First Data Global Gateway Integration Guide Web Service API

Version 1.7.2

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First Data Global Gateway

WEB SERVICE API INTEGRATION GUIDE
VERSION 1.7

Contents

1 Introduction

The First Data Global Gateway Web Service API is an Application Programming Interface, which allows you to connect your application with the First Data Global Gateway. Using the Web Service API, you can seamlessly accept credit card and check payments in your application.

Note: If you store or process cardholder data with your application, you must ensure that, your application meets the Payment Card Industry Data Security Standard (PCI DSS) requirements. Depending on transaction volume, you may be required to have your application audited by a Qualified Security Assessor.

The First Data Global Gateway Web Service API is a SOAP-based web service. Some of the advantages of offering integration using a web service include:

- **Platform independence –** Any application that can send and receive SOAP messages can communicate with the Web Service API. Because the Web Service API is built using open standards, you can choose any technology that suits your needs (e.g. J2EE, .NET, PHP, ASP, etc.) for integrating with the First Data Global Gateway.
- **Ease of integration –** Communicating with a web service is simple. Your application builds a SOAP request message encoding your transaction, sends it via HTTPS to the web service, and waits for a SOAP response message, which contains your transaction's status. Since SOAP and HTTPS are designed to be lightweight protocols, building requests and parsing responses is a straightforward. Furthermore, rarely do you have to do this manually, since there are a number of libraries available in almost every technology. In general, building a SOAP request and handling the response is reduced to a few lines of code.
- **Security –** All communication between your application and First Data Global Gateway Web Service API is SSL-encrypted. Your application has a client certificate, which identifies it uniquely with the web service. The Web Service API holds a server certificate, which your application checks to ensure that it is communicating with the Web Service API. The Web Service also requires HTTP basic authorization (user name and password) in order to communicate with the web service. These security mechanisms guarantee that the transaction data sent to First Data Global Gateway Web Service API stays private and is available only to your application.

This document will assist you in integrating your application with the Web Service API, and provide you with a brief summary of the Web Service API solution feature set.

2 Required Data

This section describes the data required for communicating securely with the Web Service API. The following checklist provides an overview enabling you to ensure that you have received the whole set when registering your application for the First Data Global Gateway:

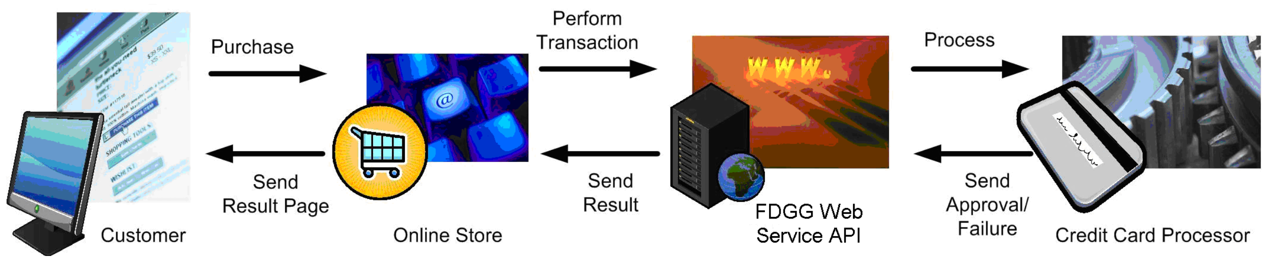
- **Store ID –** Your store ID, assigned by First Data.
- **User ID and Password –** The user ID and password required for basic authorization with the Web Service API. The user ID is in the format WS<store_ID>._.1. For example, if your store ID is 111920, your user ID is WS111920._.1. This information is in the. WS<store_ID>._.1.auth.txt file.
- **Client Certificate p12 File –** The client certificate stored in a p12 file, named in the format WS<store_ID>._.1.p12. For example, if your store ID is 111920, your p12 file is named WS111920._.1.p12. This file is used for authenticating the client with the First Data Global Gateway. For connecting with Java, you need a ks file, for example WS111920._.1.ks.
- **Client Certificate Installation Password –** The password required for installing the p12 client certificate file. This information is in the WS<store_ID>._.1.p12.pw.txt file.
- **Client Certificate Private Key –** The private key of the client certificate stored in a key file, named in the format WS<store_ID>.key. Depending on your choice of tools, this may be required for authenticating with the Web Service API.
- **Client Certificate Private Key Password –** The password required for the private key, named in the format ckp_<creation_timestamp>. For example, this might be ckp_1193927132. Depending on your choice of tools, this may be required for authenticating with the Web Service API. This information is in the WS<store_ID>._.1.key.pw.txt file.
- **Client Certificate PEM File –** The client certificate stored in a pem file, named in the format WS<store_ID>._.1.pem. For example, if your store ID is 111920, your pem file is named WS111920._.1.pem. This file is used for authenticating the client with the First Data Global Gateway. Depending on your choice of tools, this may be required for authenticating with the Web Service API instead of the p12 file.

Note: These files are delivered in the .tar.gz format, which can be opened using recent versions of WinZip or most other archive applications.

3 How the API Works

The following section describes the process of performing a credit card transaction through the Web Service API.

In most cases, a customer starts the overall communication process by buying goods or services with her credit card in your online store. Your store sends a credit card transaction to the First Data Global Gateway using the Web Service API. Having received the transaction, the First Data Global Gateway forwards it to the credit card processor for authorization. Based on the result, your online store receives an approval or an error response from the Web Service API. This means that you only need to be able to communicate with the First Data Global Gateway Web Service API in order to accept payments.



Web service interfaces are designed using the Web Service Definition Language (WSDL). The WSDL file for the Web Service API is located here:

https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl

You must install the client certificate to access the WSDL file, for example, in a web browser. See 21 Installing the Client Certificate on page 91 for instructions on installing the client certificate.

After installing the client certificate, you can access the WSDL file. To access the WSDL file, follow these steps:

1. Open a Microsoft Internet Explorer window and enter the URL for the WSDL in the **Address** field.
2. After requesting the URL, the server will ask your browser to supply the client certificate ensure sure that it is talking to your application correctly. Since you have installed the certificate in the previous steps, you are seamlessly transferred to the server. Then, the First Data Global Gateway Web Service API sends its server certificate and the browser verifies that it comes from a trusted source. Again, this is done automatically without prompting you for any input. A secure connection is established and all data transferred between your application and the First Data API Web Service is SSL-encrypted.
3. The Web Service API WSDL file is displayed.

Note: Your user ID and password are not required to view the WSDL but they are required to access the First Data Global Gateway Web Service API.

The WSDL file defines the operations offered by the Web Service API, their request and response parameters, and how to call the operations. The First Data Global Gateway Web Service API WSDL file defines one operation, `FDGGWSApiOrder`, called by sending a SOAP request to the following URL:

https://ws.firstdataglobalgateway.com/fdggwsapi/services

This operation takes an XML-encoded transaction as a request and returns an XML-encoded response.

Depending on the tools you use to integrate with the Web Service API, you may need to provide the URL for the WSDL file. If so, you must tell your tool that the communication is SSL-enabled, provide your client certificate, and accept the server certificate as trusted. The process for this depends upon your tool. Consult the documentation for your tool for details.

The following chapters will guide you in setting up your store for building and performing custom credit card transactions.

4 Supported Tools

The First Data Global Gateway Web Service API uses HTTPS and SOAP to communicate with your applications. As such, it is completely platform independent. The choice of languages, frameworks, or tools to integrate with the Web Service API is up to you.

First Data has tested the Web Service API with the following tools:

- PHP 5.2.9
- ASP
- .NET Framework
- Axis Framework 2-1.3
- Spring-WS 1.5.7

While you can use any tools to integrate with the API, these are the tools First Data has tested. Integrating with the First Data Global Gateway Web Service API using other tools is outside the scope of this document.

5 Sending Transactions to the Gateway

This section describes the basic steps to take place when sending transactions to the First Data Global Gateway.

- The customer initiates checkout in the online store.
- The online store displays a form asking the customer to provide a credit card number and the expiration date.
- The customer enters and submits the data.
- The online store receives the data and builds an XML document encoding a Sale transaction, which includes the data provided by the customer and the total amount to be paid by the customer.
- After building the XML Sale transaction, the online store wraps it in a SOAP message, which describes the Web Service operation to be called with the transaction XML being passed as a parameter.
- The online store generates an HTTP POST request containing the soap message and sets the HTTP basic authorization headers.
- The online store establishes an SSL connection by providing the client and server certificate.
- The online store sends the HTTP POST request to the First Data Global Gateway Web Service API and waits for an HTTP response.
- The Web Service API receives the HTTPS request and parses out the authorization information provided by the store in the HTTP headers.
- Having authorized the store, the Web Service API parses the SOAP message contained in the HTTP request body, triggering the call to the transaction operation.
- The First Data Global Gateway Web Service API performs the transaction processing, builds an XML response document, wraps it in a SOAP message, and sends this SOAP message back to the client in the body of an HTTP response.
- The online store receives the HTTP response.
- Depending on the data contained in the XML response document, the online store displays the approval or error message.

While this example describes the case of a Sale transaction, other transactions follow the same process.

Your application performs the following steps in order to submit transactions and analyze the result:

- Build an XML document encoding your transactions.
- Wrap that XML document in a SOAP request message.
- Build an HTTP POST request with the information identifying your store provided in the HTTP header and the SOAP request message in the body.

- Establish an SSL connection between your application and First Data Global Gateway Web Service API.
- Send the HTTP POST request to the First Data Global Gateway Web Service API and receive the response.
- Read the SOAP response message out of the HTTPS response body.
- Analyze the XML response document contained in the SOAP response message.

The following chapters describe the information you need to perform these steps in detail and guide you through the process of setting up your application to perform transactions.

6 Building Transactions in XML

This chapter describes the XML formats for the submitting to the First Data Global Gateway Web Service API. After encoding the transaction in XML, the message is wrapped in SOAP envelope and submitted to the Web Service API.

While the tools you use to generate your request messages may allow you to avoid working with raw XML, you still need a basic understanding of the XML format in order to correctly build the XML transactions.

Credit card and check transactions are contained in the fdggwsapi:FDGGWSApiOrderRequest element.

Note: The First Data Global Gateway Web Service API only accepts ASCII characters. The Order ID field should not contain the following characters: & % /.

6.1 Credit Card Transactions

Regardless of the transaction type, the basic XML document structure of a credit card transaction is as follows:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>...</v1:CreditCardTxType>
      <v1:CreditCardData>...</v1:CreditCardData>
      <v1:Payment>...</v1:Payment>
      <v1:TransactionDetails>...</v1:TransactionDetails>
      <v1:Billing>...</v1:Billing>
      <v1:Shipping>...</v1:Shipping>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The element CreditCardDataTXType is mandatory for all credit card transactions. The other elements depend on the transaction type. The content depends on the type of transaction.

See 8 XML Tag Reference on page 34 for details of all required and optional elements valid for submission for credit card transactions.

6.1.1 Sale

The following code is a sample of a Sale transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
```

```
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>sale</v1:Type>
      </v1:CreditCardTxType>
      <v1:CreditCardData>
         <v1:CardNumber>4111111111111111</v1:CardNumber>
         <v1:ExpMonth>12</v1:ExpMonth>
         <v1:ExpYear>12</v1:ExpYear>
      </v1:CreditCardData>
      <v1:Payment>
         <v1:ChargeTotal>19.95</v1:ChargeTotal>
      </v1:Payment>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the Sale transaction. (v1:Billing and v1:Shipping are optional)

Several situations that may occur which may cause a merchant's transactions to be downgraded.

1. **Failure to input the required data filed elements**
2. **Swiping a credit card in a designated CNP environment**
3. **Failure to input data the Tax and PO# field**

All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required
v1:CreditCardData/	
v1:CardNumber	Required if v1:TrackData is not submitted.
v1:ExpMonth	Required if v1:TrackData is not submitted.
v1:ExpYear	Required if v1:TrackData is not submitted.
v1:CardCodeValue	Optional
v1:CardCodeIndicator	Optional
v1:TrackData	Required if v1:CardNumber is not submitted.
v1:CreditCard3DSecure/	
v1:PayerSecurityLevel	Required for 3D Secure transactions.
v1:AuthenticationValue	See 8.3 CreditCard3DSecure for details.
v1:XID	See 8.3 CreditCard3DSecure for details.
v1:Payment/	
v1:ChargeTotal	Required
v1:SubTotal	Optional

FIELD	REQUIRED
v1:VATTax	Optional
v1:Shipping	Optional
v1:TransactionDetails/	
v1:UserID	Optional
v1:InvoiceNumber	Optional
v1:OrderId	Optional
v1:Ip	Optional
v1:ReferenceNumber	Optional
v1:TDate	Optional
v1:Recurring	Optional
v1:TaxExempt	Optional
v1:TerminalType	Optional
v1:TransactionOrigin	Optional, *default value if not provided*
v1:PONumber	Optional
v1:Billing/	*To prevent the possibility of downgrading, some Billing data is required for all MOTO & ECI transactions!*
v1:CustomerID	Optional
v1:Name	MOTO & ECI: **Required** Retail: **Optional**
v1:Company	Optional
v1:Address1	MOTO & ECI: **Required** Retail: **Optional**
v1:Address2	Optional
v1:City	MOTO & ECI: **Required** Retail: **Optional**
v1:State	MOTO & ECI: **Required** Retail: **Optional**
v1:Zip Code	MOTO & ECI: **Required** Retail: **Optional**
v1:Country	MOTO & ECI: **Required** Retail: **Optional**
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional: But is required to have receipts emailed to customer and administrator
v1:Shipping/	
v1:Type	Optional
v1:Name	Optional
v1:Address1	Optional
v1:Address2	Optional

FIELD	REQUIRED
v1:City	Optional
v1:State	Optional
v1:Zip	Optional
v1:Country	Optional

These elements must be submitted in the order defined in the XSD file: Transaction, CreditCardTxType, CreditCardData, and Payment.

6.1.2 PreAuth

The following code is a sample of a PreAuth transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>preAuth</v1:Type>
      </v1:CreditCardTxType>
      <v1:CreditCardData>
         <v1:CardNumber>4111111111111111</v1:CardNumber>
         <v1:ExpMonth>12</v1:ExpMonth>
         <v1:ExpYear>12</v1:ExpYear>
      </v1:CreditCardData>
      <v1:Payment>
         <v1:ChargeTotal>100.00</v1:ChargeTotal>
      </v1:Payment>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the PreAuth transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required
v1:CreditCardData/	
v1:CardNumber	Required if v1:TrackData is not submitted.
v1:ExpMonth	Required if v1:TrackData is not submitted.
v1:ExpYear	Required if v1:TrackData is not submitted.
v1:CardCodeIndicator	Optional
v1:CardCodeValue	Optional

FIELD	REQUIRED
v1:TrackData	Required if v1:CardNumber is not submitted.
v1:CreditCard3DSecure/	
v1:PayerSecurityLevel	Required for 3D Secure transactions
v1:AuthenticationValue	See 8.3 CreditCard3DSecure for details
v1:XID	See 8.3 CreditCard3DSecure for details
v1:Payment/	
v1:ChargeTotal	Required
v1:SubTotal	Optional
v1:VATTax	Optional
v1:Shipping	Optional
v1:TransactionDetails/	
v1:UserID	Optional
v1:InvoiceNumber	Optional
v1:OrderId	Optional
v1:Ip	Optional
v1:ReferenceNumber	Optional
v1:TDate	Optional
v1:Recurring	Optional
v1:TaxExempt	Optional
v1:TerminalType	Optional
v1:TransactionOrigin	Optional, *default value if not provided.*
v1:PONumber	Optional
v1:Billing/	*To prevent the possibility of downgrading, some Billing data is required for all MOTO & ECI transactions!*
v1:CustomerID	Optional
v1:Name	MOTO & ECI: **Required** Retail: **Optional**
v1:Company	Optional
v1:Address1	MOTO & ECI: **Required** Retail: **Optional**
v1:Address2	Optional
v1:City	MOTO & ECI: **Required** Retail: **Optional**
v1:State	MOTO & ECI: **Required** Retail: **Optional**
v1:Zip	MOTO & ECI: **Required** Retail: **Optional**
v1:Country	MOTO & ECI: **Required** Retail: **Optional**

FIELD	REQUIRED
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional: But is required to have receipts emailed to customer and administrator
v1:Shipping/	
v1:Type	Optional
v1: Name	Optional
v1:Address1	Optional
v1:Address2	Optional
v1:City	Optional
v1:State	Optional
v1:Zip	Optional
v1:Country	Optional

6.1.3 PostAuth

The following code is a sample of a PostAuth transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>postAuth</v1:Type>
      </v1:CreditCardTxType>
      <v1:Payment>
         <v1:ChargeTotal>59.45</v1:ChargeTotal>
      </v1:Payment>
      <v1:TransactionDetails>
         <v1:OrderId>
            703d2723-99b6-4559-8c6d-797488e8977
         </v1:OrderId>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the PostAuth transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	

FIELD	REQUIRED
v1:Type	Required
v1:Payment/	
v1:ChargeTotal	Optional
v1:TransactionDetails/	
v1:OrderId	Required

6.1.4 ForceTicket

The following code is a sample of a ForceTicket transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>forceTicket</v1:Type>
      </v1:CreditCardTxType>
      <v1:CreditCardData>
         <v1:CardNumber>4111111111111111</v1:CardNumber>
         <v1:ExpMonth>12</v1:ExpMonth>
         <v1:ExpYear>12</v1:ExpYear>
      </v1:CreditCardData>
      <v1:Payment>
         <v1:ChargeTotal>59.45</v1:ChargeTotal>
      </v1:Payment>
      <v1:TransactionDetails>
         <v1:ReferenceNumber>123456</v1:ReferenceNumber>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the ForceTicket transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required
v1:CreditCardData/	
v1:CardNumber	Required if v1:TrackData is not submitted.
v1:ExpMonth	Required if v1:TrackData is not submitted.
v1:ExpYear	Required if v1:TrackData is not submitted.

