Version

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NestPay®

Merchant Integration
3D

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Contents

1.3D Model

3D is the basic internet integration model of payment with API through MPI.

Basic Features:

- Enables processing of 3D secure card transactions
- HTTP Post method and API are combined for merchant integration
- Credit card page is hosted by the merchant.
- The provision of credit card transactions is done by the merchant using API.

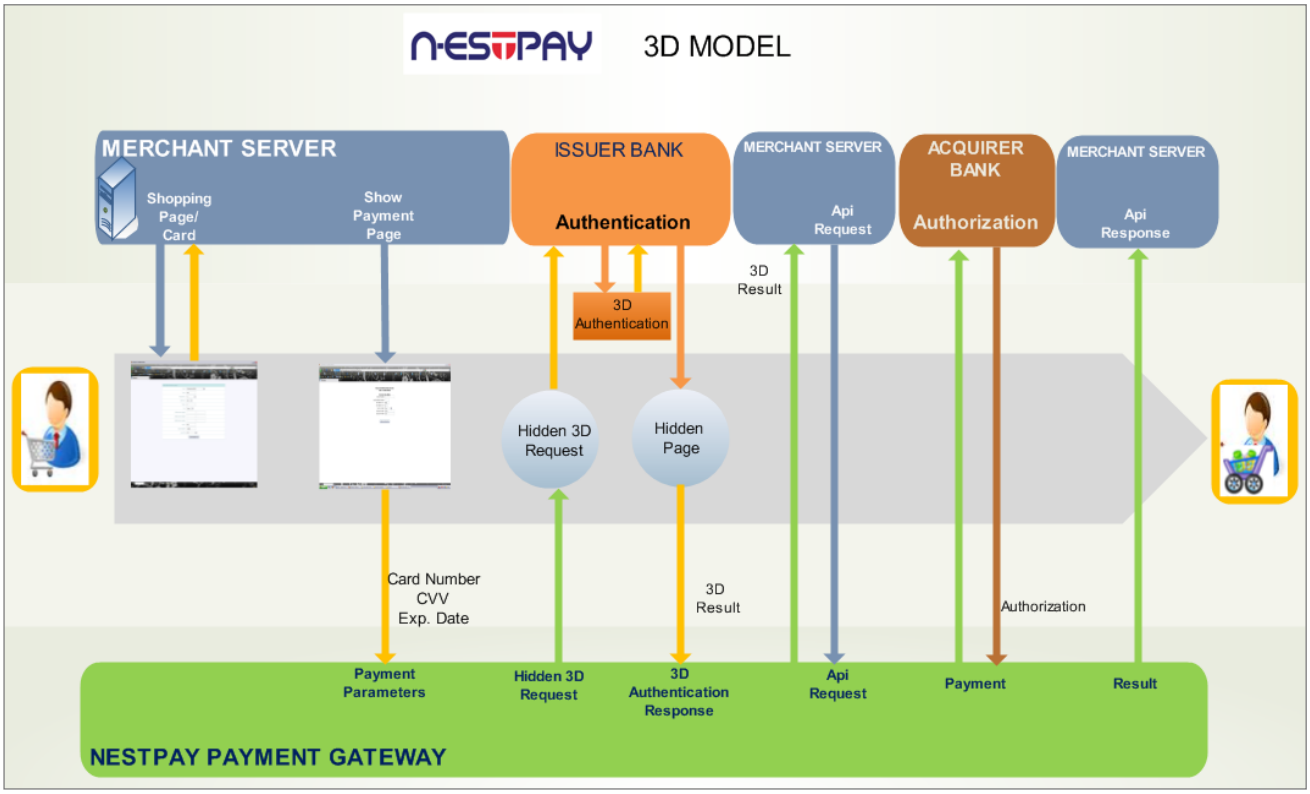
After obtaining all necessary shopping data from the customer like order amount, currency, customer name/surname etc., merchant server generates a unique order ID. Necessary parameters are posted with HTTP Post method to NestPay.

For credit card payment methods, (Visa, MasterCard etc.) merchant server needs to submit card details like card number, CVV2, and expiry date. After the order/card data is obtained from the user, 3D flow including enrolment and authentication queries starts. In 3D flow, the 3D authentication information of the customer is queried by the issuer bank. The methods for 3D authentication can be different for different issuers. Examples of 3D authentication methods include using 3D secure passwords, one-time passwords, and security questions.

