Exception {

        B2BServiceStub stub = new B2BServiceStub("https://ebill-ki.postfinance.ch/B2BService/B2BService.svc");
        ServiceClient sc = stub._getServiceClient();

        sc.engageModule("addressing"); // module to engage WS-Addressing
        sc.engageModule("rampart"); // module to engage WS-Security

        // load axis2 policy file and use it to configure rampart module
        String policyFile = getClass().getClassLoader().getResource("axis2-policy.xml").getFile();
        sc.getOptions().setProperty(RampartMessageData.KEY_RAMPART_POLICY, loadPolicy(policyFile));

        // prepare webservice request
        ExecutePingDocument executePingData = (ExecutePingDocument) getTestObject(ExecutePingDocument.class);

        executePingData.addNewExecutePing().setBillerID("41101000011707505");

        // execute webservice method
        ExecutePingResponseDocument response = stub.executePing(executePingData);

        assertNotNull(response);

        assertEquals("41101000011707505", response.getExecutePingResponse().getExecutePingResult());
    }

    // Create the desired XmlObject and provide it as the test object
    public XmlObject getTestObject(java.lang.Class<?> type)
        throws java.lang.Exception {
        java.lang.reflect.Method creatorMethod = null;
        if (org.apache.xmlbeans.XmlObject.class.isAssignableFrom(type)) {
            Class<?>[] declaredClasses = type.getDeclaredClasses();
            for (int i = 0; i < declaredClasses.length; i++) {
                Class<?> declaredClass = declaredClasses[i];
                if (declaredClass.getName().endsWith("$Factory")) {
                    creatorMethod = declaredClass
                        .getMethod("newInstance", null);
                    break;
                }
            }
        }
        if (creatorMethod != null) {
            return (XmlObject) creatorMethod.invoke(null, null);
        } else {
            throw new java.lang.Exception("Creator not found!");
        }
    }

    private static Policy loadPolicy(String xmlPath) throws Exception {
        StAXOMBuilder builder = new StAXOMBuilder(xmlPath);
        return PolicyEngine.getPolicy(builder.getDocumentElement());
    }
}
```

Please change the yellow marked entries according your needs.

9.1.3 Configuration for CXF

- Generate service client stub code with wsdl2java tool of CXF.
IMPORTANT: Make sure you pass the following parameter:
`-autoNameResolution`
- Create cxf.xml file and place it in the resources folder of your java client project:

```
<beans xmlns="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:jaxws="http://cxf.apache.org/jaxws"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
    http://www.springframework.org/schema/beans/spring-beans.xsd
    http://cxf.apache.org/jaxws
    http://cxf.apache.org/schemas/jaxws.xsd">

  <jaxws:client name="{http://ch.swisspost.ebill.b2bservice}UserNamePassword" createdFromAPI="true">
    <!-- Comment below element to use non-WS-SecPol CXF interceptor method -->
    <jaxws:properties>
      <entry key="security.callback-handler" value="b2bservice.ebill.swisspost.ch.PasswordCallbackHandler"/>
      <entry key="security.username" value="userid"/>
    </jaxws:properties>
  </jaxws:client>

</beans>
```

Please change the yellow marked entries according your needs.

9.1.4 Code for CXF

- Create new Java code file, which has the following code:

```
package b2bservice.ebill.swisspost.ch;

import java.io.IOException;

import javax.security.auth.callback.Callback;
import javax.security.auth.callback.CallbackHandler;
import javax.security.auth.callback.UnsupportedCallbackException;

import org.apache.wss4j.common.ext.WSPasswordCallback;

public class PasswordCallbackHandler implements CallbackHandler {

    public void handle(Callback[] callbacks) throws IOException, UnsupportedCallbackException {
        for (int i = 0; i < callbacks.length; i++) {
            WSPasswordCallback pwcb = (WSPasswordCallback)callbacks[i];