FIELD	REQUIRED
v1:CardCodeValue	Optional
v1:CardCodeIndicator	Optional
v1:TrackData	Required if v1:CardNumber is not submitted.
v1:CreditCard3DSecure/	
v1:PayerSecurityLevel	Required for 3D Secure transactions
v1:AuthenticationValue	See 8.3 CreditCard3DSecure for details
v1:XID	See 8.3 CreditCard3DSecure for details
v1:Payment/	
v1:ChargeTotal	Required
v1:SubTotal	Optional
v1:VATTax	Optional
v1:Shipping	Optional
v1:TransactionDetails/	
v1:UserID	Optional
v1:InvoiceNumber	Optional
v1:OrderId	Optional
v1:Ip	Optional
v1:ReferenceNumber	Required
v1:TDate	Optional
v1:Billing/	*To prevent the possibility of downgrading, some Billing data is required for all MOTO & ECI transactions!*
v1:CustomerID	Optional
v1:Name	MOTO & ECI: **Required** Retail: **Optional**
v1:Company	Optional
v1:Address1	MOTO & ECI: **Required** Retail: **Optional**
v1:Address2	Optional
v1:City	MOTO & ECI: **Required** Retail: **Optional**
v1:State	MOTO & ECI: **Required** Retail: **Optional**
v1:Zip	MOTO & ECI: **Required** Retail: **Optional**
v1:Country	MOTO & ECI: **Required** Retail: **Optional**
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional: But is required to have receipts emailed to customer and administrator

FIELD	REQUIRED
v1:Shipping/	
v1:Type	Optional
v1:Name	Optional
v1:Address1	Optional
v1:Address2	Optional
v1:City	Optional
v1:State	Optional
v1:Zip	Optional
v1:Country	Optional
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional

6.1.5 Return

The following code is a sample of a Return transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>return</v1:Type>
      </v1:CreditCardTxType>
      <v1:Payment>
         <v1:ChargeTotal>19.95</v1:ChargeTotal>
      </v1:Payment>
      <v1:TransactionDetails>
         <v1:OrderId>
            62e3b5df-2911-4e89-8356-1e49302b1807
         </v1:OrderId>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required fields for the Return transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required

FIELD	REQUIRED
v1:Payment/	
v1:ChargeTotal	Required
v1:TransactionDetails/	
v1:OrderId	Required

6.1.6 Credit

The following code is a sample of a Credit transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>credit</v1:Type>
      </v1:CreditCardTxType>
      <v1:CreditCardData>
         <v1:CardNumber>4111111111111111</v1:CardNumber>
         <v1:ExpMonth>12</v1:ExpMonth>
         <v1:ExpYear>12</v1:ExpYear>
      </v1:CreditCardData>
      <v1:Payment>
         <v1:ChargeTotal>50.00</v1:ChargeTotal>
      </v1:Payment>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the Credit transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required
v1:CreditCardData/	
v1:CardNumber	Required if v1:TrackData is not submitted.
v1:ExpMonth	Required if v1:TrackData is not submitted.
v1:ExpYear	Required if v1:TrackData is not submitted.
v1:CardCodeValue	Optional
v1:CardCodeIndicator	Optional
v1:TrackData	Required if v1:CardNumber is not submitted
v1:CreditCard3DSecure/	

FIELD	REQUIRED
v1:PayerSecurityLevel	Required for 3D Secure transactions
v1:AuthenticationValue	See 8.3 CreditCard3DSecure for details
v1:XID	See 8.3 CreditCard3DSecure for details
v1:Payment/	
v1:ChargeTotal	Required
v1:SubTotal	Optional
v1:VATTax	Optional
v1:Shipping	Optional
v1:TransactionDetails/	
v1:UserID	Optional
v1:InvoiceNumber	Optional
v1:Ip	Optional
v1:Billing/	*To prevent the possibility of downgrading, some Billing data is required for all MOTO & ECI transactions!*
v1:CustomerID	Optional
v1:Name	MOTO & ECI: **Required** Retail: **Optional**
v1:Company	Optional
v1:Address1	MOTO & ECI: **Required** Retail: **Optional**
v1:Address2	Optional
v1:City	MOTO & ECI: **Required** Retail: **Optional**
v1:State	MOTO & ECI: **Required** Retail: **Optional**
v1:Zip	MOTO & ECI: **Required** Retail: **Optional**
v1:Country	MOTO & ECI: **Required** Retail: **Optional**
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional: But is required to have receipts emailed to customer and administrator
v1:Shipping/	
v1:Type	Optional
v1:Name	Optional
v1:Address1	Optional
v1:Address2	Optional
v1:City	Optional
v1:State	Optional

FIELD	REQUIRED
v1:Zip	Optional
v1:Country	Optional
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional

6.1.7 Void

The following code is a sample of a Void transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CreditCardTxType>
         <v1:Type>void</v1:Type>
      </v1:CreditCardTxType>
      <v1:TransactionDetails>
         <v1:OrderId>
            62e3b5df-2911-4e89-8356-1e49302b1807
         </v1:OrderId>
         <v1:TDate>1190244932</v1:TDate>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and fields for the Void transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CreditCardTxType/	
v1:Type	Required
v1:TransactionDetails/	
v1:OrderId	Required
v1:TDate	Required

6.2 Check Transactions

Regardless of the transaction type, the basic XML document structure of a check transaction is as follows:

```
<fdggwsapi:FDGGWSApiOrderRequest
```

```
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:TeleCheckTxType>...</v1:TeleCheckTxType>
      <v1:TeleCheckData>...</v1:TeleCheckData>
      <v1:Payment>...</v1:Payment>
      <v1:TransactionDetails>...</v1:TransactionDetails>
      <v1:Billing>...</v1:Billing>
      <v1:Shipping>...</v1:Shipping>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The element TeleCheckTXType is mandatory for all check transactions. The other elements depend on the transaction type. The content depends on the type of transaction.

See 8 XML Tag Reference on page 34 for details of all required and optional elements needed for submission for check transactions

6.2.1 Sale

The following code is a sample of a check Sale transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:TeleCheckTxType>
         <v1:Type>sale</v1:Type>
      </v1:TeleCheckTxType>
      <v1:TeleCheckData>
         <v1:CheckNumber>111</CheckNumber>
         <v1:AccountType>pc</AccountType>
         <v1:AccountNumber>1234567890</AccountNumber>
         <v1:RoutingNumber>055001054</RoutingNumber>
         <v1:DrivingLicenseNumber>U12345678</DrivingLicenseNumber>
         <v1:DrivingLicenseState>CA</DrivingLicenseState>
      </v1:TeleCheckData>
      <v1:Payment>
         <v1:ChargeTotal>19.95</v1:ChargeTotal>
      </v1:Payment>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the Sale transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:TeleCheckTxType/	

FIELD	REQUIRED
v1:Type	Required
v1:TeleCheckData/	
v1:CheckNumber	Required
v1:AccountType	Required
v1:AccountNumber	Required
v1:RoutingNumber	Required
v1:DrivingLicenseNumber	Required
v1:DrivingLicenseState	Required
v1:Payment/	
v1:ChargeTotal	Required
v1:SubTotal	Optional
v1:VATTax	Optional
v1:Shipping	Optional
v1:TransactionDetails/	
v1:UserID	Optional
v1:InvoiceNumber	Optional
v1:OrderId	Optional
v1:Ip	Optional
v1:ReferenceNumber	Optional
v1:TDate	Optional
v1:Recurring	Optional
v1:TaxExempt	Optional
v1:TerminalType	Optional
v1:TransactionOrigin	Optional, default value if not provided
v1:PONumber	Optional
v1:Billing/	*To prevent the possibility of downgrading, some Billing data is required for all MOTO & ECI transactions!*
v1:CustomerID	Optional
v1:Name	MOTO & ECI: **Required** Retail: **Optional**
v1:Company	Optional
v1:Address1	MOTO & ECI: **Required** Retail: **Optional**
v1:Address2	Optional
v1:City	MOTO & ECI: **Required** Retail: **Optional**

FIELD	REQUIRED
v1:State	MOTO & ECI: **Required** Retail: **Optional**
v1:Zip	MOTO & ECI: **Required** Retail: **Optional**
v1:Country	MOTO & ECI: **Required** Retail: **Optional**
v1:Phone	Optional
v1:Fax	Optional
v1:Email	Optional: But is required to have receipts emailed to customer and administrator

6.2.2 Return

The following code is a sample of a Check Return transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:TeleCheckTxType>
         <v1:Type>return</v1:Type>
      </v1:TeleCheckTxType>
      <v1:Payment>
         <v1:ChargeTotal>19.95</v1:ChargeTotal>
      </v1:Payment>
      <v1:TransactionDetails>
         <v1:OrderId>
            62e3b5df-2911-4e89-8356-1e49302b1807
         </v1:OrderId>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required fields for the Return transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:TeleCheckTxType/	
v1:Type	Required
v1:Payment/	
v1:ChargeTotal	Required
v1:TransactionDetails/	
v1:OrderId	Required

6.2.3 Void

The following code is a sample of a Check Void transaction using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1: TeleCheckTxType>
         <v1:Type>void</v1:Type>
      </v1: TeleCheckTxType>
      <v1:Payment>
         <v1:ChargeTotal>19.95</v1:ChargeTotal>
      </v1:Payment>
      <v1:TransactionDetails>
         <v1:OrderId>
            62e3b5df-2911-4e89-8356-1e49302b1807
         </v1:OrderId>
      </v1:TransactionDetails>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required fields for the Void transaction. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:TeleCheckTxType/	
v1:Type	Required
v1:Payment/	
v1:ChargeTotal	Required
v1:TransactionDetails/	
v1:OrderId	Required
v1:TDate	Required

6.3 Calculating Shipping and Tax

Regardless of the transaction type, the basic XML document structure of a tax or shipping charge calculation is as follows:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
”http://secure.linkpt.net/fdggwsapi/schemas_us/v1”
 xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:Calculate...>
```

```
         ...
      </v1:Calculate...>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

See 8 XML Tag Reference on page 34 for details of all required and optional elements needed for tax or shipping charge calculations

6.3.1 Calculate Shipping

The following code is a sample of a shipping charge calculation using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <v1:Transaction>
      <v1:CalculateShipping>
         <v1:SubTotal>12.0</v1:SubTotal>
         <v1:Weight>1.2000000476837158</v1:Weight>
         <v1:ItemCount>1</v1:ItemCount>
         <v1:CarrierType>2</v1:CarrierType>
         <v1:ShipState>CA</v1:ShipState>
      </v1:CalculateShipping>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the shipping charge calculation. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CalculateShipping/	
v1:SubTotal	Required
v1:Weight	Required
v1:ItemCount	Required
v1:CarrierType	Required
v1:ShipState	Required

6.3.2 Calculate Tax

The following code is a sample of a tax calculation using the minimum required elements:

```
<fdggwsapi:FDGGWSApiOrderRequest
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
```

```
   <v1:Transaction>
      <v1:CalculateTax>
         <v1:SubTotal>12.0</v1:SubTotal>
         <v1:ShipState>CA</v1:ShipState>
         <v1:ShipZip>93065</v1:ShipZip>
      </v1:CalculateTax>
   </v1:Transaction>
</fdggwsapi:FDGGWSApiOrderRequest>
```

The following table lists the required and optional fields for the tax calculation. All paths are relative to fdggwsapi:FDGGWSApiOrderRequest/v1:Transaction.

FIELD	REQUIRED
v1:CalculateTax/	
v1:SubTotal	Required
v1:ShipState	Required
v1:ShipZip	Required

7 Additional Web Service Actions

In addition to credit card and check transactions, the First Data Global Gateway Web Service API supports actions for recurring payments and a system check to test if the system is online.

Web service actions are contained in the fdggwsapi:FDGGWSApiActionRequest element.

7.1 Recurring Payments

The Recurring Payment action allows you to install, modify or cancel recurring credit card and check payments. In addition, it allows you to schedule single payments for future dates.

7.1.1 Install Recurring Payment

You can install a recurring payment for credit card or check transactions. The transactions can begin on the current date. If you set the start date as the current date, the first transaction processes immediately. This feature can schedule a single transaction in the future. You cannot set a start date in the past.

The following example shows how to install a recurring credit card, **once a month for 12 months**, starting on December 31, 2011:

```
<fdggwsapi:FDGGWSApiActionRequest
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi"
 xmlns:a1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
   <a1:Action>
      <a1:RecurringPayment>
         <a1:RecurringPaymentInformation>
            <a1:RecurringStartDate>20111231</a1:RecurringStartDate>
            <a1:InstallmentCount>12</a1:InstallmentCount>
            <a1:InstallmentFrequency>1</a1:InstallmentFrequency>
            <a1:InstallmentPeriod>month</a1:InstallmentPeriod>
         </a1:RecurringPaymentInformation>
         <a1:TransactionDataType>
            <a1:CreditCardData>
               <v1:CardNumber>4012000033330026</v1:CardNumber>
               <v1:ExpMonth>12</v1:ExpMonth>
               <v1:ExpYear>12</v1:ExpYear>
            </a1:CreditCardData>
         </a1:TransactionDataType>
         <v1:Payment>
            <v1:ChargeTotal>10.00</v1:ChargeTotal>
            <v1:SubTotal>5.00</v1:SubTotal>
         </v1:Payment>
         <v1:Shipping>
            <v1:Address1>...</v1:Address1>
            <v1:Carrier>...</v1:Carrier>
            <v1:City>...</v1:City>
            <v1:Country>...</v1:Country>
            <v1:Items>...</v1:Items>
            <v1:State>...</v1:State>
            <v1:Total>...</v1:Total>
            <v1:Weight>...</v1:Weight>
         </v1:Shipping>
         <v1:Billing>
            <v1:Address1>...</v1:Address1>
            <v1:City>...</v1:City>
            <v1:Country>...</v1:Country>
            <v1:State>...</v1:State>
            <v1:Zip>...</v1:Zip>
         </v1:Billing>
         <v1:TransactionDetails>
            <v1:InvoiceNumber>...</v1:InvoiceNumber>
            <v1:TransactionOrigin>...</v1:TransactionOrigin>
            <v1:UserID>...</v1:UserID>
         </v1:TransactionDetails>
         <a1:Function>install</a1:Function>
      </a1:RecurringPayment>
   </a1:Action>
</fdggwsapi:FDGGWSApiActionRequest>
```

The following example shows how to install a **single** check payment on December 31, 2011:

```
<fdggwsapi:FDGGWSApiActionRequest
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi"
 xmlns:a1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
   <a1:Action>
      <a1:RecurringPayment>
         <a1:RecurringPaymentInformation>
            <a1:RecurringStartDate>20111231</a1:RecurringStartDate>
            <a1:InstallmentCount>1</a1:InstallmentCount>
            <a1:InstallmentFrequency>1</a1:InstallmentFrequency>
            <a1:InstallmentPeriod>month</a1:InstallmentPeriod>
         </a1:RecurringPaymentInformation>
         <a1:TransactionDataType>
            <a1:TeleCheckData>
               <v1:CheckNumber>111</CheckNumber>
               <v1:AccountType>pc</AccountType>
               <v1:AccountNumber>1234567890</AccountNumber>
               <v1:RoutingNumber>055001054</RoutingNumber>
               <v1:DrivingLicenseNumber>U12345678</DrivingLicenseNumber>
               <v1:DrivingLicenseState>CA</DrivingLicenseState>
            </a1:TeleCheckData>
         </a1:TransactionDataType>
         <v1:Payment>
            <v1:ChargeTotal>1</ns3:ChargeTotal>
         </v1:Payment>
         <v1:Shipping>
            <v1:Address1>...</v1:Address1>
            <v1:Carrier>...</v1:Carrier>
            <v1:City>...</v1:City>
            <v1:Country>...</v1:Country>
            <v1:Items>...</v1:Items>
            <v1:State>...</v1:State>
            <v1:Total>...</v1:Total>
            <v1:Weight>...</v1:Weight>
         </v1:Shipping>
         <v1:Billing>
            <v1:Address1>...</v1:Address1>
            <v1:City>...</v1:City>
            <v1:Country>...</v1:Country>
            <v1:State>...</v1:State>
            <v1:Zip>...</v1:Zip>
         </v1:Billing>
         <v1:TransactionDetails>
            <v1:InvoiceNumber>...</v1:InvoiceNumber>
            <v1:TransactionOrigin>...</v1:TransactionOrigin>
            <v1:UserID>...</v1:UserID>
         </v1:TransactionDetails>
         <a1:Function>install</a1:Function>
      </a1:RecurringPayment>
   </a1:Action>
</fdggwsapi:FDGGWSApiActionRequest>
```

The following table describes the optional or required fields for installing a recurring transaction. Also, you must submit the data required for a credit card or check sale transaction. For credit card, see 6.1.1 Sale on page 11; for check, see 6.2.1 Sale on page 23 for details. (v1:Billing and v1:Shipping are optional; however, transactions that do not include these elements may downgrade.) The transaction data must be submitted as a child of a1:RecurringPayment. All paths are relative to fdggwsapi:FDGGWSApiActionRequest / a1:Action/ a1:RecurringPayment.

FIELD	REQUIRED
a1:Function	Required
a1:RecurringPaymentInformation	
a1:RecurringStartDate	Required
a1:InstallmentCount	Required
a1:InstallmentFrequency	Required
a1:InstallmentPeriod	Required
a1:MaximumFailures	Required

7.1.2 Modify Recurring Payment

The following example shows how to modify an existing recurring payment using the Order ID of the original instalment:

```
<fdggwsapi:FDGGWSApiActionRequest
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi"
 xmlns:a1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
```

```
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">

   <a1:Action>
      <a1:RecurringPayment>
         <a1:Function>modify</a1:Function>
         <v1:Billing>...</v1:Billing>
         <v1:Shipping>...</v1:Shipping>
         <a1:OrderId>
            e368a525-173f-4f56-9ae2-beb4023a6993
         </a1:OrderId>
         <a1:RecurringPaymentInformation>
            <a1:InstallmentCount>999</a1:InstallmentCount>
         </a1:RecurringPaymentInformation>
      </a1:RecurringPayment>
   </a1:Action>
</fdggwsapi:FDGGWSApiActionRequest>
```

You can modify both the recurring payment information and the transaction details. You only need to include the fields that need to be modified. Some dependent fields may be required, for example, you must update the expiration date if you update the card number.

The following table describes the optional or required fields for modifying a recurring transaction. For credit card transaction fields, see 6.1.1 Sale on page 11; for check, see 6.2.1 Sale on page 23 for details. (v1:Billing and v1:Shipping are optional; however, transactions that do not include these elements may downgrade.) The transaction data must be submitted as a child of a1:RecurringPayment. All paths are relative to fdggwsapi:FDGGWSApiActionRequest / a1:Action/ a1:RecurringPayment.

FIELD	**REQUIRED**
a1:Function	Required
a1:OrderId	Required
a1:RecurringPaymentInformation	
a1:RecurringStartDate	Required
a1:InstallmentCount	Required
a1:InstallmentFrequency	Required
a1:InstallmentPeriod	Required
a1:ChargeTotal	Required
a1:MaximumFailures	Required

7.1.3 Cancel Recurring Payment

The following example shows how to cancel an existing recurring payment using the Order ID of the original instalment:

```
<fdggwsapi:FDGGWSApiActionRequest
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi"
 xmlns:a1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
   <a1:Action>
      <a1:RecurringPayment>
         <a1:Function>cancel</a1:Function>
         <a1:OrderId>
            e368a525-173f-4f56-9ae2-beb4023a6993
         </a1:OrderId>
      </a1:RecurringPayment>
   </a1:Action>
</fdggwsapi:FDGGWSApiActionRequest>
```

The following table describes the optional or required fields for cancelling a recurring transaction. All paths are relative to fdggwsapi:FDGGWSApiActionRequest / a1:Action/ a1:RecurringPayment.

FIELD	REQUIRED
a1:Function	Required
a1:OrderId	Required

7.2 SystemCheck

The SystemCheck action allows you to check that the First Data Global Gateway Web Service API is currently available. Most integrators do not need to perform this check more frequently than once every 15 minutes; you should not perform this check more frequently than once every 5 minutes.

The following code is a sample of the SystemCheck call.