Using this model,

1. Integration process is easy.
2. Bank's SSL certificate is used. Therefore the software cannot be updated.

3. In addition to the obligatory parameters, merchants can POST other data, such as username, user email or user id. This data is sent back to the merchant by the bank.



2. Nestpay 3D Model

3D Model Diagram

3. Quick Start Guide

This section will describe how to perform a successful Sale VISA transaction with **3D Model**.

3.1 Generate Hash for Client Authentication

3.1.1 Hash Version 2 – SHA 512 Algorithm

Hash for Version 2 is the base64-encoded version of the hashed text which is generated with SHA512 algorithm. For using Hash Version 2, "***hashAlgorithm"*** parameter should be sent in the request with the value of **"ver2"**.
To generate the hash for client authentication, the following parameter values should be appended in the order given below by using pipeline "|" as a separator. If a parameter is to be skipped, a double pipeline "||" can be used instead.

```
plaintext = clientid + | + oid + | + amount +| + okurl +| + failurl + | + transaction type + | +
    instalment + | + rnd +|||| + currency +|+ storeKey
```

Note: In case "|" character needs to be used in a parameter, "\" character can be used for escaping. Additionally, if the "\" character is also used in a parameter, we use another "\" character before it and then append it to hash plain text. An example is shown below:

```
Original Text  : ORDER-256712jbs\j6b|
Escaped Text : ORDER-256712jbs\\j6b\|
```

- **Given parameters**

Clienid : 990000000000001
oid : ORDER256712jbs\j6b|
amount : 91.96
okurl : https://www.teststore.com/success.php
failurl : https://www.teststore.com/fail.php
transaction type : Auth
instalment : 2
rnd : asdf
currency : 949
storekey : AB123456\|

- **Hash**

Plaintext=
99000000000001|ORDER256712jbs\\j6b\||91.96|https://www.teststore.com/success.php|https://www.teststore.com/fail.php|Auth|2|asdf||||949|AB123456\\\|

Hash = Base64(SHA512(plaintext))

3.2 Posting Hidden Parameters

Mandatory input parameters are posted to NestPay Payment Gateway located at **https://[*host_name*]/fim/est3dgate** as hidden parameters.

Clientid : Merchant ID (given by Nestpay)
storetype : **"3D"**
hash : Hash value for client authentication
trantype : "Auth"
amount : transaction amount
currency : ISO numerical code of transaction currency (e.g. 949 for TL)
oid : Unique identifier of the order
okUrl : The return URL to which **NestPay Payment Gateway** redirects the browser of the customer if transaction is completed successfully.
failUrl : The return URL to which **NestPay Payment Gateway** redirects the browser of the customer if transaction is completed unsuccessfully.
Lang : Language of the payment pages hosted by NestPay ("tr" for Turkish, "en" for English)
pan : Card number
Ecom_Payment_Card_ExpDate_Year : Expiry year
Ecom_Payment_Card_ExpDate_Month : Expiry month
cv2 : Cv2 number
encoding : Page encoding
hashAlgorithm : ver2

3.2.1 Sample HTTP form with mandatory parameter set

```
<form method="post" action="https://host_name/fim/est3dgate">
        <input type="hidden" name="clientid" value="990000000000001"/>
        <input type="hidden" name="storetype" value="3D" />
        <input type="hidden" name="hash" value="iej6cPOjDd4IKqXWQEznXWqLzLI=" />
        <input type="hidden" name="trantype" value="Auth" />
        <input type="hidden" name="amount" value="91.96" />
        <input type="hidden" name="currency" value="949" />
```

```
        <input type=”hidden” name=”oid” value=”1291899411421” />
        <input type=”hidden” name=”okUrl” value=”https://www.teststore.com/success.php”/>
        <input type=”hidden” name=”failUrl” value=”https://www.teststore.com/fail.php” />
        <input type=”hidden” name=”lang” value=”en” />
        <input type=”hidden” name=”rnd” value=”asdf” />
        <input type=”hidden” input name=”pan” value=”4242424242424242”>
        <input type=”hidden” input name=”Ecom_Payment_Card_ExpDate_Year” value=”28” >
        <input type=”hidden” input name=”Ecom_Payment_Card_ExpDate_Month” value=”10”>
        <input type=”hidden” input name=”cv2” value=”000”>
        <input type=”hidden” input name=”encoding” value=”utf-8”>
        <input type="hidden" name="hashAlgorithm" value="ver2">


</form>
```

3.3 3D Authentication

In 3D flow, 3D authentication information of the customer is queried by the issuer bank. Methods for 3D authentication can be different for different issuers. Examples of 3D authentication methods include using 3D secure passwords, one-time passwords, and security questions.