            if (pwcb.getIdentifier().equals("userid")) {
                pwcb.setPassword("password");
                return;
            }
        }
    }
}
```

Please change the yellow marked entries according your needs.

- Make sure you put the name incl. package path to `security.callback-handler` entry element (see chapter 8.1.3).

- Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;
import static org.junit.Assert.*;

import java.net.MalformedURLException;
import java.net.URL;

import org.junit.Test;

public class B2BServiceTest {

    @Test
    public void testExecutePing() throws MalformedURLException {

        URL wsdlURL = new URL("https://ebill-ki.postfinance.ch/B2BService/B2BService.svc?singleWsd1");

        B2BService_Service service = new B2BService_Service(wsdlURL, B2BService_Service.SERVICE);
        B2BService port = service.getUserNamePassword();

        String result = port.executePing("41101000011707505", null, null, null);

        assertNotNull(result);

        assertEquals("41101000011707505", result);
    }
}
```

Please change the yellow marked entries according your needs.

9.1.5 Configuration for JAX-WS

- Generate service client stub code with wsimport tool of JAX-WS.
IMPORTANT: Make sure you pass the following parameter:
-extension -B-XautoNameResolution
- Create wsit-client.xml file and place it in the resources folder of your java client project:

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    name="mainclientconfig">
    <import location="B2BService.xml" namespace="http://ch.swisspost.ebill.b2bservice" />
</wsdl:definitions>
```

Please change the yellow marked entries according your needs.

- Create service XML file and name it as you like. Place it in the resources folder of your java client project. Make sure you put the name to `location` attribute of import element (see chapter 8.1.5).

```

<?xml version="1.0" encoding="utf-8"?>

<wsdl:definitions
  name="B2BService"
  targetNamespace="http://ch.swisspost.ebill.b2bservice"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
  xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
  xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
  xmlns:msec="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
  xmlns:i0="http://ch.swisspost.ebill.B2BService"
  xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
  xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tns="http://ch.swisspost.ebill.b2bservice"
  xmlns:wsa10="http://www.w3.org/2005/08/addressing"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
  xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
  xmlns:sc1="http://schemas.sun.com/2006/03/wss/client"
  xmlns:wsp1="http://java.sun.com/xml/ns/wsdl/policy">
  <wsp:Policy wsu:Id="UserNamePassword_policy">
    <wsp:ExactlyOne>
      <wsp>All>
        <sp:TransportBinding xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:TransportToken>
              <wsp:Policy>
                <sp:HttpsToken RequireClientCertificate="false"/>
              </wsp:Policy>
            </sp:TransportToken>
            <sp:AlgorithmSuite>
              <wsp:Policy>
                <sp:Basic256/>
              </wsp:Policy>
            </sp:AlgorithmSuite>
            <sp:Layout>
              <wsp:Policy>
                <sp:Strict/>
              </wsp:Policy>
            </sp:Layout>
            <sp:IncludeTimestamp/>
          </wsp:Policy>
        </sp:TransportBinding>
        <sp:SignedSupportingTokens xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:UsernameToken
              sp:IncludeToken="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy/IncludeToken/AlwaysToRecipient">
              <wsp:Policy>
                <sp:WssUsernameToken10/>
              </wsp:Policy>
            </sp:UsernameToken>
          </wsp:Policy>
        </sp:SignedSupportingTokens>
        <sp:Wss11 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy/>
        </sp:Wss11>
        <sp:Trust10 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:MustSupportIssuedTokens/>
            <sp:RequireClientEntropy/>
            <sp:RequireServerEntropy/>
          </wsp:Policy>
        </sp:Trust10>
        <wsaw:UsingAddressing/>
        <sc1:CallbackHandlerConfiguration wsp:visibility="private">
          <sc1:CallbackHandler name="usernameHandler" default="userid" />
          <sc1:CallbackHandler name="passwordHandler" default="password"/>
        </sc1:CallbackHandlerConfiguration>
      </wsp>All>
    </wsp:ExactlyOne>
  </wsp:Policy>
</wsdl:types>
<xsd:schema elementFormDefault="qualified" targetNamespace="http://ch.swisspost.ebill.b2bservice"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">

```

```

        <xs:import namespace="http://swisspost_ch.ebs.ebill.b2bservice"/>
        <xs:element name="%List according to xs:element elements in wsdl%">