```
<fdggwsapi:FDGGWSApiActionRequest
 xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi"
 xmlns:a1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
 xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
   <a1:Action>
         <a1:SystemCheck/>
   </a1:Action>
</fdggwsapi:FDGGWSApiActionRequest>
```

8 XML Tag Reference

This chapter provides a reference for the XML elements used in sending transactions and actions to the First Data Global Gateway Web Service API.

8.1 CreditCardTxType

The following table describes the sub-elements of the v1:CreditCardTxType element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:Type	xs:string	The transaction type. Valid values are: sale ForceTicket preAuth postAuth Return Credit Void

8.2 CreditCardData

The following table describes the sub-elements of the v1:CreditCardData element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:CardNumber	xs:string	The customer's credit card number. The string must contains only digits; passing the number in the format *xxxx-xxxx-xxxx-xxxx* will result in an error.
v1:ExpMonth	xs:string	The expiration month of the customer's credit card. The content of this element must always contains two digits, for example, use 07 for July.
v1:ExpYear	xs:string	The expiration year of the customer's credit card. The content of this element must always contains two digits, for example, use 09 for 2009.
v1:CardCodeValue	xs:string	The three or four digit card security code (CSC), card verification value (CVV) or code (CVC), which is typically printed on the back of the credit card. For information about using CSC, contact support.

ELEMENT	DATA TYPE	DESCRIPTION
v1:CardCodeIndicator	xs:string	Indicates why the card code value was not provided. Valid values are: NOT_PROVIDED PROVIDED ILLEGIBLE NO_IMPRINT NOT_PRESENT
v1:TrackData	xs:string	The track data of a card when using a card reader instead of keying in card data. Use this value instead CardNumber, ExpMonth and ExpYear when swiping the card. This field needs to contain either track 1 data, track 2 data, or concatenated track 1 and 2 data. Concatenated track data must include the track and field separators as they are stored on the card. Track 1 and track 2 data are in the format: %<track 1?**;**<track 2>?

8.3 CreditCard3DSecure

The following table describes the sub-elements of the v1:CreditCard3DSecure element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:PayerSecurityLevel	xs:string	The two-digit PayerSecurityLevel returned by your Merchant Plug-in.
v1:AuthenticationValue	xs:string	The AuthenticationValue (MasterCard: AAV or VISA: CAAV) returned by your Merchant Plug-in.
v1:XID	xs:string	The XID returned by your Merchant Plug-in.

Note: These are values you receive from your Merchant Plug-in for 3D Secure or a 3D Secure provider. The 3D Secure functionality of First Data Global Gateway Connect cannot be used for transactions via the Web Service API.

8.4 Payment

The following table describes the sub-elements of the v1:Payment element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:ChargeTotal	xs:double	The total transaction amount, including tax, VAT, and shipping amounts. The number of positions after the decimal point must not exceed 2. 3.123 is invalid. 3.12, 3.1, and 3 are valid.
v1:SubTotal	xs:double	The sub total amount of the transaction, not including tax, VAT, or shipping amounts.
V1:Tax	xs:double	Tax amount of the transaction
v1:VATTax	xs:double	VAT tax amount
v1:Shipping	xs:double	Shipping amount of the transaction

8.5 TransactionDetails

The following table describes the sub-elements of the v1:TransactionDetails element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:UserID	xs:string	User ID of the user who performed the transaction. This value is used for reporting.
v1:InvoiceNumber	xs:string	Invoice number assigned by the merchant.
v1:OrderId	xs:string	Order ID This must be unique for the Store ID. If no Order ID is transmitted, the Web Service API assigns a value. The Order ID generated by Web Service can have a maximum of 100 digits. The Order ID field should not contain the following characters: & % /.
v1:Ip	xs:string	Customer’s IP address which can be used by the Web Service API for fraud detection by IP address. Must be in the format *xxx.xxx.xxx.xxx*, for example 128.0.10.2 is a valid IP.

ELEMENT	DATA TYPE	DESCRIPTION
v1:ReferenceNumber	xs:string	The six digit reference number received as the result of a successful external authorization (for example, by phone). This value is required for mapping a ForceTicket transaction to a previous authorization.
v1:TDate	xs:string	The TDate of the Sale, PostAuth, ForceTicket, Return, or Credit transaction referred to by a Void transaction. The TDate value is returned in the response to a successful transaction. When performing a Void transaction, the the TDate and OrderId of the original transaction is required.
v1:Recurring	xs:string	Indicates if the transaction is a recurring transaction. Valid values are: Yes No
v1:TaxExempt	xs:string	Indicates if the transaction is exempt from tax. Valid values are: Yes No
v1:TerminalType	xs:string	The type of the terminal performing the transaction, up to 32 characters. Valid values are: Standalone – point-of-sale credit card terminal POS – electronic cash register or integrated POS system Unattended – self-service station Unspecified – e-commerce, general, CRT, or other applications
v1:TransactionOrigin	xs:string	The source of the transaction. Valid values are: ECI - email or Internet MOTO - mail order / telephone order RETAIL - face to face
v1:PONumber	xs:string	The purchase order number of the transaction, if applicable.

8.6 Billing

The following table describes the sub-elements of the v1:Billing element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:CustomerID	xs:string	Merchant’s ID for the customer.
v1:Name	xs:string	Customer’s Name - If provided, it will appear on your transaction reports.
v1:Company	xs:string	Customer’s company. If provided, it will appear on your transaction reports.
v1:Address1	xs:string	The first line of the customer’s address. If provided, it will appear on your transaction reports.
v1:Address2	xs:string	The second line of the customer’s address. If provided, it will appear on your transaction reports.
v1:City	xs:string	Customer’s city. If provided, it will appear on your transaction reports.
v1:State	xs:string	Customer’s state - If provided, it will appear on your transaction reports.
v1:Zip	xs:string	Customer’s ZIP code - If provided, it will appear on your transaction reports.
v1:Country	xs:string	Customer’s country - If provided, it will appear on your transaction reports.
v1:Phone	xs:string	Customer’s phone number - If provided, it will appear on your transaction reports.
v1:Fax	xs:string	Customer’s fax number - If provided, it will appear on your transaction reports.
v1:Email	xs:string	Customer’s email address - If provided, it will appear on your transaction reports.

8.7 Shipping

The following table describes the sub-elements of the v1:Shipping element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:Type	xs:string	Shipping Method
v1:Name	xs:string	Recipient’s name - If provided, it will appear on your transaction reports.

ELEMENT	DATA TYPE	DESCRIPTION
v1:Address1	xs:string	The first line of the shipping address. If provided, it will appear on your transaction reports.
v1:Address2	xs:string	The second line of the shipping address. If provided, it will appear on your transaction reports.
v1:City	xs:string	Recipient's city - If provided, it will appear on your transaction reports.
v1:State	xs:string	Recipient's state - If provided, it will appear on your transaction reports.
v1:Zip	xs:string	Recipient's ZIP Code - If provided, it will appear on your transaction reports.
v1:Country	xs:string	Recipient's country - If provided, it will appear on your transaction reports.
v1:Carrier	xs:integer	Integer code defined by the merchant identifying the carrier type.
v1:Total	xs:double	The transaction amount prior to calculating shipping. The number of positions after the decimal point must not exceed 2. 3.123 is invalid. 3.12, 3.1, and 3 are valid.
v1:Weight	xs:double	The weight of the item shipped, in pounds or kilograms as determined by the merchant.

8.8 TeleCheckTxType

The following table describes the sub-elements of the v1:TeleCheckTxType element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:Type	xs:string	Valid transaction type values are: sale void return

8.9 TeleCheckData

The following table describes the sub-elements of the v1:TeleCheckData element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:CheckNumber	xs:string	Customer's check number
v1:AccountType	xs:string	Valid type of account values are: PC – Primary checking PS – Primary savings BC – Backup checking BS – Backup savings
v1:AccountNumber	xs:string	Checking Account Number
v1:RoutingNumber	xs:string	Customer's Bank Routing Number
v1:DrivingLicenseNumber	xs:string	Customer's Driver's License Number
v1:DrivingLicenseState	xs:string	The two-digit abbreviation for the state that issues the customer's driver's license.

8.10 CalculateShipping

The following table describes the sub-elements of the v1:CalculateShipping element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:SubTotal	xs:double	Transaction amount prior to calculating shipping. The number of positions after the decimal point must not exceed 2. 3.123 is invalid. 3.12, 3.1, and 3 are valid.
v1:Weight	xs:double	The weight of the item being shipped, in pounds or kilograms as determined by the merchant.
v1:ItemCount	xs:integer	Number of items being shipped.
v1:CarrierType	xs:integer	Integer code defined by the merchant identifying the carrier type
v1:ShipState	v1:Zip	Two-digit state abbreviation for the shipping destination

8.11 CalculateTax

The following table describes the sub-elements of the v1:CalculateTax element:

ELEMENT	DATA TYPE	DESCRIPTION
v1:SubTotal	xs:double	Transaction amount prior to calculating tax. The number of positions after the decimal point must not exceed 2. 3.123 is invalid. 3.12, 3.1, and 3 are valid.

ELEMENT	DATA TYPE	DESCRIPTION
v1:ShipState	xs:string	Two-digit state abbreviation for the shipping destination
v1:ShipZip	v1:Zip	ZIP code of the shipping destination.

8.12 RecurringPayment

The following table describes the sub-elements of the a1:RecurringPayment element:

ELEMENT	DATA TYPE	DESCRIPTION
a1:Function	xs:string	The type of recurring payment transaction. Valid values are: install modify cancel
a1:OrderId	xs:string	Order ID of the recurring payment being modified or cancelled
a1:RecurringPaymentInformation	Complex	Contains the elements defining the recurring payment
a1:RecurringStartDate	xs:string	Start Date of the recurring payment transaction in YYYYMMDD format. This value cannot be in the past.
a1:InstallmentCount	xs:string	Number of instalments of the recurring payment
a1:InstallmentFrequency	xs:string	Frequency of the instalment. Combines with the InstallmentPeriod to determine when the instalments occur. For example, use 2 for InstallmentFrequency and week for InstallmentPeriod for bi-weekly payments. Use 1 and month for monthly.
a1:InstallmentPeriod	xs:string	The period of the installment. Combines with the InstallmentFrequency to determine when the instalments occur. Valid values are: day week month year

9 Building a SOAP Request Message

The next step after building your transaction in XML is to build the SOAP envelope that wraps the transaction.

The format for a SOAP envelope wrapping an operation sent to the First Data Global Gateway Web Service API is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <!-- Transaction or action XML -->
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The SOAP message contains a SOAP envelope with a header and message body. The Web Service API does not require any headers for the SOAP message. The body contains the transaction or action XML as defined in the previous sections. There are no further requirements for mapping the type of transaction or action in the SOAP envelope. The Web Service API maps the operation based on the content of the body.

For example, the complete SOAP message for a credit sale transaction looks like the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <fdggwsapi:FDGGWSApiOrderRequest xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
<v1:Transaction xmlns:v1=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
            <v1:CreditCardTxType>
               <v1:Type>sale</v1:Type>
            </v1:CreditCardTxType>
            <v1:CreditCardData>
               <v1:CardNumber>4012000033330026</v1:CardNumber>
               <v1:ExpMonth>12</v1:ExpMonth>
               <v1:ExpYear>12</v1:ExpYear>
            </v1:CreditCardData>
            <v1:Payment>
               <v1:ChargeTotal>120</v1:ChargeTotal>
            </v1:Payment>
         </v1:Transaction>
      </fdggwsapi:FDGGWSApiOrderRequest>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

10 Reading the SOAP Response Message

The First Data Global Gateway Web Service API returns a SOAP message in response to your transaction or action request.

- If your request is successful, the Web Service API returns an fdggwsapi:FDGGWSApiOrderResponse or fdggwsapi:FDGGWSApiActionResponse in the body of the SOAP message.
- If your request is unsuccessful, the Web Service API returns a SOAP fault message.

Both SOAP message types are contained in the body of the HTTP response message.

10.1 SOAP Response Message

10.1.1 Transaction

The First Data Global Gateway Web Service API returns a SOAP response message when your transaction is successful and the Web Service API is able to return an approved or declined response. The response message has the following format:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
      xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <fdggwsapi:FDGGWSApiOrderResponse xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <!-- transaction result -->
      </fdggwsapi:FDGGWSApiOrderResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The SOAP response contains no headers. The SOAP body contains the actual transaction result contained in the fdggwsapi:FDGGWSApiOrderResponse element. The sub-elements are defined in Analyzing the Transaction Response on page 48. The following is an example of the SOAP message returned for an approved Sale transaction:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
      xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <fdggwsapi:FDGGWSApiOrderResponse xmlns:fdggwsapi=
“http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:CommercialServiceProvider>
            CSI
         </fdggwsapi:CommercialServiceProvider>
         <fdggwsapi:TransactionTime>
            Tue Nov 03 09:35:05 2009
         </fdggwsapi:TransactionTime>
         <fdggwsapi:TransactionID>
```

```
            2000486340
         </fdggwsapi:TransactionID>
         <fdggwsapi:ProcessorReferenceNumber>
            OK289C
         </fdggwsapi:ProcessorReferenceNumber>
         <fdggwsapi:ProcessorResponseMessage>
            APPROVED
         </fdggwsapi:ProcessorResponseMessage>
         <fdggwsapi:ErrorMessage />
         <fdggwsapi:OrderId>
            A-eb0406bc-7eb8-419b-aa1a-7a4394e2c83e
         </fdggwsapi:OrderId>
         <fdggwsapi:ApprovalCode>
            OK289C0003529354:NNN:
         </fdggwsapi:ApprovalCode>
         <fdggwsapi:AVSResponse>PPX</fdggwsapi:AVSResponse>
         <fdggwsapi:TDate>1256168682</fdggwsapi:TDate>
         <fdggwsapi:TransactionResult>
            APPROVED
         </fdggwsapi:TransactionResult>
         <fdggwsapi:ProcessorResponseCode>
            A
         </fdggwsapi:ProcessorResponseCode>
         <fdggwsapi:ProcessorApprovalCode>
            440368
         </fdggwsapi:ProcessorApprovalCode>
         <fdggwsapi:CalculatedTax/>
         <fdggwsapi:CalculatedShipping/>
         <fdggwsapi:TransactionScore/>
         <fdggwsapi:AuthenticationResponseCode>
            XXX
         </fdggwsapi:AuthenticationResponseCode>
      </fdggwsapi:FDGGWSApiOrderResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

10.1.2 Action

If you send an action, the Web Service API returns a fdggwsapi:FDGGWSApiActionResponse.

The response for a successful installment, modification or cancellation or for a system check contains the value true for the parameter <fdggwsapi:Success>. The following is an example of the message returned for a successful action:

```
<fdggwsapi:FDGGWSApiActionResponse xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:Success>
      true
   </fdggwsapi:Success>
   <fdggwsapi:CommercialServiceProvider/>
   <fdggwsapi:TransactionTime>
      Tue Nov 03 10:00:58 2009
   </fdggwsapi:TransactionTime>
   <fdggwsapi:TransactionID/>
   <fdggwsapi:ProcessorReferenceNumber/>
   <fdggwsapi:ProcessorResponseMessage/>
   <fdggwsapi:ErrorMessage/>
   <fdggwsapi:OrderId>
      A-3384d07e-699a-48d3-a44a-61ccefde0524
   </fdggwsapi:OrderId>
   <fdggwsapi:ApprovalCode/>
   <fdggwsapi:AVSResponse/>
   <fdggwsapi:TDate/>
   <fdggwsapi:TransactionResult>
      APPROVED
   </fdggwsapi:TransactionResult>
   <fdggwsapi:ProcessorResponseCode/>
   <fdggwsapi:ProcessorApprovalCode/>
   <fdggwsapi:TransactionScore/>
</fdggwsapi:FDGGWSApiActionResponse>
```

10.2 SOAP Fault Message

The First Data Global Gateway Web Service API returns a SOAP fault message when your request is unsuccessful. The fault message has the following format:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
      xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <SOAP-ENV:Fault>
         <faultcode>SOAP-ENV:Client</faultcode>
         <faultstring xml:lang="en-US">
            <!-- fault message -->
         </faultstring>
         <detail>
            <!-- fault message -->
         </detail>
      </SOAP-ENV:Fault>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The SOAP fault message may contain the following elements:

ELEMENT	DATA TYPE	DESCRIPTION
faultcode	xs:string	Defines where the error occurred. Valid values are: SOAP-ENV:Server SOAP-ENV:Client
faultstring	xs:string	Defines the fault type
detail	xs:string	Additional data depending on the fault type

The possible return values by faultcode and faultstring are defined in the following sections.

10.2.1.1 SOAP-ENV:Server

The SOAP-ENV:Server faultcode indicates that the Web Service API has failed to process your transaction due to an internal system error. If you receive this as response, contact support to resolve the problem.

The SOAP-ENV:Server message has the following format:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
      xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <SOAP-ENV:Fault>
         <faultcode>SOAP-ENV:Server</faultcode>
         <faultstring xml:lang="en-US">
            unexpected error
         </faultstring>
      </SOAP-ENV:Fault>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The SOAP SOAP-ENV:Envelope/SOAP-ENV:Body/SOAP-ENV:Fault contains the following elements:

ELEMENT	DATA TYPE	DESCRIPTION
faultcode	xs:string	This value is always: SOAP-ENV:Server
faultstring	xs:string	This value is always: unexpected error

10.2.2 SOAP-ENV:Client

The SOAP-ENV:Client response includes a MerchantException faultcode indicating that the Web Service API has found an error with the transaction you submitted. The MerchantException indicates that the XML or authorization data provided by the merchant is faulty. This may have one of the following reasons:

- Your store is registered as being closed. If you receive this message even though you believe your store should be registered as open, contact support.
- The store ID / user ID combination you have provided for HTTPS authorization is syntactically incorrect.
- The XML does not match the schema.

The MerchantException message has the following format:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
      xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Header />
   <SOAP-ENV:Body>
      <SOAP-ENV:Fault>
         <faultcode>SOAP-ENV:Client</faultcode>
         <faultstring xml:lang="en-US">
            MerchantException
         </faultstring>
         <detail>
            <!-- detailed explanation. -->
         </detail>
      </SOAP-ENV:Fault>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The SOAP SOAP-ENV:Envelope/SOAP-ENV:Body/SOAP-ENV:Fault contains the following elements:

ELEMENT	DATA TYPE	DESCRIPTION
faultcode	xs:string	This value is always: SOAP-ENV:Client
faultstring	xs:string	This value is always: MerchantException
detail/reason	xs:string	The Web Service API returns a minimum of one reason.

See 20.1 Merchant Exceptions on page 84 for detailed descriptions of errors.

11 Analyzing the Transaction Response

11.1 Approval Response

If your transaction is approved, the First Data Global Gateway Web Service API returns a SOAP response message. The body of the message contains an fdggwsapi:FDGGWSApiOrderResponse or fdggwsapi:FDGGWSApiActionResponse element.

The following table describes the sub-elements of the fdggwsapi:FDGGWSApiOrderResponse element. The Web Service API always returns all of the elements listed below; however, some of the elements may be empty.

ELEMENT	DATA TYPE	DESCRIPTION
fdggwsapi: CommercialServiceProvider	xs:string	Indicates your provider
fdggwsapi:TransactionTime	xs:string	The time stamp set by the First Data Global Gateway Web Service API before returning the transaction approval.
fdggwsapi: ProcessorReferenceNumber	xs:string	The reference number returned by the processor. This value may be empty. You do not need to provide this code in any further transaction; however, you may need this value if you have to contact support regarding a transaction.
fdggwsapi: ProcessorResponseMessage	xs:string	In case of an approval, this element contains the following string: APPROVED
fdggwsapi: ProcessorResponseCode	xs:string	Response Code from the credit card processor
fdggwsapi: ProcessorApprovalCode	xs:string	Approval Code from the credit card processor
fdggwsapi:ErrorMessage	xs:string	Error Message. This element is empty in case of an approval.

fdggwsapi:OrderId	xs:string	This element contains the order ID. For Sale, PreAuth, ForceTicket, and Credit transactions, a new order ID is returned. For PostAuth, Return, and Void transactions, supply this number in the v1:OrderId element for identifying the transaction to which you refer. The fdggwsapi:OrderId element of a response to a PostAuth, Return, or Void transaction simply returns the order ID of the original transaction. The OrderId generated by Web Service can have a maximum of 100 digits.
fdggwsapi:ApprovalCode	xs:string	The approval code returned by the processor. You do not need to provide this code in any further transaction; however, you may need this value if you have to contact support regarding a transaction.
fdggwsapi:AVSResponse	xs:string	Address Verification System (AVS) response
fdggwsapi:TDate	xs:string	The TDate required for Void transactions. Only returned for Sale and PostAuth.
fdggwsapi:TransactionResult	xs:string	The transaction result. Always APPROVED in case of an approval.
fdggwsapi:TransactionID	xs:string	The Transaction ID used for this transaction.
fdggwsapi:CalculatedTax	xs:string	Calculated tax for the transaction
fdggwsapi:CalculatedShipping	xs:string	Calculated shipping for the transaction.
fdggwsapi:TransactionScore	xs:string	A numerical value indicating the risk of fraud on the transaction. Higher values indicate a greater risk of fraud. The actual range used for this field has not yet been defined. This field is only returns a value for merchants who use the optional, add-on Fraud Service.

fdggwsapi: AuthenticationResponseCode	xs:string	Response code returned by processor for 3D Secure transactions. See the 3DS integration guide for values and definitions. This field only returns a value for 3D Secure transactions for merchants who use this optional, add-on service.

11.2 Failure Response

If your transaction is declined or your action is rejected, the First Data Global Gateway Web Service API returns an fdggwsapi:FDGGWSApiOrderResponse or fdggwsapi:FDGGWSApiActionResponse element. The elements returned are the same as in the case of a successful transaction request. Only the values differ.

The following table describes the sub-elements of the fdggwsapi:FDGGWSApiOrderResponse element. The Web Service API always returns all of the elements listed below; however, some of the elements may be empty.

ELEMENT	DATA TYPE	DESCRIPTION
fdggwsapi: CommercialServiceProvider	xs:string	Indicates your provider.
fdggwsapi:TransactionTime	xs:string	The time stamp set by the First Data Global Gateway Web Service API before returning the transaction approval.
fdggwsapi: ProcessorReferenceNumber	xs:string	Reference Number returned by the processor. This value may be empty. You do not need to provide this code in any further transaction; however, you may need this value if you have to contact support regarding a transaction.
fdggwsapi: ProcessorResponseMessage	xs:string	Error Message returned by the processor. This value might be empty.
fdggwsapi: ProcessorResponseCode	xs:string	Response Code from the credit card processor
fdggwsapi: ProcessorApprovalCode	xs:string	Approval Code from the credit card processor

ELEMENT	DATA TYPE	DESCRIPTION
fdggwsapi:ErrorMessage	xs:string	Error message returned by the First Data Global Gateway Web Service API. Returned in the format *SGS-XXXXXX: Message*, where *XXXXXX* is a six-digit error code and *Message* describing the error. This description might be different from the processor response message. For instance, in the above example the follow error message is returned: SGS-002304: Credit card is expired You may need this value if you have to contact support regarding a transaction.
fdggwsapi:OrderId	xs:string	The Order ID. In contrast to an approval, this Order ID is never required for any further transaction, but you may need this value if you have to contact support regarding a transaction. The Order ID generated by Web Service can have a maximum of 100 digits.
fdggwsapi:ApprovalCode	xs:string	This element is empty in case of a transaction failure.
fdggwsapi:AVSResponse	xs:string	Returns the Address Verification System (AVS) response
fdggwsapi:TDate	xs:string	The TDate. Similar to the Order ID, the TDate is never required for any further transaction, but you may need this value if you have to contact support regarding a transaction.
fdggwsapi:TransactionResult	xs:string	Valid values are: DECLINED – the processor rejected the transaction, for example, for insufficient funds FRAUD – fraud detected in the transaction FAILED – internal error at the Gateway
fdggwsapi:TransactionID	xs:string	Transaction ID used for this transaction
fdggwsapi:CalculatedTax	xs:string	Calculated tax for the transaction
fdggwsapi:CalculatedShipping	xs:string	Calculated shipping for the transaction.

ELEMENT	DATA TYPE	DESCRIPTION
fdggwsapi:TransactionScore	xs:string	A numerical value indicating the risk of fraud on the transaction. Higher values indicate a greater risk of fraud. The actual range used for this field has not yet been defined. This field is only returns a value for merchants who use the optional, add-on Fraud Service.
fdggwsapi: AuthenticationResponseCode	xs:string	This element is empty in case of a transaction failure.

12 Building an HTTPS POST Request

Generally, the tools you use to communicate with the First Data Global Gateway Web Service API support the building of HTTPS POST requests. This document describes the process for doing this using the tools tested by First Data for accessing the Web Service API. If you are using another tool, consult the documentation

The following table describes the values you need to build an HTTPS POST request:

PARAMETER	VALUE	DESCRIPTION
URL	`https://ws.firstdataglobalgateway.com/fdggwsapi/services`	This is the full URL of the First Data Global Gateway Web Service API. Depending on the functionality you use for building HTTP requests, you might have to split this URL into host and service and provide this information in the appropriate HTTP request headers.
Content-Type	`text/xml`	Indicates that the SOAP message is encoded in XML and passed as content in the HTTP POST request body.
Authorization	Type: `Basic` Username: `WS<store ID>._.1` Password: *Password*	Identifies your store at the First Data Global Gateway Web Service API. The Authorization parameter takes the following format: Authorization: Basic <authstring> where <authstring> is the base-64 encoded result of the string <userid>:<password>. For example, if your user name is WS`101._.1`, and your password `myPW`, the complete HTTP

		authorization header would be: `Authorization: Basic V1MxMDEuXy4wMDc6bXlQVw==` The authorization string is the base 64 encoding result of the string `WS101._.1:myPW`.
HTTP Body	SOAP request XML	The HTTP POST request body contains SOAP request message.

12.1 PHP

You can use either the cURL library or the cURL command-line tool to communicate with the Web Service API using PHP. In recent PHP versions, the cURL library is included as an extension which needs to be activated. While this is a straightforward task on Windows servers, it may require you to compile PHP on Unix/Linux machines. In this case, it may be easier to call the cURL command line tool from your PHP script.

12.1.1 Using the cURL PHP Extension

In PHP 5.2.9-2, activating the cURL extension simply requires you to uncomment the following line in your php.ini file:

```
;extension=php_curl.dll
```

Other PHP versions might require other actions in order to enable cURL. See your PHP documentation for more information. After activating cURL, use the following code to set up an HTTPS POST request:

```
<?php
// storing the SOAP message in a variable – note that the plain XML code
// is passed here as string for reasons of simplicity, however, it is
// certainly a good practice to build the XML e.g. with DOM – furthermore,
// when using special characters, you should make sure that the XML string
// gets UTF-8 encoded (which is not done here):
$body = "<SOAP-ENV:Envelope ...>...</SOAP-ENV:Envelope>";
// initializing cURL with the FDGGWS API URL:
$ch =
curl_init("https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.
wsdl");
// setting the request type to POST:
curl_setopt($ch, CURLOPT_POST, 1);
// setting the content type:
curl_setopt($ch, CURLOPT_HTTPHEADER, array("Content-Type: text/xml"));
// setting the authorization method to BASIC:
```

```
curl_setopt($ch, CURLOPT_HTTPAUTH, CURLAUTH_BASIC);
// supplying your credentials:
curl_setopt($ch, CURLOPT_USERPWD, "WS101._.1:myPW");
// filling the request body with your SOAP message:
curl_setopt($ch, CURLOPT_POSTFIELDS, $body);
...
?>
```

The next chapter discusses setting the security options, which are necessary for enabling SSL communication.

12.1.2 Using the cURL Command Line Tool

If you choose to use the cURL command line tool, you do not need to perform any setup. The following script shows you how to call the command line tool from your PHP script and set the HTTPS POST request:

```
<?php
// storing the SOAP message in a variable – note that you have to escape
// " and \n, since the latter makes the command line tool fail,
// furthermore note that the plain XML code is passed here as string
// for reasons of simplicity, however, it is certainly a good practice
// to build the XML e.g. with DOM – finally, when using special
// characters, you should make sure that the XML string gets UTF-8
// encoded  (which is not done here):
$body = "<SOAP-ENV:Envelope ...>...</SOAP-ENV:Envelope>";
// setting the path to the cURL command line tool – adapt this path to
// the path where you have saved the cURL binaries:
$path = "C:\curl\curl.exe";
// setting the FDGGWS API URL:
$apiUrl =
("https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl");
// setting the content type:
$contentType = " --header \"Content-Type: text/xml\"";
// setting the authorization method to BASIC and supplying
// your credentials:
$user = " --basic --user WS101._.1:myPW";
// setting the request body with your SOAP message – this automatically
// marks the request as POST:
$data = " --data \"".$body."\"".
...
?>
```

12.2 ASP

WinHTTP 5.1 is included with Windows Server 2003 and Windows XP SP2. Use the following code to set up an HTTPS POST request:

```
<%@ language="javascript"%>
<html>...<body>
<%
// storing the SOAP message in a variable – note that the plain XML code
// is passed here as string for reasons of simplicity, however, it is
// certainly a good practice to build the XML e.g. with DOM –
// furthermore, when using special characters, you should make sure that
// the XML string gets UTF-8 encoded (which is not done here):
var body = "<SOAP-ENV:Envelope ...>...</SOAP-ENV:Envelope>";
// constructing the request object:
var request = Server.createObject("WinHttp.WinHttpRequest.5.1");
// initializing the request object with the HTTP method POST
// and the FDGGWS API URL:
request.open("POST",
"https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl");
// setting the content type:
request.setRequestHeader("Content-Type", "text/xml");
// setting the credentials:
request.setCredentials("WS111901._.1 ", "aTenvipB ", 0);
...
%>
</body></html>
```

The sample code fragment is written in JavaScript; using VB Script instead does not fundamentally change the code.

13 Establishing an SSL connection

You must establish a secure communication channel to send the HTTP request built in the previous chapter. This ensures that the data sent between your client application and the First Data Global Gateway Web Service API is encrypted and that both parties can be sure they are communicating with each other and no one else.

The Web Service API requires an SSL connection with client and server exchanging certificates to guarantee this level of security. The client and server certificates each uniquely identify the party. This process works as follows:

1. The client begins the process by sending its client certificate to the server.
2. The server receives the client certificate and verifies it against the client certificate it has stored for this client.
3. If valid, the server responds by sending its server certificate.
4. The client receives the server certificate and verifies it against the trusted server certificate.
5. If valid, both parties establish the SSL channel, as they can be sure that they are communicating with each other and no one else. All data exchanged between both parties is encrypted.

Following this process, your application has to do two things: First, start the communication by sending its client certificate. Second, verify the received server certificate. How this is accomplished differs from platform to platform. However, in order to illustrate the basic concepts, the PHP and ASP scripts started in the previous chapter will be continued by extending them with the relevant statements necessary for setting up an SSL connection.

13.1 PHP

Again, you can choose to use either the cURL extension or the cURL command line tool to integrate with the Web Service API using PHP. cURL requires the client certificate to be passed as a PEM file, the client certificate private key passed as a separate file, and the client certificate private key password to be supplied. While the private key is not technically necessary for establishing an SSL connection, it is required for doing so with cURL and PHP.

13.1.1 Using the PHP cURL Extension

The following code sample extends the script started in the previous chapter. The sample code shows how to supply the parameters necessary for establishing an SSL connection with the cURL extension:

```
<?php
...
// configuring cURL not to verify the server certificate:
curl_setopt($ch, CURLOPT_SSL_VERIFYPEER, 0);
// setting the path where cURL can find the client certificate:
curl_setopt($ch, CURLOPT_SSLCERT, "C:\certs\WS101._.1.pem");
// setting the path where cURL can find the client certificate’s
// private key:
curl_setopt($ch, CURLOPT_SSLKEY, "C:\certs\WS101._.1.key");
```

```
// setting the key password:
curl_setopt($ch, CURLOPT_SSLKEYPASSWD, " ckp_1256591851");
...
?>
```

The next chapter discusses sending the message and receiving the response.

13.1.2 Using the cURL Command Line Tool

The following code sample extends the script started in the previous chapter. The sample code shows how to supply the parameters necessary for establishing an SSL connection with the cURL command line tool:

```
<?php
...
// configuring cURL not to verify the server certificate:
$serverCert = “ –k “;
// setting the path where cURL can find the client certificate:
$clientCert = “ --cert C:\certs\WS101._.1.pem ”;
// setting the path where cURL can find the client certificate’s
// private key:
$clientKey = " --key C:\certs\WS101._.1.key";
// setting the key password:
$keyPW = " --pass  ckp_1256591851";
...
?>
```

The next chapter discusses sending the message and receiving the response.

13.2 ASP

Before you can communicate using SSL with the First Data Global Gateway Web Service API, you must install both client certificates in the certificate store. See 21 Installing the Client Certificate on page 91 for instructions on installing the client certificate.

The following code sample extends the script started in the previous chapter. The sample code shows how to set the path for WinHTTP to find the client certificate:

```
<%@ language="javascript"%>
<html>...<body>
<%
...
// setting the path where the client certificate to send can be found:
request.setClientCertificate("LOCAL_MACHINE\\My\\WS101._.1");
...
%>
</body></html>
```

If you use VBScript instead of JavaScript, you must replace the double-backslashes in the path with single backslashes.

The next chapter discusses sending the message and receiving the response.

14 Sending the HTTPS POST Request and Receiving the Response

The final step in writing your client is sending the HTTPS POST request to the First Data Global Gateway Web Service API and receiving the response. Most HTTP libraries cover the underlying communication details and require only a single call that returns the HTTP response.

The First Data Global Gateway Web Service API returns a 200 status code and a SOAP response in response to a successful HTTP POST request. If you send any invalid HTTP POST parameters, the First Data Global Gateway Web Service API will return a standard HTTP error code. If you send invalid data (for example, an invalid credit card number) in the SOAP request message, the Web Service API will return a 500 status code and a SOAP fault message.

See 10 Reading the SOAP Response Message on page 43 for instructions on reading the SOAP response message.

14.1 PHP

Again, you can choose to use either the cURL extension or the cURL command line tool to integrate with the Web Service API using PHP.

14.1.1 Using the PHP cURL Extension

The sample code below shows how to complete the PHP cURL extension script by making the HTTPS POST request and receiving the response.

```
<?php
...
// telling cURL to return the HTTP response body as operation result
// value when calling curl_exec:
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
// calling cURL and saving the SOAP response message in a variable which
// contains a string like "<SOAP-ENV:Envelope ...>...</SOAP-
ENV:Envelope>":
$result = curl_exec($ch);
// closing cURL:
curl_close($ch);
?>
```

The HTTPS call returns a SOAP response or fault message in the HTTP response body.

14.1.2 Using the cURL Command Line Tool

Performing the HTTPS POST request with the cURL command line tool simply requires executing the cURL command with the PHP exec command. The PHP exec command saves each line returned by an external program as an element of an array. Therefore, to get the complete HTTP response body, you must concatenate the elements of the array.

The sample code below shows how to complete the PHP cURL extension script by making the HTTPS POST request and receiving the response.

```
<?php
...
// saving the whole command in one variable:
$curl = $path.
$data.
$contentType.
$user.
$serverCert.
$clientCert.
$clientKey.
$keyPW.
$apiUrl;
// preparing the array containing the lines returned by the cURL
// command line tool:
$returnArray = array();
// performing the HTTP call by executing the cURL command line tool:
exec($curl, $returnArray);
// preparing a variable taking the complete result:
$result = "";
// concatenating the different lines returned by the cURL command
// line tool – this result in the variable $result carrying the entire
// SOAP response message as string:
foreach($returnArray as $item)
$result = $result.$item;
?>
```

14.2 ASP

The sample code below shows how to complete the ASP script by calling the request’s send method, with the SOAP XML as a parameter.