3.4 Payment

MPI response parameters will be sent back to merchants as a result of 3D authentication along with all parameters sent by the merchant. To see the full list of MPI response parameters, please refer to Appendix A.

Basic transaction response parameters for fully authenticated successful 3D transaction:

Response	: “Approved”
mdStatus	: Status code for the 3D transaction
eci	: Electronic Commerce Indicator
cavv	: Cardholder Authentication Verification Value, determined by ACS.
mdErrorMsg	: Error Message from MPI (if any)
xid	: Unique Internet transaction ID
md	: Hash replacing card number

To make the payment with API, the API request message needs to be generated and post to NestPay API server (https://[host_name]/fim/cc5xml). For API specifications please refer to API documentation. Transaction will be processed and the API response message containing response parameters will be returned.

In API request generation, the following elements should be set correctly.

<Number> element needs to be set to ***md*** parameter.
<PayerAuthenticationCode> element needs to be set to ***cavv*** parameter.
<PayerSecurityLevel> element needs to be set to ***eci*** parameter.
<PayerTxnId> element needs to be set to ***xid*** parameter.

There are three cases.

- **mdStatus = 1 (Full 3D), 2, 3 or 4 (Half 3D)**

  Number, PayerAuthenticationCode, PayerSecurityLevel and PayerTxnId must be set in the API request. The CVV2 and Expiry should not be set. Moreover the credit card number needs to be set to the "md" value in MPI response parameters.

- **mdStatus = 5, 7, 8 (MPI fallback)**

  Number, PayerAuthenticationCode, PayerSecurityLevel and PayerTxnId can be set in the API request. The CVV2 and Expiry should not be set in this case.The credit card number needs to be set to the "md" value in MPI response parameters. However since this is a non-secure transaction, standard API request can be used where md parameter is not used and card number, expiry and CVV are set.

- **mdStatus = 0 (Authentication failed), 6 (no payment should be made.)**

3D Authentication Response Values (xid, cavv, eci and md) sent with API

Card information is not sent explicitly within Api parameters. MD value of the MPI response parameters is sent instead of the card number.

<Number>540667:AD3547B4208D960B3A24422F47166B5C37BF8AE531FD43C2AB04381F34B7662B:3128:#**</Number>**

In Full and Half 3D transactions expiry date (Expires), Cvv2 number (Cvv2Val), total amount (Total) fields **should not** be sent with the Api request:

```
<Expires>***</Expires>
<Cvv2Val>***</Cvv2Val>
<Total>9.95</Total>
```

Even though merchant sends the amount, it is ignored. Wrong amounts will not be rejected.

Example:

3D query amount : 330,30 €

The amount posted to API : 453,60 €

In this case the amount of 330,30 will be sent to the acquirer for provision.

3.4.1.1 API request sample:

```
<?xml version="1.0" encoding="ISO-88599">
<CC5Request>
   <Name>apiuser</Name>
   <Password>apipassword</Password>
   <clientid>990000000000001</clientid>
   <IPAddress>192.169.0.76</IPAddress>
   <oid>1292492233096</oid>
   <Type>Auth</Type>
<Number>401550:B4DD659706E55C0FDB6AE46C4746C5B368577052FAF67A6901AF6342EED6DA3B:43
    51:#
   </Number>
   <amount>129,96</amount>
   <currency>949</currency>
   <PayerTxnId>IbjqznvVmFoAf99bRkOyegKQCY=</PayerTxnId>
   <PayerSecurityLevel>05</PayerSecurityLevel>
   <PayerAuthenticationCode> AAABBgIBEgAAAAABcwESAAAAAAA=</PayerAuthenticationCode>
</CC5Request>
```

Note: The *Name* and *Password* elements in this XML request are NOT merchant name and password. They are the credentials of the API user of the merchant created by the merchant administrator on merchant administration panel. Please refer to the Merchant Administration Guide on how to create an API user.