            </xs:element>
        </xs:schema>
    </wsdl:types>
    <wsdl:message name="%List according to wsdl:message elements in wsdl%">

    </wsdl:message>
    <wsdl:portType name="B2BService">
        <wsdl:operation name="%List according to wsdl:operation elements in wsdl%">

            </wsdl:operation>
        </wsdl:portType>
    <wsdl:binding name="UserNamePassword" type="tns:B2BService">
        <wsp:PolicyReference URI="#UserNamePassword_policy"/>
        <soap12:binding transport="http://schemas.xmlsoap.org/soap/http"/>
        <wsdl:operation name="%List according to wsdl:operation elements in wsdl%">
            </wsdl:operation>
        </wsdl:binding>
    <wsdl:service name="B2BService">
        <wsdl:port name="UserNamePassword" binding="tns:UserNamePassword">
            <soap12:address location="https://ebill-ki.postfinance.ch/B2BService/B2BService.svc"/>
            <wsa10:EndpointReference>
                <wsa10:Address>https://ebill-ki.postfinance.ch/B2BService/B2BService.svc</wsa10:Address>
            </wsa10:EndpointReference>
        </wsdl:port>
    </wsdl:service>
</wsdl:definitions>

```

Please change the yellow marked entries according your needs.

9.1.6 Code for JAX-WS

– Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;
import static org.junit.Assert.assertEquals;
import static org.junit.Assert.assertNotNull;

import java.net.MalformedURLException;
import java.net.URL;

import org.junit.Test;

public class B2BServiceTest {

    @Test
    public void testExecutePing() throws MalformedURLException {

        URL wsdlURL = new URL("https://ebill-ki.postfinance.ch/B2BService/B2BService.svc?singleWsdl");

        B2BService_Service service = new B2BService_Service(wsdlURL);
        B2BService port = service.getUserNamePassword();

        String result = port.executePing("41101000011707505", null, null, null);

        assertNotNull(result);

        assertEquals("41101000011707505", result);
    }
}
```

Please change the yellow marked entries according your needs.

9.2 Certificate authentication

9.2.1 Configuration for Axis2

- Generate service client stub code with wsdl2java tool of Axis2.
- Create axis2-policy.xml file and place it in the resources folder of your java client project:

```
<?xml version="1.0" encoding="UTF-8"?>
<wsp:Policy wsu:Id="B2BService_UserCertificate_policy" xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <wsp:ExactlyOne>
    <wsp:All>
      <wsp:TransportBinding xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
          <sp:TransportToken>
            <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
              <sp:HttpsToken RequireClientCertificate="false"/>
            </wsp:Policy>
          </sp:TransportToken>
          <sp:AlgorithmSuite>
            <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
              <sp:Basic256/>
            </wsp:Policy>
          </sp:AlgorithmSuite>
          <sp:Layout>
            <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
              <sp:Strict/>
            </wsp:Policy>
          </sp:Layout>
          <sp:IncludeTimestamp/>
        </wsp:Policy>
      </wsp:TransportBinding>
      <sp:EndorsingSupportingTokens xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
          <sp:X509Token>
            <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
              <sp:RequireThumbprintReference/>
              <sp:WssX509V3Token10/>
            </wsp:Policy>
          </sp:X509Token>
          <sp:SignedParts>
            <sp:Header Name="To" Namespace="http://www.w3.org/2005/08/addressing"/>
          </sp:SignedParts>
        </wsp:Policy>
      </sp:EndorsingSupportingTokens>
      <sp:Wss11 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
          <sp:MustSupportRefThumbprint/>
        </wsp:Policy>
      </sp:Wss11>
      <sp:Trust10 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
        <wsp:Policy xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy">
          <sp:MustSupportIssuedTokens/>
          <sp:RequireClientEntropy/>
          <sp:RequireServerEntropy/>
        </wsp:Policy>
      </sp:Trust10>
      <wsaw:UsingAddressing xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
      <ramp:RampartConfig xmlns:ramp="http://ws.apache.org/rampart/policy">
        <ramp:rampartConfigCallbackClass>b2bservice.ebill.swisspost.ch.SecurityConfigCallbackHandler</ramp:rampartConfigCallbackClass>
        <ramp:signatureCrypto>
          <ramp:crypto provider="org.apache.ws.security.components.crypto.Merlin" enableCryptoCaching="false">
            <ramp:property name="org.apache.ws.security.crypto.merlin.keystore.type">PKCS12</ramp:property>
            <ramp:property name="org.apache.ws.security.crypto.merlin.file">Certificate.p12</ramp:property>
            <ramp:property name="org.apache.ws.security.crypto.merlin.keystore.password">Certificate password</ramp:property>
          </ramp:crypto>
        </ramp:signatureCrypto>
        </ramp:RampartConfig>
      </wsp:All>
    </wsp:ExactlyOne>
  </wsp:Policy>
```