```
<%@ language="javascript"%>
<html>...<body>
<%
...
// doing the HTTP call with the SOAP request message as input:
request.send(body);
// saving the SOAP response message in a string variable:
var response = request.responseText;
%>
</body></html>
```

After the request is completed, you can access the response body through the responseText property of the request.

15 Using .NET Framework

First Data has tested the First Data Global Gateway Web Service API with the C# 2.0 .NET Framework.

15.1 Prerequisites

First you need to install the client certificate (WS<Store_ID>._.1.p12*).* See 21 Installing the Client Certificate on page 91 for instructions on installing the client certificate.

The user executing the program has access to the certificate after installation. To do so, first download the WinHttpCertCfg tool from Microsoft. Use the following URL:

> **http://www.microsoft.com/downloads/details.aspx?familyid=c42e27ac-3409-40e9-8667-c748e422833f&displaylang=en**

To grant access to the user, using the command line, navigate to the directory where you installed WinHttpCertCfg and enter the following command:

```
winhttpcertcfg.exe -g -a OtherUserID -c LOCAL_MACHINE\MY -s WSstoreid._.1.p12
```

`OtherUserID` is the name of the user executing the application. `WSstoreid._.1.p12` is the name of the client certificate. Replace this value with the name of your client certificate. The name should be in the format WS<store_ID>._.1. Verify this value when you install the client certificate using the instructions above.

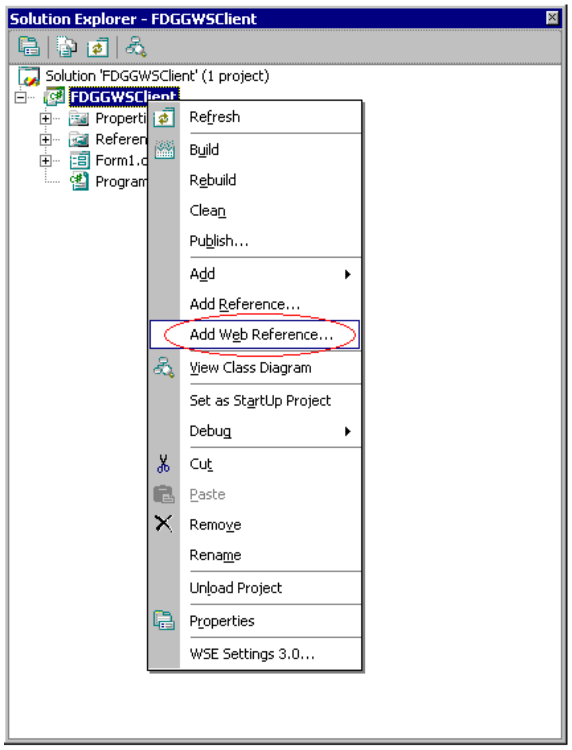
You must also install the Web Service Enhancements (WSE) 3.0 for Microsoft .NET. Use the following URL to view the system requirements and download the installer:

> **http://www.microsoft.com/downloads/details.aspx?FamilyID=018a09fd-3a74-43c5-8ec1-8d789091255d&displaylang=en**

15.2 Creating Web Service Reference Classes in .NET

To create the web service reference classes for your project in .NET, follow these steps:

1. Right-click on the project in the Solution Explorer and select **Add Web Reference**.

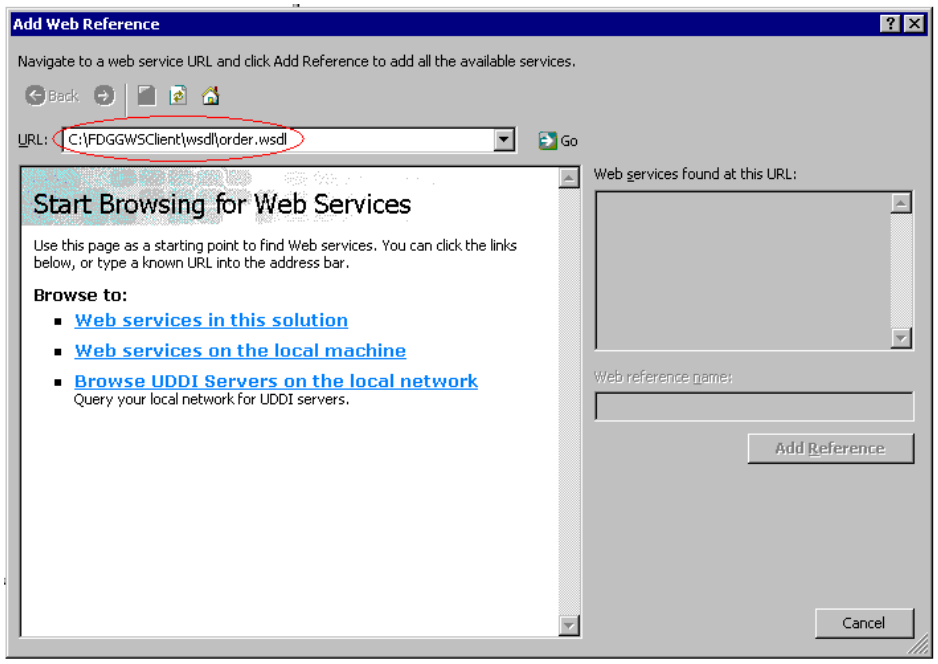


...

2. Download the wsdl from the below location.
   https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl

3. Download the schemas from the below location.
   a. https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/v1.xsd
   b. https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/a1.xsd
   c. https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/fdggwsapi.xsd

4. The following dialog displays. Enter the location of the WSDL file in the **URL** field.


Add Web Reference

Navigate to a web service URL and click Add Reference to add all the available services.

URL: C:\FDGGWSClient\wsdl\order.wsdl

Start Browsing for Web Services

Use this page as a starting point to find Web services. You can click the links below, or type a known URL into the address bar.

Browse to:
- Web services in this solution
- Web services on the local machine
- Browse UDDI Servers on the local network
  Query your local network for UDDI servers.

Web services found at this URL:

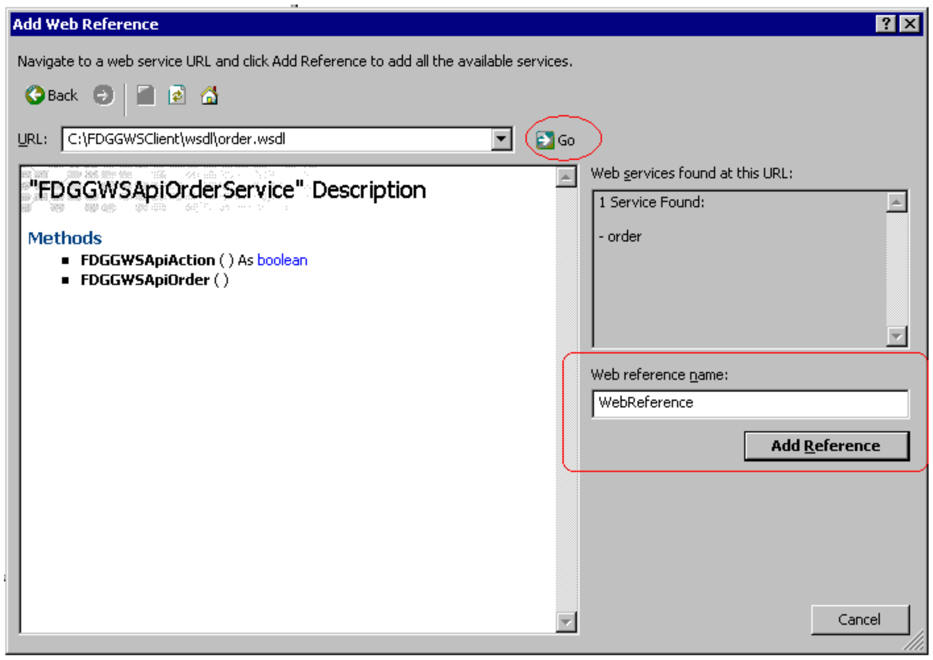
Web reference name:

The root schema imports the other two schemas (v1 and a1) using relative URLs as shown in the code below. The directory structure for your application needs to match the directory structure shown in the schema file.

```
<xs:import namespace=" http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
schemaLocation="../schemas_us/v1.xsd" />
<xs:import namespace=" http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
schemaLocation="../schemas_us/a1.xsd" />
```

If you have saved the WSDL file at C:\FDGGWSClient\wsdl\order.wsdl, save the XSD files in the path C:\FDGGWSClient\schemas_us\.

Click **Go**, next to the **URL** field.



Navigate to a web service URL and click Add Reference to add all the available services.

URL: C:\FDGGWSClient\wsdl\order.wsdl

"FDGGWSApiOrderService" Description

Methods

- **FDGGWSApiAction** ( ) As boolean
- **FDGGWSApiOrder** ( )

Web services found at this URL:

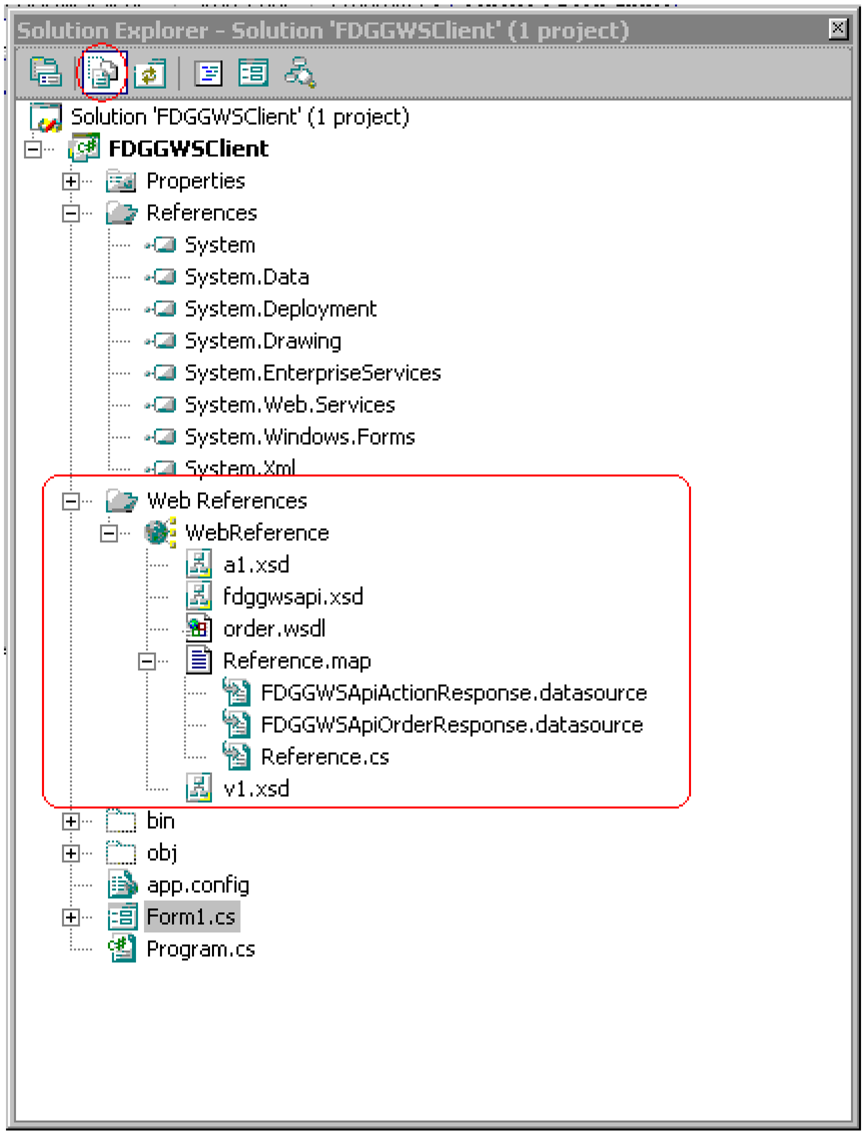
1 Service Found:

- order

Web reference name: WebReference

5. You can change the name of the web reference by editing the **Web reference name** field. Click **Add Reference**.

6. In the Project Solution Explorer, press the middle button (circled in the image below) to displays the files created:



```
Solution 'FDGGWSClient' (1 project)
  FDGGWSClient
    Properties
    References
      System
      System.Data
      System.Deployment
      System.Drawing
      System.EnterpriseServices
      System.Web.Services
      System.Windows.Forms
      System.Xml
    Web References
      WebReference
        a1.xsd
        fdggwsapi.xsd
        order.wsdl
        Reference.map
          FDGGWSApiActionResponse.datasource
          FDGGWSApiOrderResponse.datasource
          Reference.cs
        v1.xsd
    bin
    obj
    app.config
    Form1.cs
    Program.cs
```

7. Now you can create an instance of the client web service class in your code, using the following format:

```
FDGGWSApiOrderService oFDGGWSApiOrderService = new
FDGGWSApiOrderService();
```

15.3 Writing the .NET Client

The sample code below shows a C# .NET client.

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Text;
using System.Windows.Forms;
using FDGGWSClient.FDGGWSRef;
using System.Security.Cryptography.X509Certificates;
using System.Net;

namespace FDGGWSClient
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
         ServicePointManager.Expect100Continue = false;
// Initialize Service Object            FDGGWSApiOrderService
oFDGGWSApiOrderService =
         new FDGGWSApiOrderService();
// Set the WSDL URL
         oFDGGWSApiOrderService.Url =
   @"
https://ws.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl”,
// Configure Client Certificate
            oFDGGWSApiOrderService.ClientCertificates.Add
             (X509Certificate.CreateFromCertFile
             ("C:/FDGGWSClient/WS111901._.1.pem"));
// Set the Authentication Credentials
            NetworkCredential nc =
             new NetworkCredential("WS111901._.1", "JS2ND7Dc");
            oFDGGWSApiOrderService.Credentials = nc;
// Create Sale Transaction Request
            FDGGWSApiOrderRequest oOrderRequest =
             new FDGGWSApiOrderRequest();
            Transaction oTransaction = new Transaction();
            CreditCardTxType oCreditCardTxType = new CreditCardTxType();
            oCreditCardTxType.Type = CreditCardTxTypeType.sale;
            CreditCardData oCreditCardData = new CreditCardData();
             oCreditCardData.ItemsElementName =
             new ItemsChoiceType[] { ItemsChoiceType.CardNumber,
             ItemsChoiceType.ExpMonth, ItemsChoiceType.ExpYear };
            oCreditCardData.Items = new string[]
                { "4012000033330026", "12", "12" };
            oTransaction.Items = new object[]
                { oCreditCardTxType, oCreditCardData };
            Payment oPayment = new Payment();
            oPayment.ChargeTotal = 120;
            oTransaction.Payment = oPayment;
            oOrderRequest.Item = oTransaction;


   // Get the Response
             FDGGWSApiOrderResponse oReponse = null;
            try
            {
                oReponse =
               oFDGGWSApiOrderService.FDGGWSApiOrder(oOrderRequest);
                string sApprovalCode = oReponse.TransactionResult;
                this.textBox1.Text = oReponse.TransactionResult;

            }
            catch (System.Web.Services.Protocols.SoapException ex)
            {
                // Catch the Exception
            }
        }


    }
}
```

16 Using a Java Framework

First Data has tested the First Data Global Gateway Web Service API with the following Java frameworks:

- Axis Framework (version 2-1.5)
- Spring-WS (version 1.5.7)

The following sections discuss integrating with the Web Service API using these frameworks.

16.1 Axis Framework

The Axis Framework is a framework for building applications that create and process SOAP messages. This section discusses how to use the Axis Framework to connect with the First Data Global Gateway Web Service API.

The Axis Framework provides the WSDL2Java tool which creates stub code based on WSDL files.

16.1.1 Client Certificate Configuration

Before using the WSDL2Java tool, you must configure the tool to use the client certificate. To configure the WSDL2Java tool, open the wsdl2java.bat/wsdl2java.sh and add the following Java run-time optional parameter:

For wsdl2java.bat:

```
SET JAVA_OPTS=%JAVA_OPTS% -
Djavax.net.ssl.keyStore=<client_certificate_install_absolute_path>/WS<stor
e_id>._.1.ks
SET JAVA_OPTS=%JAVA_OPTS% -
Djavax.net.ssl.keyStorePassword=<keystore_password>
```

For wsdl2java.sh:

```
JAVA_OPTS="$JAVA_OPTS -
Djavax.net.ssl.keyStore=<client_certificate_install_absolute_path>/WS<stor
e_id>._.1.ks"
JAVA_OPTS="$JAVA_OPTS -
Djavax.net.ssl.keyStorePassword=<keystore_password>"
```

16.1.2 Generating Client Stubs

The WSDL2Java tool can be found in Axis' bin directory. To create the client stubs, enter the following command:

```
wsdl2java.bat -uri <WSDL URL> -S <destination folder for stub classes>
```

16.1.3 Writing the Axis Client

After generating the stubs, the next step is to write the client program that sends and receives the SOAP requests and responses.

The following sample program makes an Order request for the Sale Transaction.

```
// all imports go here

public class FDGGWSAxisClient {

public static void main (String args[]) {

// Needed for Client Certificate
System.setProperty("javax.net.ssl.keyStore",
"<<PATH_TO_THE_CLIENT_CERT_KEYSTORE FILE>>");
System.setProperty("javax.net.ssl.keyStorePassword",
"<<KEYSTORE_PASSWORD>>");


// HTTP Authentication
Options options = fdggwsstub._getServiceClient().getOptions();

HttpTransportProperties.Authenticator auth = new
HttpTransportProperties.Authenticator();

auth.setPreemptiveAuthentication(true);
auth.setUsername("WS111901._.1");// User Name
auth.setPassword("0WRtTq1K"); //Password
options.setProperty(HTTPConstants.AUTHENTICATE,auth);

FDGGWSApiOrderServiceStub fdggwsstub = new FDGGWSApiOrderServiceStub();

Type_type1 sale_type = Type_type1.value6;

CreditCardTxType creditCardTxType = new CreditCardTxType();
creditCardTxType.setType(sale_type);

CardNumber_type1 cardNumber_type1 = new CardNumber_type1();
cardNumber_type1.setCardNumber_type0("4012000033330026");

ExpMonth_type1 expMonth_type1 = new ExpMonth_type1();
expMonth_type1.setExpMonth_type0("12");

ExpYear_type1 expYear_type1 = new ExpYear_type1();
expYear_type1.setExpYear_type0("12");

Card card = new Card();
card.setCardNumber(cardNumber_type1);
card.setExpMonth(expMonth_type1);
card.setExpYear(expYear_type1);

CreditCardDataSequence_type0 creditCardDataSequence_type0 = new
CreditCardDataSequence_type0();

creditCardDataSequence_type0.setCard(card);
CreditCardDataChoice_type0 dataChoice = new CreditCardDataChoice_type0();
dataChoice.setCreditCardDataSequence_type0(creditCardDataSequence_type0);

CreditCardData creditCardData = new CreditCardData();
creditCardData.setCreditCardDataChoice_type0(dataChoice);

BigDecimal bigDecimal = new BigDecimal("10");

ChargeTotal_type1 chargeTotal_type1 = new ChargeTotal_type1();
chargeTotal_type1.setChargeTotal_type0(bigDecimal);

Amount amount = new Amount();
amount.setChargeTotal(chargeTotal_type1);

Payment_type0 payment_type0 = new Payment_type0();
payment_type0.setAmount(amount);

Payment payment = new Payment();
payment.setPayment(payment_type0);

TransactionSequence_type0 transactionSequence_type0 = new
TransactionSequence_type0();

transactionSequence_type0.setCreditCardTxType(creditCardTxType);
transactionSequence_type0.setCreditCardData(creditCardData);

TransactionChoice_type0 transactionChoice_type0= new
TransactionChoice_type0();

transactionChoice_type0.setTransactionSequence_type0(transactionSequence_t
ype0);

Transaction t = new Transaction();
t.setTransactionChoice_type0(transactionChoice_type0);
t.setPayment(payment_type0);

FDGGWSApiOrderRequest fdggwsApiOrderRequest = new FDGGWSApiOrderRequest();

fdggwsApiOrderRequest.setTransaction(t);

FDGGWSApiOrderResponse response =
fdggwsstub.fDGGWSApiOrder(fdggwsApiOrderRequest);

System.out.println("The Transaction Result is
"+response.getFDGGWSApiOrderResponse().getTransactionResult());

System.out.println("The Order ID is
"+response.getFDGGWSApiOrderResponse().getOrderId());
}
}
```

16.1.4 SSL and HTTP Authentication

16.1.4.1 SSL

Your application must provide the client certificate for security.

The following code sample shows how to provide the client certificate.

```
// Needed for Client Certificate
System.setProperty("javax.net.ssl.keyStore",
"<<PATH_TO_THE_CLIENT_CERT_KEYSTORE FILE>>");
System.setProperty("javax.net.ssl.keyStorePassword",
"<<KEYSTORE_PASSWORD>>");
```

16.1.4.2 HTTP Authentication

The First Data Global Gateway Web Service API requires HTTP basic authorization on all calls to the web service.

The following code sample shows how to pass the user name and password for HTTP basic authorization.

```
Options options = ipgstub._getServiceClient().getOptions();
   HttpTransportProperties.Authenticator auth = new
HttpTransportProperties.Authenticator();
   auth.setPreemptiveAuthentication(true);
   auth.setUsername("WS111920._.1");
   auth.setPassword("0WRtTq1K");
   options.setProperty(HTTPConstants.AUTHENTICATE,auth);
```

16.2 Spring Web Services

Spring Web Services (Spring-WS) is designed for XML-based access to web services and supports the use of marshallers and unmarshallers, so that your application can be coded solely using Java objects.

WebServiceTemplate is the core class for client-side web service access in Spring-WS. It contains methods for sending Source objects and receiving response messages as either Source or Result objects. Additionally, it can marshal objects to XML before sending them and unmarshal any response XML into an object again

16.2.1 Client Configuration

The following code sample shows the required configuration settings that go in the applicationContext.xml file.