In the response message, *Response*="Approved" or *ProcReturnCode*="00" will indicate that the transaction has been authorized.

3.4.1.2 The response message sample for the request would be

```
<?xml version=”1.0” encoding=”ISO-8859-2”?>
<CC5Response>
<oid>1292492722637</oid>
<GroupId>1292492722637</GroupId>
<Response>Approved</Response>
<AuthCode>801022</AuthCode>
<HostRefNum>035010000340</HostRefNum>
<ProcReturnCode>00</ProcReturnCode>
<TransId>103501145290410086</TransId>
<ErrMsg></ErrMsg>
<Extra>
    <SETTLEID>20101216</SETTLEID>
    <TRXDATE>20101216 11:45:29</TRXDATE>
    <ERRORCODE></ERRORCODE>
    <NUMCODE>00</NUMCODE>
    <CARDBRAND>VISA</CARDBRAND>
</Extra>
</CC5Response>
```

4.Integration Basics

4.1 HTTP Post Integration

After receiving a valid order, parameters are posted to NestPay payment gateway as hidden parameters within the HTTP form.

The 28 byte-long base-64 encoded *xid* parameter is the unique Internet transaction ID which is required for 3D secure transactions. If it is not sent by the merchant, it will be created automatically by the system.

4.1.1 Sample HTTP form with mandatory and optional parameters

```
<form method=”post” action=”https://host/fim/Nestpaygate”>
        <input type=”hidden” name=”clientid” value=”990000000000001”/>
         <input type=”hidden” name=”storetype” value=”3D” />
         <input type=”hidden” name=”hash” value=”iej6cPOjDd4IKqXWQEznXWqLzLI=” />
         <input type=”hidden” name=”trantype” value=”Auth” />
         <input type=”hidden” name=”amount” value=”91.96” />
         <input type=”hidden” name=”currency” value=”949” />
```

```
        <input type=”hidden” name=”instalment” value=”” />
        <input type=”hidden” name=”oid” value=”1291899411421” />
        <input type=”hidden” name=”okUrl” value=”https://www.teststore.com/success.php” / >
        <input type=”hidden” name=”failUrl” value=”https://www.teststore.com/fail.php” />
       <input type=”hidden” name=”lang” value=”tr” />
       <input type=”hidden” name=”rnd” value=”asdf” />
       <input type=”hidden” input name=”pan” value=”4242424242424242”>
       <input type=”hidden” input name=”Ecom_Payment_Card_ExpDate_Year” value=”28” >
       <input type=”hidden” input name=”Ecom_Payment_Card_ExpDate_Month” value=”10”>
       <input type=”hidden” input name=”cv2” value=”000”>
       <input type=”hidden” input name=”encoding” value=”utf-8”>
       <input type="hidden" name="hashAlgorithm" value="ver2">
</form>
```

4.2 Card Transactions

Submitting the form with card data will start the 3D authentication flow with the customer. After the 3D authentication process is completed, the MPI response parameters and all parameters sent by merchant will be posted back to the merchant to make the payment. The payment will be done according to *mdStatus* field which shows the status code of the 3D secure transaction.

4.2.1 MPI Response Parameters

mdStatus	**:** Status code for the 3D transaction
txstatus	**:** 3D status for archival
eci	**:** Electronic Commerce Indicator
cavv	**:** Cardholder Authentication Verification Value, determined by ACS.
Md	: Hash replacing card number
mdErrorMsg	: Error Message from MPI

4.2.2 Possible mdStatus values

- 1 = Authenticated transaction (Full 3D)
- 2, 3, 4 = Card not participating or attempt (Half 3D)
- 5, 6, 7, 8 = Authentication not available or system error
- 0 = Authentication failed

For *mdStatus* {1, 2, 3, 4, 5, 7, 8} values, payment will be done by NestPay API Server. All other transactions with mdStatus {0, 6} will be rejected and marked as failed transactions. The transactions with mdStatus {5, 7, 8} will be sent to the acquirer as non-3D transactions.

4.2.3 Generating API Request

In 3D model, the CVV2 and expiry are not sent with API request. In addition to basic API request elements, the 3D transaction details (Number, PayerAuthenticationCode, PayerSecurityLevel, PayerTxnId) need be set correctly in API request message:

<Number> element needs to be set to *md* parameter value.
<PayerAuthenticationCode> element needs to be set to *cavv* parameter value.
<PayerSecurityLevel> element needs to be set to *eci* parameter value.
<PayerTxnId> element needs to be set to *xid* parameter value.