Please change the yellow marked entries according your needs.

- Copy your Certificate.p12 file to the resources folder of your java client project

9.2.2 Code for Axis2

- Create new Java code file, which has the following code:

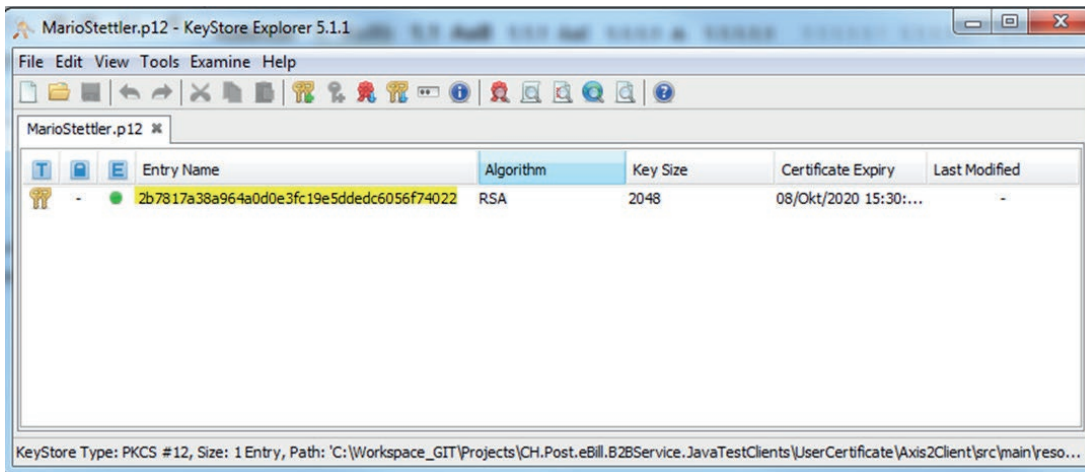
```
package b2bservice.ebill.swisspost.ch;

import org.apache.rampart.RampartConfigCallbackHandler;
import org.apache.rampart.policy.model.RampartConfig;

public class SecurityConfigCallbackHandler implements
    RampartConfigCallbackHandler {

    @Override
    public void update(RampartConfig rampartConfig)
    {
        rampartConfig.setUserCertAlias("Alias withing Certificat.p12");
        rampartConfig.setPwCbClass>PasswordCallbackHandler.class.getName());
    }
}
```

Please change the yellow marked entries according your needs.
Alias can be easily figured out with tool "Keystore Explorer":
<http://keystore-explorer.sourceforge.net/index.php>



Screenshot of Keystore Explorer: Alias is mark in yellow.

- Make sure you put the name incl. package path to `ramp:rampartConfigCallbackClass` element (see chapter 8.1.1).