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns=http://www.springframework.org/schema/beans
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-2.0.xsd">
```

```
<bean id="messagFactory"
class="org.springframework.ws.soap.saaj.SaajSoapMessageFactory"/>

<bean id="abstractClient" abstract="true">
        <constructor-arg ref="messagFactory"/>
        <property name="destinationProvider">
            <bean class="org.springframework.ws.client.
                     support.destination.Wsdl11DestinationProvider">
               <property name="wsdl" value=

"https://ws.firstdataglobalgateway.com/services/order.wsdl"/>
            </bean>
        </property>
</bean>

<bean id="marshaller"
class="org.springframework.oxm.xmlbeans.XmlBeansMarshaller"/>

<bean id="httpClientParams"
class="org.apache.commons.httpclient.params.HttpClientParams">
      <property name="authenticationPreemptive" value="true"/>
<property name="connectionManagerClass"
value="org.apache.commons.httpclient.MultiThreadedHttpConnectionManager"/>
</bean>

<bean id="httpClient" class="org.apache.commons.httpclient.HttpClient">
      <constructor-arg ref="httpClientParams"/>
</bean>

<bean id="credentials"
class="org.apache.commons.httpclient.UsernamePasswordCredentials">
      <constructor-arg value="WS111901._.1"/>
      <constructor-arg value="qRAPL6FY"/>
</bean>

<bean id="messageSender"
class="org.springframework.ws.transport.http.CommonsHttpMessageSender">
      <constructor-arg ref="httpClient"></constructor-arg>
      <property name="credentials" ref="credentials"/>
</bean>

<bean id="fdggwsapiorder" parent="abstractClient"
class="com.firstdata.fdggwsapi.client.FDGGWSAPIOrder">
        <property name="marshaller" ref="marshaller"/>
        <property name="unmarshaller" ref="marshaller"/>
        <property name="messageSender" ref="messageSender"/>
</bean>

</beans>
```

The WebServiceTemplate class uses a URI as the message destination. The defaultUri property lets you specify the destination URI. Spring-WS creates a WebServiceMessageSender for the URI which is responsible for sending the XML message. You can set one or more message senders using the messageSender or messageSenders properties of the WebServiceTemplate class.

The following WebServiceMessageSender interfaces are available for sending messages via HTTP:

- HttpUrlConnectionMessageSender
- CommonsHttpMessageSender

The configuration sample above shows how to use CommonsHttpMessageSender to authenticate to the FDGG Web Service.

In addition to a message sender, the WebServiceTemplate requires a Web service message factory. The code in the following sections uses SaajSoapMessageFactory. This is the default used by Spring-WS, if amessage factory is not specified via the messageFactory property.

16.2.2 Writing the Spring Client

WebServiceTemplate contains many convenience methods to send and receive web service messages. There are methods that accept and return a Source and those that return a Result. Additionally there are methods, which marshal and unmarshal objects to XML.

The preferred method of for creating messages and reading responses is to use the object/XML mapping provided by Spring-WS. The following three sections provide instructions for using object/XML mapping. If you must work directly with XML, see 16.2.2.4 Sending Direct XML Request on page 77 for instructions.

16.2.2.1 Configuring Object/XML Mapping

In order to facilitate the sending of plain Java objects, the WebServiceTemplate has a number of send methods that take an object as an argument. The marshalSendAndReceive method in the WebServiceTemplate class delegates the conversion of the request object to XML to a marshaller and the conversion of the response XML to an object to an unmarshaller. In order to use the marshalling functionality, you have to set values for the marshaller and unmarshaller properties of the WebServiceTemplate class. Spring provides support for the object/XML mapping through its org.springframework.oxm framework.

The following sample code shows how to set org.springframework.oxm.xmlbeans.XmlBeansMarshaller as the marshaller/unmarshaller in the applicationContext.xml file:

```
<bean id="marshaller"
class="org.springframework.oxm.xmlbeans.XmlBeansMarshaller"/>

<bean id="fdggwsapiorder" parent="abstractClient"
class="com.firstdata.fdggwsapi.client.FDGGWSAPIOrder">
         <property name="marshaller" ref="marshaller"/>
         <property name="unmarshaller" ref="marshaller"/>
</bean>
```

16.2.2.2 Generating XMLBean classes

Now you must generate Java objects based on the First Data Global Gateway Web Service API schema files. This allows you to work directly with Java objects when writing the client application.

To generate the Java objects, follow these steps:

- Download the following schema files and save them in a folder called **schemas_us**.

  https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/fdggwsapi.xsd
  https:// ws.firstdataglobalgateway.com /fdggwsapi/schemas_us/v1.xsd
  https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/a1.xsd

- Provide the root schema as the parameter for the the xmlbean ANT task as below.

```
<taskdef name="xmlbean" classname="org.apache.xmlbeans.impl.tool.XMLBean"
classpathref="classpath"/>
<xmlbean schema="fdggwsapi.xsd" srcgendir="${gen.dir}"
classgendir="${bin.dir}" classpathref="classpath" download="true"/>
```

- The root schema imports the other two schemas (v1 and a1) using relative URLs as shown in the code below. The directory structure on for your application needs to match the directory structure shown in the schema file.

```
<xs:import namespace=" http://secure.linkpt.net/fdggwsapi/schemas_us/v1"
schemaLocation="../schemas_us/v1.xsd" />

<xs:import namespace=" http://secure.linkpt.net/fdggwsapi/schemas_us/a1"
schemaLocation="../schemas_us/a1.xsd" />
```

To compile the schemas into XML beans, you need to download XMLBeans 2.2.0. See the following site for installation instructions:

http://xmlbeans.apache.org/documentation/conInstallGuide.html

You can generate the classes using one of the following tools:

- scomp
- XMLBean Ant task

To generate the classes using the XMLBeans scomp tool (located in the XMLBeans bin directory), enter the following command:

```
scomp –compiler <path to external java compiler> -src <target directory for
generated .java files> -d <target binary directory for .class and .xsb files>
<xsd>
```

If you use Ant in your build, you can use the the XMLBean Ant task instead of scomp. You need to download the xbean.jar from the XMLBeans developer kit at http://xmlbeans.apache.org/. The build script will need to include a taskdef for xmlbean. Add the following code to the build script to generate the classes for the schema:

```
<taskdef name="xmlbean" classname="org.apache.xmlbeans.impl.tool.XMLBean"
classpath="path/to/xbean.jar"/>
<xmlbean schema="<schema path>" srcgendir="<source generation directory>"
classgendir="<compiled class directory>" classpath="path/to/xbean.jar"/>
```

16.2.2.3 Writing the Client Program

The classes generated by XMLBeans allow your application work with Java objects instead of XML.

The following code sample shows how to send an order request using Spring-WS.

```
// imports go here

public class FDGGWSAPIOrder extends WebServiceGatewaySupport {

   public FDGGWSAPIOrder(WebServiceMessageFactory messageFactory) {
          super(messageFactory);
      }

   public void ccSale(){

        try
        {
        // Instantiate the Order Request Document
   FDGGWSApiOrderRequestDocument orderRequestDoc =
FDGGWSApiOrderRequestDocument.Factory.newInstance();

        // Instantiate the Order Request
FDGGWSApiOrderRequest orderRequest =
orderRequestDoc.addNewFDGGWSApiOrderRequest();

        // Instantiate Transaction Object
            Transaction tran = orderRequest.addNewTransaction();

        // Create the Request
         CreditCardTxType ccTxType = tran.addNewCreditCardTxType();
         CreditCardTxType.Type.Enum sale = CreditCardTxType.Type.SALE;
         ccTxType.setType(sale);

         CreditCardData ccData = tran.addNewCreditCardData();
         ccData.setCardNumber("4012000033330026");
         ccData.setExpMonth("12");
         ccData.setExpYear("09");

         tran.setCreditCardTxType(ccTxType);
         tran.setCreditCardData(ccData);

         Payment pp = tran.addNewPayment();
         BigDecimal bd = new BigDecimal("31.23");
         pp.setChargeTotal(bd);

      // Add the Request to the Transaction
         tran.setCreditCardTxType(ccTxType);
         tran.setCreditCardData(ccData);
         tran.setPayment(pp);

      // Add the Transaction to the Order Request
         orderRequest.setTransaction(tran);

      // Add the Order Request to the Order Request document
```

```
          orderRequestDoc.setFDGGWSApiOrderRequest(orderRequest);

       // Send the Request and get the Response
    FDGGWSApiOrderResponseDocument orderResponseDoc
=(FDGGWSApiOrderResponseDocument)getWebServiceTemplate().marshalSendAndRec
eive(orderRequestDoc);

    FDGGWSApiOrderResponseDocument.FDGGWSApiOrderResponse response =
orderResponseDoc.getFDGGWSApiOrderResponse();

       // Get the Response Results
    System.out.println("The result of Sale Transaction is
"+response.getTransactionResult());

    System.out.println("The Order Id of Sale Transaction is
"+response.getOrderId());

System.out.println("The TDate of Sale Transaction is
"+response.getTDate());

    System.out.println("The Error Message is "+response.getErrorMessage());

         }
          // Handling the Exception
          catch (SoapFaultClientException e)
          {
             System.out.println("The Exception is "+e.toString());
             SoapFault sf = e.getSoapFault();
             if(sf != null) {
                DOMSource s = (DOMSource)sf.getSource();
                if(sf.getFaultDetail() != null){
                   Node detailNode = detailSource.getNode();
                   if(detailNode.getLocalName().
                         equalsIgnoreCase("detail")) {
    System.out.println("The Fault Detail is "+detailNode.getTextContent());

                   }
                }
             }
          }
    }
public static void main(String[] args) {

    // SSL Configuration for Client Certs
System.setProperty("javax.net.ssl.keyStore", "/SSL/WS111901._.1.ks");

       System.setProperty("javax.net.ssl.keyStorePassword", "q6DbysArx1");

       // Get the Application Context configuration
ApplicationContext applicationContext = new
ClassPathXmlApplicationContext(
                "com/firstdata/fdggwsapi/client/applicationContext.xml");
FDGGWSAPIOrder fdggwsapiOrder = (FDGGWSAPIOrder)
applicationContext.getBean("fdggwsapiorder", FDGGWSAPIOrder.class);

       // FDGGWSAPI Order Sale Request
       fdggwsapiOrder.ccSale();
```

```
}
}
```

16.2.2.4 Sending Direct XML Request

While object/XML mapping is the preferred method for using Spring-WS, if you must work directly with the XML, that is also possible. The configuration discussed in the previous sections for the applicationContext.xml file is not required.

The following code sample shows how to send an XML order request to the Web Service.

```
import java.io.IOException;
import javax.xml.transform.Source;

import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.core.io.Resource;
import
org.springframework.ws.client.core.support.WebServiceGatewaySupport;
import org.springframework.xml.transform.ResourceSource;
import org.springframework.xml.transform.StringResult;


public class SpringClient extends WebServiceGatewaySupport {
    private Resource request;
    public void setRequest(Resource request) {
        this.request = request;
    }
    public void fdggwsapi() throws IOException {
         Source requestSource = new ResourceSource(request);
         StringResult result = new StringResult();
         getWebServiceTemplate().sendSourceAndReceiveToResult
                                (requestSource, result);
         System.out.println(result);
    }

    public static void main(String[] args) throws IOException {

   // SSL Configuration for Client Certs
   System.setProperty("javax.net.ssl.keyStore", "/SSL/WS111901._.1.ks");
   System.setProperty("javax.net.ssl.keyStorePassword", "q6DbysArx1");

      // applicationContext.xml file contains the actual XML request.
            ApplicationContext applicationContext =
            new ClassPathXmlApplicationContext
               ("applicationContext.xml", SpringClient.class);
SpringClient springClient = (SpringClient)
applicationContext.getBean("springClient");
            springClient.fdggwsapi();
    }

}
```

The following code sample show the configuration required for the applicationContext.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<FDGGWSApiOrderRequest
xmlns=" http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <Transaction xmlns=
"http://secure.linkpt.net/fdggwsapi/schemas_us/v1">
      <CreditCardTxType>
         <StoreId>111901</StoreId>
         <Type>sale</Type>
      </CreditCardTxType>
      <CreditCardData>
         <CardNumber>4012000033330028</CardNumber>
         <ExpYear>12</ExpYear>
      </CreditCardData>
      <Payment>
         <ChargeTotal>120.222</ChargeTotal>
      </Payment>
   </Transaction>
</FDGGWSApiOrderRequest>
```

16.2.3 SSL/Certificate Configuration

Your application must provide the client certificate for security.

As the server certificate is issued by a well-known and trusted authority, which is already listed in the Trusted Store, you do not need to configure the server certificate.

The following code sample shows how to provide the keystore (.ks) file and password when calling the web service.

```
// SSL Configuration for Client Certs
System.setProperty("javax.net.ssl.keyStore", "/SSL/WS111901._.1.ks");
System.setProperty("javax.net.ssl.keyStorePassword", "q6DbysArx1");
```

17 Customer Test Environment (CTE)

The Customer Test Environment (CTE) allows your Development team to test applications and process transactions using the First Data Global Gateway Web Service API in a secure, no-cost environment. The CTE mimics the production environment. There is not a setup fee or processing charges when using the CTE.

To **APPLY** for a Test Account, access the following site, complete the form, and click **Submit**.

- http://www.firstdata.com/gg/apply_test_account.htm

You will receive a Welcome Email within 24 hours

To test your integration to the First Data Global Gateway Web Service API, use these URLs listed below:

- https://ws.merchanttest.firstdataglobalgateway.com/fdggwsapi/services/order.wsdl
- https://ws.merchanttest.firstdataglobalgateway.com/fdggwsapi/services
- https://ws.merchanttest.firstdataglobalgateway.com/fdggwsapi/schemas_us/fdggwsapi.xsd
- https://ws.merchanttest.firstdataglobalgateway.com/fdggwsapi/schemas_us/v1.xsd
- https://ws.merchanttest.firstdataglobalgateway.com/fdggwsapi/schemas_us/a1.xsd

To transition your test account to a production account replace the CTE URLs with these listed below:

- https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/fdggwsapi.xsd>
- https://ws.firstdataglobalgateway.com/fdggwsapi/schemas_us/v1.xsd>
- https://ws.firstdataglobalgateway.com/schemas_us/a1.xsd>

18 The Tax Calculator

The Tax Calculator module calculates the state and municipal sales tax.

To use the tax calculator module, create a fulltax line in your configuration file on the secure payment gateway. Next, send the fulltax line to Support in order to load it to the secure payment gateway.

The fulltax line provides information needed for the tax module to calculate sales tax for an order. The line includes entries for states where sales tax is charged. Entries are separated by a comma, which may be followed by a space.

Example:

```
fulltax: TX 8.25, AL 7.00, FL 7.00, UT mun
```

Most entries in the list consist of the two-digit code for the state, followed by a space and the tax rate charged for that state. See "U.S. State Codes" on page **Error! Bookmark not defined.** for state codes.

```
TX 8.25
```

If the tax includes municipal tax, the listing is the two-digit state code followed by mun.

```
UT mun
```

Municipal taxes are calculated according to the salestax.txt file on the secure payment gateway server. The salestax.txt file is updated monthly to ensure accuracy.

19 Shipping Calculator

With the shipping calculator, you can set rules for calculating shipping charges.

To use the shipping calculator module, you need to create a shipping and carrier file on the secure payment gateway server. When you create your shipping file, send it to Support along with your store number. The shipping calculator uses the shipping address and other information sent in the shipping entity along with the appropriate pricing data defined in the shipping file to calculate the charges.

The shipping file is a plain text file consisting of sets of code called zone type and zone definition lines. An example of how these lines might appear in a shipping file is shown below.

```
zone type line
zone definition line
zone definition line
zone type line
zone definition line
```

The fields within both types of lines go together to define the shipping charges. The zone type line describes the general shipping scheme, such as whether costs are based on item count, weight, or price.

The zone definition line gives specific parameters on pricing for each element in that pricing scheme. One or more zone definition lines must immediately follow each zone type line. Use zone definition lines to set shipping prices based on specific geographic areas or types of carriers to determine where price breaks occur. The fields within each line of code are separated by double-colons. For fields with multiple values, use commas (countries, states) or single colons (range definitions, prices).

Each zone type line is formatted with three fields:

- Tag Name
- Calculation Code
- Merchant-created range definitions

```
zone type::calculation method::range1:range2...
```

You can create as many zone type lines as you need for your business. You can use a separate zone type line for:

- Different shipping-cost calculations, such as the total weight or total cost of an order
- Separate freight or air transport carrier methods
- Division of the world shipping-zone prices

19.1 Creating Zone Type Lines

To create zone type lines:

1. Enter the following tag name. The zone type line must precede two colons:

```
zone type::
```

2. Determine how to charge customers for shipping your products and enter an applicable code number after the tag name followed by double colons with no spaces.

```
zone type::1::
zone type::3::
```

3. Create quantity ranges that share common pricing. Enter each range followed by a single colon or a comma.

```
zone type::1::1-3,4-5,6+
zone type::3::1-24,25-50,51+
```

19.2 Calculation Method

There are five choices for calculating the shipping charges. Select the applicable calculation methods for your business. Enter the code number after the Tag Name for each zone type line.

Method	Description
1	Charges based on the total number of items
2	Charges based on each item, then totaled
3	Charges based on the total weight of the order
4	Charges based on the weight of each item, then totaled
5	Charges based on the total price of the order

19.3 Assigning Ranges

A range is defined as a value or a set of values representing all items within a predetermined category, which use the same shipping charge. A range can be a single number, two numbers separated by a hyphen, or a number followed by a plus sign. You can specify an infinite number of ranges. The number of ranges in a zone type line must correlate exactly with the number of prices in the zone definition lines.

The following restrictions apply:

- Range definitions must be contiguous - you cannot skip numbers.
- Range definitions must start with the integer 1.
- The last range defined in each line must end with **+**.

A zone definition line specifies data that is required by the preceding zone type line of code. Several fields are specific to each business including the zone name, the shipping carrier code, and the shipping-cost codes for each range. See the example below.

```
zone name::country::carrier::range cost::range cost
```

19.4 Creating Zone Definition Lines

To create zone definition lines:

1. Enter a zone name for each shipping situation followed by two colons.

```
northamerica::
```

2. Select the applicable countries for your zone name followed by double colons. Use the two-digit country codes. See "Country Codes" on page **Error! Bookmark not defined.**.

```
northamerica::US,MX,CA::
```

For the U.S. only, enter each applicable two-letter state code after the country code, followed by two colons.

```
westcoast::US::CA,OR,WA,HI::
```

3. Determine the different shipping methods for your business. Enter one merchant-defined shipping carrier code only.

```
northamerica::US,MX,CA::1::
```

4. Determine the shipping cost for each range you specified in the zone type line. Enter the applicable shipping cost, followed by a colon or a comma.

```
zone type::1::1-3,4-5,6+
northamerica::US::MX::CA::1::25,40,75 NOTE:
```

Each shipping cost value in the zone definition line must match a range in the zone type line.

You determine the zone name for each zone definition line. Each name is an alphabetic string containing less than 20 letters and cannot include blank spaces.

If you offer different types of shipping, such as courier, overnight, two day, or ground transport, the zone definition line can list a shipping carrier option in the form of an integer. This will allow you to charge different amounts for premium shipping services.

The zone definition contains the actual charges for shipping items in the range specified by the preceding zone type. Merchants determine the charges for their products.

The following rules apply when you are creating zone definition code:

- If you are shipping internationally, the U.S. state code in a zone definition line is ignored.
- If shipping prices are the same for all U.S. states, you do not need to name the states individually.
- If you have a few exceptions for shipping, such as AK and HI, you can define a zone for them and include the remaining states in a non-specific U.S. zone.
- Any number of zone definition lines may follow a zone type line.
- The zone name and range charges must have values; all other fields can be blank.
- When the shipping calculator looks for a shipping file match, a blank field, such as carrier type, is treated as a match.

20 Troubleshooting

20.1 Merchant Exceptions

```
<detail>
   XML is not wellformed: Premature end of message.
</detail>
```

Explanation: You have sent an empty message. The message does not contain a SOAP message or any other text in the HTTP body.

```
<detail>
   XML is not wellformed: Content is not allowed in prolog.
</detail>
```

Explanation: The First Data Global Gateway API cannot interpret the content as XML.

```
<detail>
   XML is not wellformed:
   XML document structures must start and end within the same entity.
</detail>
```

Explanation: Your SOAP message is missing the end tag of the first open tag.

```
<detail>
   XML is not wellformed:
   The element type "SOAP-ENV:Body" must be terminated
   by the matching end-tag "&lt;/SOAP-ENV:Body&gt;".
</detail>
```

Explanation: An open internal tag (not the top level tag) is missing the end tag. In this example, the end tag </SOAP-ENV:Body> is missing.

```
<detail>
   XML is not wellformed:
   Element type "irgend" must be followed by either attribute
   specifications, "&gt;" or "/&gt;".
</detail>
```

Explanation: A tag is malformed. In this example, a “>” character is missing for the tag irgend.

```
<detail>
   XML is not wellformed:
   Open quote is expected for attribute "xmlns:ns3"
   associated with an element type "ns3:FDGGWSApiOrderRequest".
</detail>
```

Explanation: The value of one attribute is not enclosed in quotation marks. In the Web Service API, XML attributes are used only for the namespaces.

```
<detail>
   XML is not wellformed:
   The prefix "fdggwsapi" for element "fdggwsapi:FDGGWSApiOrderRequest"
   is not bound.
```

```
</detail>
```

Explanation: The name space **fdggwsapi** is not declared. To declare a name space use the **xmlns** prefix. Add the following as an attribute to the FDGGWSApiOrderRequest or FDGGWSApiAction request element:

```
xmlns:fdggwsapi=
http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi
```

```
<detail>
   XML is not wellformed:
   The prefix "xmln" for attribute "xmln:ns2" associated
   with an element type "ns3:FDGGWSApiOrderRequest" is not bound.
</detail>
```

Explanation: You must use the pre-defined namespace **xmlns** to declare a custom namespace. In this example, the prefix is written as xmln and not as xmlns.

```
<detail>
   XML is not wellformed:
   Unable to create envelope from given source
   because the namespace was not recognized
</detail>
```

Explanation: The message could be interpreted as an XML message and the enclosing SOAP message is correct, but the included API message in the soap body has no name spaces or the name spaces are not declared correctly. The correct name spaces are described in the XSD.

```
<detail>
   XML is not wellformed:
   The processing instruction target matching "[xX][mM][lL]"
   is not allowed.
</detail>
```

Explanation: The SOAP body must not contain the XML declaration <?xml … ?>.

```
<detail>
   Unexpected characters before XML declaration
</detail>
```

Explanation: The XML must start with <?xml. Do not include an empty line or another white space character in front of the XML.

```
<detail>
   XML is not a SOAP message:
   Unable to create envelope from given source
   because the root element is not named "Envelope"
</detail>
```

Explanation: The XML appears to be valid but is not a SOAP message. Enclose your message in a SOAP envelope.

```
<detail>
   XML is not a valid SOAP message:
   Error with the determination of the type.
   Probably the envelope part is not correct.
</detail>
```

Explanation: The SOAP body tag is missing.

```
<detail>
   Source object passed to ''{0}'' has no contents.
</detail>
```

Explanation: The SOAP body is empty.

```
<detail>
   Included XML is not a valid FDGGWS API message:
   unsupported top level {namespace}tag "irgendwas" in the soap body. Only
one of [
{http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi}FDGGWSApiActionRe
quest,
   {http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi}FDGGWSApiOrder
Request
] allowed.
</detail>
```

Explanation: The first tag in the Web Service API message contained in the SOAP body must be either FDGGWSApiActionRequest or FDGGWSApiOrderRequest. In this case, the tag has no namespace.

```
<detail>
   Included XML is not a valid FDGGWS API message:
unsupported top level {namespace}tag
"{http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi}FDGGWSApiOrderRe
quest" in the soap body. Only one of [
{http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi}FDGGWSApiActionRe
quest,
{http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi}FDGGWSApiOrderReq
uest
] allowed.
</detail>
```

Explanation: The first tag in the including Web Service API message contained in the SOAP body must be either FDGGWSApiActionRequest or FDGGWSApiOrderRequest. In this case, the namespace is wrong.

```
<detail>
   cvc-pattern-valid:
   Value '1.234' is not facet-valid with respect to pattern
'([1-9]([0-9]{0,12}))?[0-9](\.[0-9]{1,2})?' for type
'#AnonType_ChargeTotalAmount'
   cvc-type.3.1.3:
   The value '1.234' of element 'ns3:ChargeTotal' is not valid.
</detail>
```

Explanation: The value of a tag does not correspond with the declaration in the XSD. The value has three decimal places but the XSD only allows two.

```
<detail>
```

```
   cvc-complex-type.2.4.a:
   Invalid content was found starting with element 'ns2:ExpYear'.
   One of '{"http://secure.linkpt.net/fdggwsapi/schemas_us/v1":ExpMonth}'
   is expected.
</detail>
```

Explanation: The tags must be included in the order declared in the XSD. In this case the tag ExpMonth is expected and not ExpYear.

```
<fdggwsapi:FDGGWSApiOrderResponse Xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:CommercialServiceProvider/>
   <fdggwsapi:TransactionTime>
      Tue Nov 03 13:34:02 2009
   </fdggwsapi:TransactionTime>
   <fdggwsapi:TransactionID/>
   <fdggwsapi:ProcessorReferenceNumber/>
   <fdggwsapi:ProcessorResponseMessage/>
   <fdggwsapi:ErrorMessage>
      SGS-005002: The merchant is not setup to support the requested
service.
   </fdggwsapi:ErrorMessage>
   <fdggwsapi:OrderId>
      A-bf98ecb3-c3f7-44e2-97cf-5c965ca84f93
   </fdggwsapi:OrderId>
   <fdggwsapi:ApprovalCode/>
   <fdggwsapi:AVSResponse/>
   <fdggwsapi:TDate/>
   <fdggwsapi:TransactionResult>
      DECLINED
   </fdggwsapi:TransactionResult>
   <fdggwsapi:ProcessorResponseCode/>
   <fdggwsapi:ProcessorApprovalCode/>
   <fdggwsapi:CalculatedTax/>
   <fdggwsapi:CalculatedShipping/>
   <fdggwsapi:TransactionScore/>
   <fdggwsapi:AuthenticationResponseCode/>
</fdggwsapi:FDGGWSApiOrderResponse>
```

Explanation: The type of transaction submitted is not allowed for this merchant. If you receive this result for a transaction type, which is included in your agreement, please contact our technical support team.

```
<fdggwsapi:FDGGWSApiOrderResponse xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:CommercialServiceProvider/>
   <fdggwsapi:TransactionTime>
      Tue Nov 03 17:10:51 2009
   </fdggwsapi:TransactionTime>
   <fdggwsapi:TransactionID/>
   <fdggwsapi:ProcessorReferenceNumber/>
   <fdggwsapi:ProcessorResponseMessage/>
   <fdggwsapi:ErrorMessage>
```

```
      SGS-005005: Duplicate transaction.
   </fdggwsapi:ErrorMessage>
   <fdggwsapi:OrderId>
      A-e981664e-546f-4db9-895b-6633ee163f69
   </fdggwsapi:OrderId>
   <fdggwsapi:ApprovalCode/>
   <fdggwsapi:AVSResponse/>
   <fdggwsapi:TDate/>
   <fdggwsapi:TransactionResult>FRAUD</fdggwsapi:TransactionResult>
   <fdggwsapi:ProcessorResponseCode/>
   <fdggwsapi:ProcessorApprovalCode/>
   <fdggwsapi:CalculatedTax/>
   <fdggwsapi:CalculatedShipping/>
   <fdggwsapi:TransactionScore/>
   <fdggwsapi:AuthenticationResponseCode/>
</fdggwsapi:FDGGWSApiOrderResponse>
```

Explanation: This transaction is a duplicate transaction. Transactions with the same data submitted within a configurable amount of time are rejected as duplicate transactions.

```
<fdggwsapi:FDGGWSApiOrderResponse xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:CommercialServiceProvider/>
   <fdggwsapi:TransactionTime>
      Tue Nov 03 14:07:13 2009
   </fdggwsapi:TransactionTime>
   <fdggwsapi:TransactionID/>
   <fdggwsapi:ProcessorReferenceNumber/>
   <fdggwsapi:ProcessorResponseMessage/>
   <fdggwsapi:ErrorMessage>
      SGS-002311: Internal Error.
   </fdggwsapi:ErrorMessage>
   <fdggwsapi:OrderId>
      A-8a07eaad-26d7-4233-b13a-8a102287f6c8
   </fdggwsapi:OrderId>
   <fdggwsapi:ApprovalCode/><fdggwsapi:AVSResponse/>
   <fdggwsapi:TDate>1257286033</fdggwsapi:TDate>
   <fdggwsapi:TransactionResult>DECLINED</fdggwsapi:TransactionResult>
   <fdggwsapi:ProcessorResponseCode/>
   <fdggwsapi:ProcessorApprovalCode/>
   <fdggwsapi:CalculatedTax/>
   <fdggwsapi:CalculatedShipping/>
   <fdggwsapi:TransactionScore/>
   <fdggwsapi:AuthenticationResponseCode/>
</fdggwsapi:FDGGWSApiOrderResponse>
```

Explanation: The SOAP Request XML might be incorrect. Check for the correct namespaces for the tags.

```
<fdggwsapi:FDGGWSApiOrderResponse xmlns:fdggwsapi=
"http://secure.linkpt.net/fdggwsapi/schemas_us/fdggwsapi">
   <fdggwsapi:CommercialServiceProvider/>
   <fdggwsapi:TransactionTime>
      Tue Nov 03 17:10:51 2009
   </fdggwsapi:TransactionTime>
   <fdggwsapi:TransactionID/>
   <fdggwsapi:ProcessorReferenceNumber/>
   <fdggwsapi:ProcessorResponseMessage/>
   <fdggwsapi:ErrorMessage>
      SGS-005999: There was an unknown error in the database.
   </fdggwsapi:ErrorMessage>
   <fdggwsapi:OrderId>
      A-e981664e-546f-4db9-895b-6633ee163f69
   </fdggwsapi:OrderId>
   <fdggwsapi:ApprovalCode/>
   <fdggwsapi:AVSResponse/>
   <fdggwsapi:TDate/>
   <fdggwsapi:TransactionResult>DECLINED</fdggwsapi:TransactionResult>
   <fdggwsapi:ProcessorResponseCode/>
   <fdggwsapi:ProcessorApprovalCode/>
   <fdggwsapi:CalculatedTax/>
   <fdggwsapi:CalculatedShipping/>
   <fdggwsapi:TransactionScore/>
   <fdggwsapi:AuthenticationResponseCode/>
</fdggwsapi:FDGGWSApiOrderResponse>
```

Explanation: You may have tried to void a credit card transaction as a different payment type.

20.2 cURL Login Error Messages

```
* unable to set private key file: 'C:\API\config\WS120666668._.1.key' type
PEM
* Closing connection #0
curl: (58) unable to set private key file: 'C:\API\config\
WS120666668._.1.key' type PEM
```

Explanation: Your keystore and password do not match. Ensure that you used the right keystore and password. Check that you used the WS<storeId>._.1.pem file. You can append .cer to the file name so that you can open the certificate with a double click. The certificate must be exposed for your store. Remove the extension .cer after the check.

```
<html>
   <head>
      <title>Apache Tomcat/5.5.20 - Error report</title>
      <style>
      ...
      </style>
   </head>
   <body>
      <h1>HTTP Status 401 -</h1>
      <HR size="1" noshade="noshade">
      <p>
         <b>type</b>
         Status report
      </p>
      <p>
         <b>message</b>
         <u></u>
      </p>
      <p>
```

```
         <b>description</b>
         <u>This request requires HTTP authentication ().</u>
      </p>
      <HR size="1" noshade="noshade">
      <h3>Apache Tomcat/5.5.20</h3>
   </body>
</html>
```

Explanation: Your user ID and/or password are incorrect. The First Data Global Gateway Web Service API accepted your certificates.

20.3 Java Client Login Error Messages

```
java.io.IOException: Keystore was tampered with, or password was incorrect
```

Explanation: Your keystore password does not match. You can check the password with the keytool of the JDK. Password is case sensitive. Run the following command:

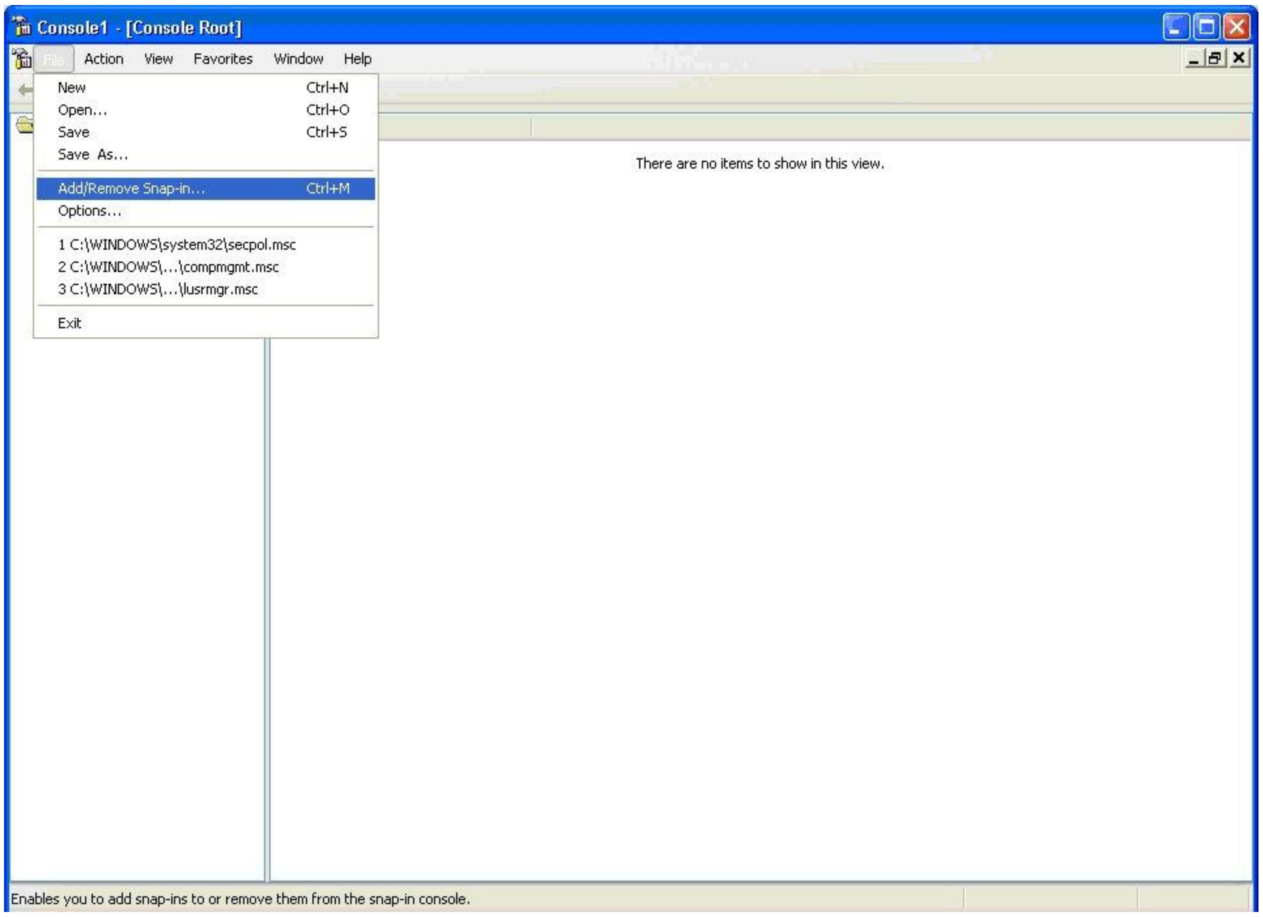
```
keytool -list -v -keystore <absolute path of your WS{store_id}._.1.ks
keystore> -storepass <your keystore password>

javax.net.ssl.SSLHandshakeException:
sun.security.validator.ValidatorException: No trusted certificate found
```

Check the cacerts file is available under {JAVA_HOME}/jre/lib/security folder

21 Installing the Client Certificate

The following instructions assume you are running ASP on Microsoft IIS 5.1 on Windows XP. To install the client certificate, follow these steps:

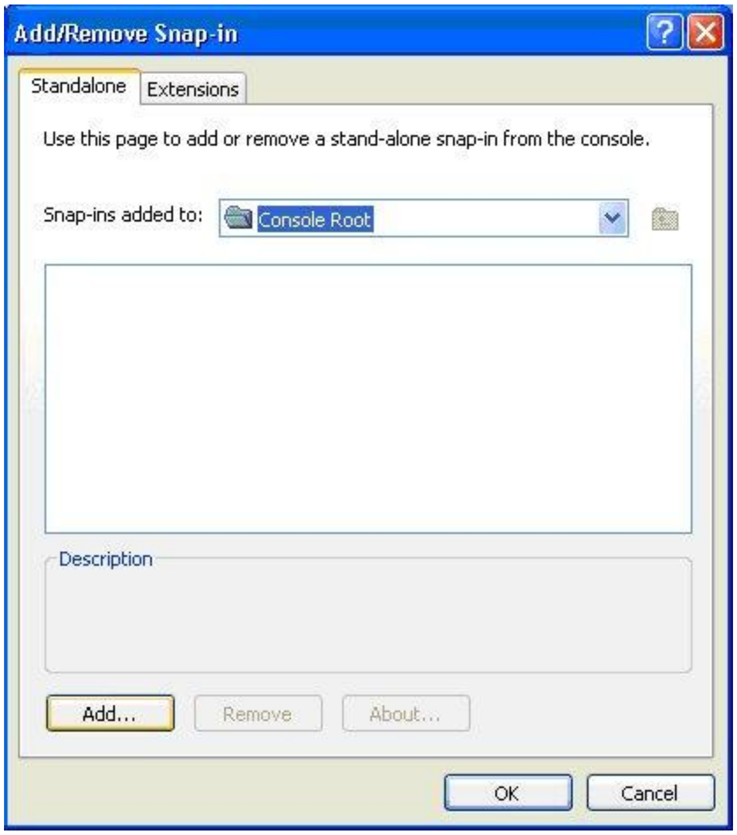
1. Select **Run** from the **Start** menu. Enter **mmc** in the Run dialog and click **OK**.
2. From the **File** menu, select **Add/Remove Snap-In**.