– Create new Java code file, which has the following code:

```
package b2bservice.ebill.swisspost.ch;  
  
import java.io.IOException;  
  
import javax.security.auth.callback.Callback;  
import javax.security.auth.callback.CallbackHandler;  
import javax.security.auth.callback.UnsupportedCallbackException;  
  
import org.apache.ws.security.WSPasswordCallback;  
  
public class PasswordCallbackHandler implements CallbackHandler {  
  
    @Override  
    public void handle(Callback[] callbacks) throws IOException,  
        UnsupportedCallbackException {  
  
        for (int i = 0; i < callbacks.length; i++) {  
  
            // To use the private key to sign messages, we need to provide  
            // the private key password  
            WSPasswordCallback pwcb = (WSPasswordCallback) callbacks[i];  
  
            if (pwcb.getIdentifier().equals("Alias withing Certificat.p12")) {  
                pwcb.setPassword("Certificate password");  
                return;  
            }  
  
        }  
  
    }  
  
}
```

Please change the yellow marked entries according your needs.

– Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;

import org.apache.axiom.om.impl.builder.StAXOMBuilder;
import org.apache.axis2.client.ServiceClient;
import org.apache.neethi.Policy;
import org.apache.neethi.PolicyEngine;
import org.apache.rampart.RampartMessageData;
import org.apache.xmlbeans.XmlObject;

/**
 * B2BServiceTest Junit test case
 */

public class B2BServiceTest extends junit.framework.TestCase {

    /**
     * Auto generated test method
     */
    public void testExecutePing() throws java.lang.Exception {

        B2BServiceStub stub = new B2BServiceStub("https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc");

        ServiceClient sc = stub._getServiceClient();

        sc.engageModule("addressing"); // module to engage WS-Addressing
        sc.engageModule("rampart"); // module to engage WS-Security

        // load axis2 policy file and use it to configure rampart module
        String policyFile = getClass().getClassLoader().getResource("axis2-policy.xml").getFile();
        sc.getOptions().setProperty(RampartMessageData.KEY_RAMPART_POLICY, loadPolicy(policyFile));

        // prepare webservice request
        ExecutePingDocument executePingData = (ExecutePingDocument) getTestObject(ExecutePingDocument.class);

        executePingData.addNewExecutePing().setBillerID("41101000011707505");

        // execute webservice method
        ExecutePingResponseDocument response = stub.executePing(executePingData);

        assertNotNull(response);

        assertEquals("41101000011707505", response.getExecutePingResponse().getExecutePingResult());
    }

    // Create the desired XmlObject and provide it as the test object
    public XmlObject getTestObject(java.lang.Class<?> type)
        throws java.lang.Exception {
        java.lang.reflect.Method creatorMethod = null;
        if (org.apache.xmlbeans.XmlObject.class.isAssignableFrom(type)) {
            Class<?>[] declaredClasses = type.getDeclaredClasses();
            for (int i = 0; i < declaredClasses.length; i++) {
                Class<?> declaredClass = declaredClasses[i];
                if (declaredClass.getName().endsWith("$Factory")) {
                    creatorMethod = declaredClass
                        .getMethod("newInstance", null);
                    break;
                }
            }
        }
        if (creatorMethod != null) {
            return (XmlObject) creatorMethod.invoke(null, null);
        } else {
            throw new java.lang.Exception("Creator not found!");
        }
    }

    private static Policy loadPolicy(String xmlPath) throws Exception {
        StAXOMBuilder builder = new StAXOMBuilder(xmlPath);
        return PolicyEngine.getPolicy(builder.getDocumentElement());
    }
}
```

Please change the yellow marked entries according your needs.

9.2.3 Configuration for CXF

- Generate service client stub code with wsdl2java tool of CXF.
IMPORTANT: Make sure you pass the following parameter:
`-autoNameResolution`
- Create cxf.xml file and place it in the resources folder of your java client project:

```
<beans xmlns="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:jaxws="http://cxf.apache.org/jaxws"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
    http://www.springframework.org/schema/beans/spring-beans.xsd
    http://cxf.apache.org/jaxws
    http://cxf.apache.org/schemas/jaxws.xsd">

  <jaxws:client name="{http://ch.swisspost.ebill.b2bservice}UserCertificate" createdFromAPI="true">
    <!-- Comment below element to use non-WS-SecPol CXF interceptor method -->
    <jaxws:properties>
      <entry key="security.callback-handler" value="b2bservice.ebill.swisspost.ch.PasswordCallbackHandler"/>
      <entry key="security.signature.properties" value="clientKeystore.properties"/>
      <entry key="security.signature.username" value="Alias within Certificate.p12"/>
    </jaxws:properties>
  </jaxws:client>