Console1 - [Console Root]
File
Action
View
Favorites
Window
Help
New Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As...
Add/Remove Snap-in... Ctrl+M
Options...
1 C:\WINDOWS\system32\secpol.msc
2 C:\WINDOWS\...\compmgmt.msc
3 C:\WINDOWS\...\lusrmgr.msc
Exit

There are no items to show in this view.

Enables you to add snap-ins to or remove them from the snap-in console.

3. Click **Add**.


Add/Remove Snap-in

Standalone | Extensions

Use this page to add or remove a stand-alone snap-in from the console.

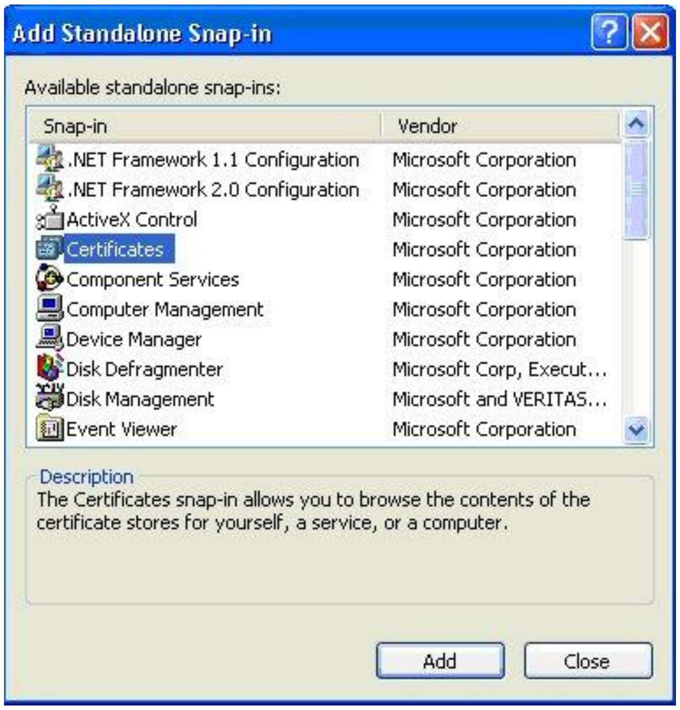
Snap-ins added to: Console Root

Description

Add... | Remove | About...

OK | Cancel

4. Under **Snap-In**, select **Certificates** and click **Add**.


Add Standalone Snap-in

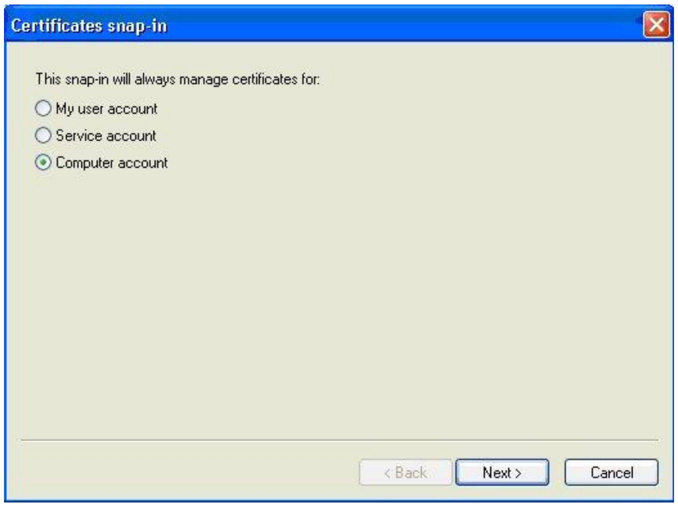
Available standalone snap-ins:

Snap-in	Vendor
.NET Framework 1.1 Configuration	Microsoft Corporation
.NET Framework 2.0 Configuration	Microsoft Corporation
ActiveX Control	Microsoft Corporation
Certificates	Microsoft Corporation
Component Services	Microsoft Corporation
Computer Management	Microsoft Corporation
Device Manager	Microsoft Corporation
Disk Defragmenter	Microsoft Corp, Execut...
Disk Management	Microsoft and VERITAS...
Event Viewer	Microsoft Corporation

Description
The Certificates snap-in allows you to browse the contents of the certificate stores for yourself, a service, or a computer.

Add | Close

5. Select the account for which you want to manage the certificates. Since IIS uses the computer account, choose **Computer Account** and click **Next**.

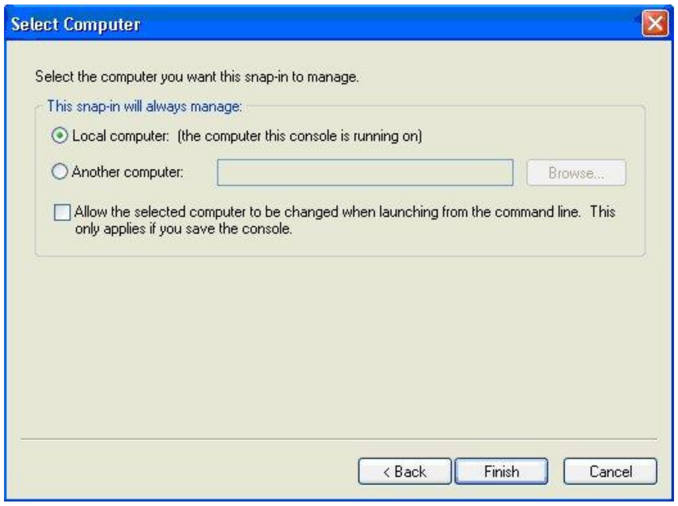


Certificates snap-in

This snap-in will always manage certificates for:

( ) My user account
( ) Service account
(•) Computer account

6. Choose **Local Computer** and click **Finish**.



Select Computer

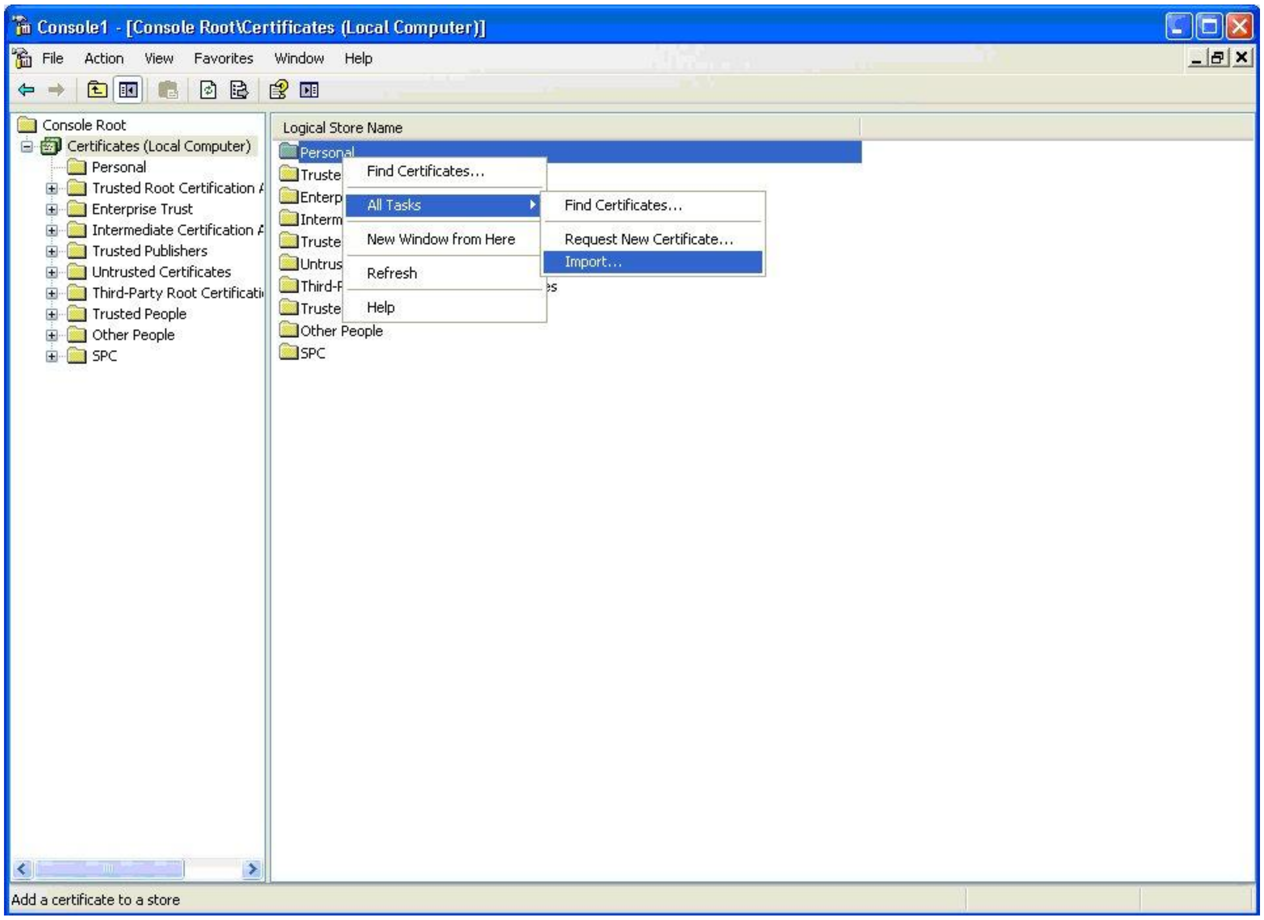
Select the computer you want this snap-in to manage.

This snap-in will always manage:

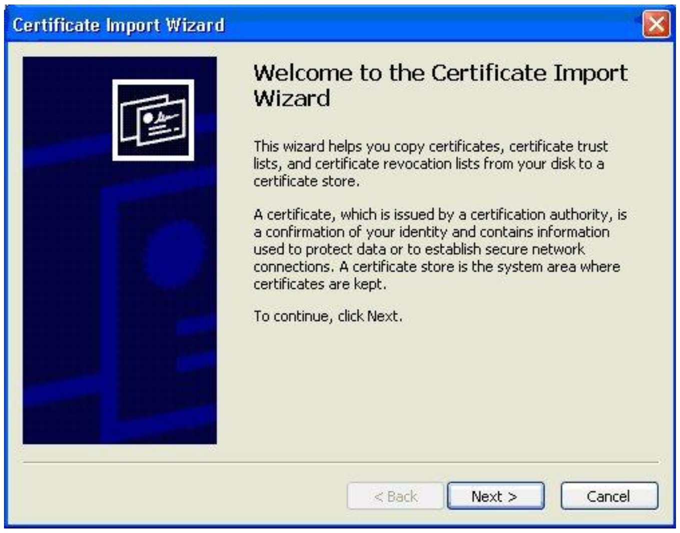
(•) Local computer: (the computer this console is running on)
( ) Another computer:

[ ] Allow the selected computer to be changed when launching from the command line. This only applies if you save the console.

7. Click **Close** and then **OK**.
8. Expand the **Certificates (Local Computer)** tree. The client certificate will be installed in the **Personal** folder.
9. Right click the **Certificates** folder, select **All Tasks**, and click **Import**. The Certificate Import Wizard displays.


Console1 - [Console Root\Certificates (Local Computer)]
File Action View Favorites Window Help
Console Root
Certificates (Local Computer)
Personal
Trusted Root Certification A
Enterprise Trust
Intermediate Certification A
Trusted Publishers
Untrusted Certificates
Third-Party Root Certificati
Trusted People
Other People
SPC
Logical Store Name
Personal
Find Certificates...
All Tasks
New Window from Here
Refresh
Help
Find Certificates...
Request New Certificate...
Import...
Add a certificate to a store

10. Click **Next**.



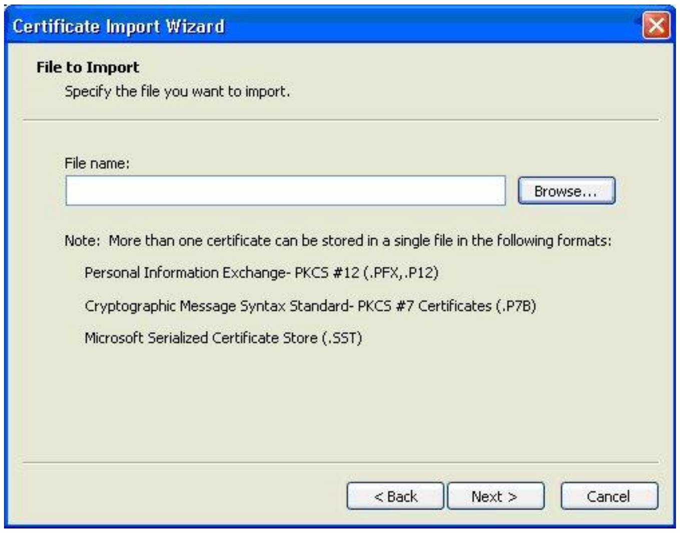
Welcome to the Certificate Import Wizard

This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

To continue, click Next.

11. Choose your client certificate p12 file and click **Next**.



Certificate Import Wizard

File to Import

Specify the file you want to import.

File name:

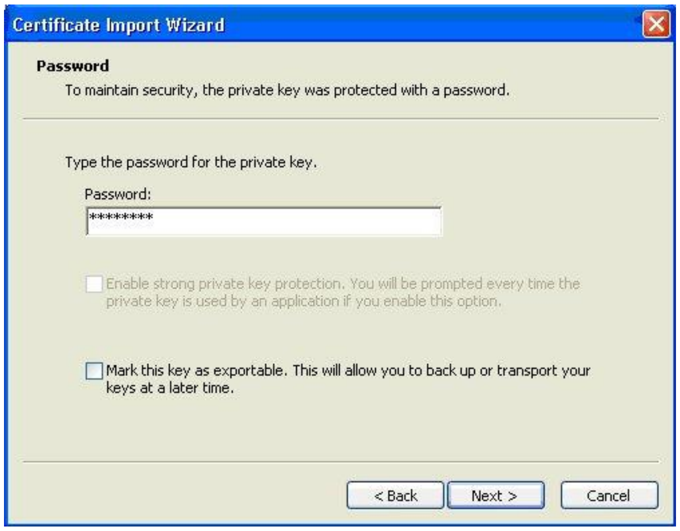
Note: More than one certificate can be stored in a single file in the following formats:

Personal Information Exchange- PKCS #12 (.PFX,.P12)

Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)

Microsoft Serialized Certificate Store (.SST)

12. Enter the client certificate installation password and click **Next**.



Certificate Import Wizard

Password

To maintain security, the private key was protected with a password.

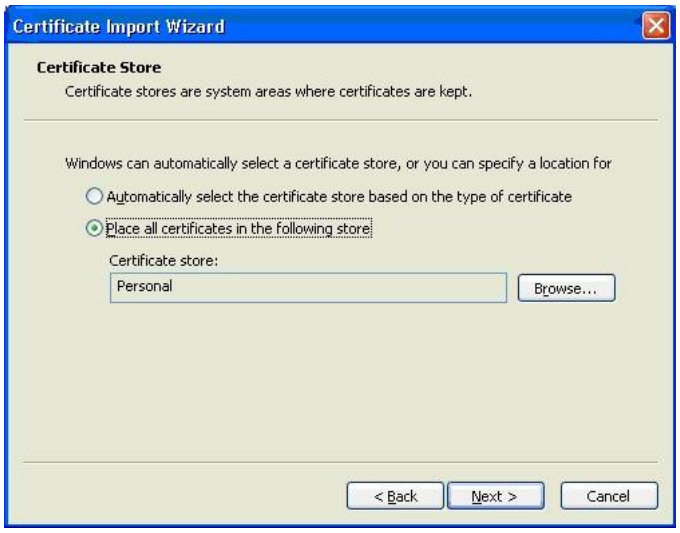
Type the password for the private key.

Password: ********

☐ Enable strong private key protection. You will be prompted every time the private key is used by an application if you enable this option.

☐ Mark this key as exportable. This will allow you to back up or transport your keys at a later time.

13. Select **Place all certificates in the following store** and browse for the **Personal** folder if not yet displayed. Click **Next**.



Certificate Store

Certificate stores are system areas where certificates are kept.

Windows can automatically select a certificate store, or you can specify a location for

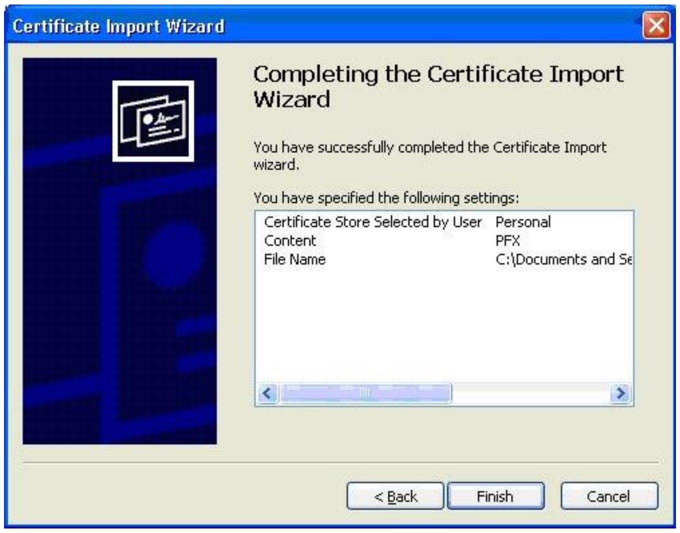
( ) Automatically select the certificate store based on the type of certificate

[✓ Place all certificates in the following store]

Certificate store: Personal

Browse...

14. Check the displayed settings and click **Finish**. Your client certificate is now installed in the local computer's personal certificates store. Now, IIS (running ASP) can find the client certificate when communicating with another server via HTTP.



Completing the Certificate Import Wizard

You have successfully completed the Certificate Import wizard.

You have specified the following settings:

Certificate Store Selected by User	Personal
Content	PFX
File Name	C:\Documents and Se

Next, you need to grant the IIS user access to the client certificate private key. To do so, first download the WinHttpCertCfg tool from Microsoft. Use the following URL:

http://www.microsoft.com/downloads/details.aspx?familyid=c42e27ac-3409-40e9-8667-c748e422833f&displaylang=en

To grant access to the IIS user, using the command line, navigate to the directory where you installed WinHttpCertCfg and enter the following command:

```
winhttpcertcfg -g -c LOCAL_MACHINE\My -s WS101._.1 -a IWAM_MyMachine
```

`WS101._.1` is the name of the client certificate. Replace this value with the name of your client certificate. The name should be in the format WS<store_ID>._.1. Verify this value when you install the client certificate using the instructions above.

`IWAM_MyMachine` is the IIS user name. IIS 5.1 uses `IWAM_`MachineName by default. Replace MachineName with the name of your machine. For example, if your machine has the name IISServerMachine, the IIS user will be called `IWAM_IISServerMachine`. Other IIS versions might use a different naming scheme. If you do not know your machine name or IIS user name, check the IIS documentation and contact your administrator.