</beans>
```

Please change the yellow marked entries according your needs.

- Copy your Certificate.p12 file to the resources folder of your java client project
- Create clientKeystore.properties file and place it in the resources folder of your java client project:

```
org.apache.ws.security.crypto.merlin.keystore.file=Certificate.p12
org.apache.ws.security.crypto.merlin.keystore.password=Certificate password
org.apache.ws.security.crypto.merlin.keystore.type=PKCS12
```

Please change the yellow marked entries according your needs.

9.2.4 Code for CXF

- Create new Java code file, which has the following code:

```
package b2bservice.ebill.swisspost.ch;

import java.io.IOException;
import java.util.HashMap;
import java.util.Map;

import javax.security.auth.callback.Callback;
import javax.security.auth.callback.CallbackHandler;
import javax.security.auth.callback.UnsupportedCallbackException;

import org.apache.wss4j.common.ext.WSPasswordCallback;

public class PasswordCallbackHandler implements CallbackHandler {

    private Map<String, String> passwords =
        new HashMap<String, String>();

    public PasswordCallbackHandler() {
        passwords.put("Alias withing Certificate.p12", "Certificate password");
    }

    public void handle(Callback[] callbacks) throws IOException, UnsupportedCallbackException {
        for (int i = 0; i < callbacks.length; i++) {
            WSPasswordCallback pc = (WSPasswordCallback)callbacks[i];

            String pass = passwords.get(pc.getIdentifier());
            if (pass != null) {
                pc.setPassword(pass);
                return;
            }
        }
    }
}
```

Please change the yellow marked entries according your needs.

- Make sure you put the name incl. package path to `security.callback-handler` entry element (see chapter 8.1.3).

- Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;
import static org.junit.Assert.*;

import java.net.MalformedURLException;
import java.net.URL;

import org.junit.Test;

public class B2BServiceTest {

    @Test
    public void testExecutePing() throws MalformedURLException {

        URL wsdlURL = new URL("https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc?singleWsd1");

        B2BService_Service service = new B2BService_Service(wsdlURL, B2BService_Service.SERVICE);
        B2BService port = service.getUserCertificate();

        String result = port.executePing("41101000011707505", null, null, null);

        assertNotNull(result);

        assertEquals("41101000011707505", result);
    }

}
```

Please change the yellow marked entries according your needs.

9.2.5 Configuration for JAX-WS

- Generate service client stub code with wsimport tool of JAX-WS.
IMPORTANT: Make sure you pass the following parameter:
`-extension -B-XautoNameResolution`
- Create wsit-client.xml file and place it in the resources folder of your java client project:

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    name="mainclientconfig">
    <import location="B2BService.xml" namespace="http://ch.swisspost.ebill.b2bservice" />
</wsdl:definitions>
```

Please change the yellow marked entries according your needs.

- Copy your Certificate.p12 file to the resources folder of your java client project.

- Create service XML file and name it as you like. Place it in the resources folder of your java client project. Make sure you put the name to `location` attribute of import element (see chapter 8.1.5).

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  name="B2BService"
  targetNamespace="http://ch.swisspost.ebill.b2bservice"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
  xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
  xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
  xmlns:msec="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
  xmlns:i0="http://ch.swisspost.ebill.B2BService"
  xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
  xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tns="http://ch.swisspost.ebill.b2bservice"
  xmlns:wsa10="http://www.w3.org/2005/08/addressing"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
  xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
  xmlns:sc1="http://schemas.sun.com/2006/03/wss/client"
  xmlns:wssp="http://java.sun.com/xml/ns/wsdl/policy">
  <wsp:Policy wsu:Id="UserCertificate_policy">
    <wsp:ExactlyOne>
      <wsp:All>
        <sp:TransportBinding xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:TransportToken>
              <wsp:Policy>
                <sp:HttpsToken RequireClientCertificate="false"/>
              </wsp:Policy>
            </sp:TransportToken>
            <sp:AlgorithmSuite>
              <wsp:Policy>
                <sp:Basic256/>
              </wsp:Policy>
            </sp:AlgorithmSuite>
            <sp:Layout>
              <wsp:Policy>
                <sp:Strict/>
              </wsp:Policy>
            </sp:Layout>
            <sp:IncludeTimestamp/>
          </wsp:Policy>
        </sp:TransportBinding>
        <sp:EndorsingSupportingTokens xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:X509Token
              sp:IncludeToken="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy/IncludeToken/AlwaysToRecipient">
              <wsp:Policy>
                <sp:RequireThumbprintReference/>
                <sp:WssX509V3Token10/>
              </wsp:Policy>
            </sp:X509Token>
            <sp:SignedParts>
              <sp:Header Name="To" Namespace="http://www.w3.org/2005/08/addressing"/>
            </sp:SignedParts>
          </wsp:Policy>
        </sp:EndorsingSupportingTokens>
        <sp:Wss11 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:MustSupportRefThumbprint/>
          </wsp:Policy>
        </sp:Wss11>
        <sp:Trust10 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
          <wsp:Policy>
            <sp:MustSupportIssuedTokens/>
            <sp:RequireClientEntropy/>
            <sp:RequireServerEntropy/>
          </wsp:Policy>
        </sp:Trust10>
      </wsp:All>
    </wsp:ExactlyOne>
  </wsp:Policy>

```

```

        </sp:Trust10>
        <wsaw:UsingAddressing/>
        <scl:KeyStore wssp:visibility="private" keypass="Certificate password"
            storepass="Certificate password" type="PKCS12"
            location="Certificate.p12" />
    </wsp:All>
</wsp:ExactlyOne>
</wsp:Policy>
<wsdl:types>
    <xs:schema elementFormDefault="qualified" targetNamespace="http://ch.swisspost.ebill.b2bservice"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:import namespace="http://swisspost_ch.ebs.ebill.b2bservice"/>
        <xs:element name="%List according to xs:element elements in wsdl%">
        </xs:element>
    </xs:schema>
</wsdl:types>
<wsdl:message name="%List according to wsdl:message elements in wsdl%">
</wsdl:message>
<wsdl:portType name="B2BService">
    <wsdl:operation name="%List according to wsdl:operation elements in wsdl%">
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="UserNamePassword" type="tns:B2BService">
    <wsp:PolicyReference URI="#UserNamePassword_policy"/>
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="%List according to wsdl:operation elements in wsdl%">
    </wsdl:operation>
</wsdl:binding>
<wsdl:service name="B2BService">
    <wsdl:port name="UserCertificate" binding="tns:UserCertificate">
        <soap12:address location="https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc"/>
        <wsa10:EndpointReference>
            <wsa10:Address>https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc</wsa10:Address>
        </wsa10:EndpointReference>
    </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

Please change the yellow marked entries according your needs.

9.2.6 Code for JAX-WS

– Unit Test code to check that service can be properly accessed.

```
package b2bservice.ebill.swisspost.ch;
import static org.junit.Assert.assertEquals;
import static org.junit.Assert.assertNotNull;

import java.net.MalformedURLException;
import java.net.URL;

import org.junit.Test;

public class B2BServiceTest {

    @Test
    public void testExecutePing() throws MalformedURLException {

        URL wsdlURL = new URL("https://ebill-ki.postfinance.ch/B2BService/B2BServiceCert.svc?singlewsdl");

        B2BService_Service service = new B2BService_Service(wsdlURL);
        B2BService port = service.getUserCertificate();

        String result = port.executePing("41101000011707505", null, null, null);

        assertNotNull(result);

        assertEquals("41101000011707505", result);
    }
}
```

Please change the yellow marked entries according your needs.

10. Disclaimer

We created this specification with great care. Nevertheless we cannot guarantee that there are no errors and no inaccuracy.

Thank you for your information when you believe to have found such an error.

All information in this interface specification can be changed anytime without prior notice.