For some cases (*mdStatus*=2) *eci* field can be empty. Even in this case *PayerSecurityLevel* needs to be sent by setting it to empty string.
The API request will be post to https://[host_name]/fim/api. Please refer to API documentation for full API specification.

4.2.3.1 Possible API Transaction Results

- **Response:** *"Approved"*

ProcReturnCode will be "00". This shows that the transaction has been authorized.

- **Response:** *"Declined"*

ProcReturnCode will be a 2 digit number other than "00" and "99" which corresponds to acquirer error code. This shows that the transaction has NOT been authorized by the acquirer. *ErrMsg* parameter will give the detailed description of the error. For detailed description of acquirer error codes for *ProcReturnCode,* please refer to Appendix A.

- **Response**: *"Error"*

ProcReturnCode will be "99". This shows that the transaction has NOT reached acquirer authorization step. *ErrMsg* parameter will give the detailed description of the error.

4.3 Hash Checking

After merchant receives the parameters, a hash check needs to be done at merchant's server for validating the parameters. Hash checking ensures that the message is sent by Nestpay only. **"*hashAlgorithm*"** parameter value should be set as **"ver2"** so that Hash Version 2 will be selected as hash calculation method.

4.3.1 Generating the plain text for Hash Ver-2

The parameters used for hash calculation are the following: *clientid, oid, AuthCode, ProcReturnCode, Response, rnd, md, eci, cavv, mdStatus.* Depending on the type of transaction a subset of these parameters will be included in the hash generation

- HASHPARAMS, HASHPARAMSVAL
- Non 3D-secure card transactions

clientid, oid, Response, rnd

- 3D secure card transactions

clientid, oid, mdStatus eci, cavv ,md, rnd

All the values corresponding to these parameters are appended with the specified order.

Note: In generation of the hash, pipeline "|" character is used as a separator between parameters. The resulting string will be the same as *HASHPARAMSVAL* parameter values. The merchant password is appended as the final value to the end of this string. The resulting hash is the base64-encoded version of the hashed text which is generated with SHA-512 algorithm. Under normal conditions, generated hash text must be the same as *HASH* parameter value posted by NestPay payment gateway. If not, merchant should contact to Nestpay support team.

Note: In case "|" character needs to be used in a parameter, "\" character can be used for escaping. Additionally, if the "\" character is also used in a parameter, we use another "\" character before it and then append it to hash plain text. An example is shown below:

Original order id : ORDER-256712jbs\j6b|
Escaped order id : ORDER-256712jbs\\j6b\|

Example: Non 3D card transaction

Assuming that the transaction response parameters are:

clientid, oid, AuthCode, ProcReturnCode, Response, rnd

clientid : 990000000000001
oid : ORDER256712jbs\j6b|
rnd : LdXGnw20ZupyXVr1XCu2
storeKey : AB123456\|

HASHPARAMSVAL : 990000000000001|ORDER256712jbs\\j6b\||LdXGnw20ZupyXVr1XCu2
HASHPARAMS : clientid|oid|AuthCode|ProcReturnCode|Response|rnd

HASH :
UfrEVCY1lRoThXE571XkSK8a/LnoJOCLgijId+by7qGLKlyChhgnbwRwEJrFQSpSacH9DYk0Zkup2cmyFXoDLg==

The merchant hash text will be generated with clientid, oid, ProcReturnCode, Response, rnd (and store key of the merchant as secret hash element).

And the merchant hash is based64-encoded(SHA512(plain)). The result hash must be the same as the returning parameter *HASH*
Note: Merchant should check Hash parameter using HASHPARAMS, HASHPARAMSVAL return values by the bank for validation of the response.

4.3.2 Security Notes

Merchant must check the mandatory parameters in **HASHPARAMS** parameter. For the approved provisions, *ClientId*, *OrderId* parameter names must be present in **HASHPARAMS.** Merchant must also check the values of these mandatory return parameters. *ClientId* must be the clientId assigned to the merchant.

If these parameters are not present or have wrong values, merchant should not process this transaction and must report it to the Support Desk immediately.

5.Code Samples

The following procedure for 3D Model areas. Values test purposes had been inserted. 3D Model on edited code examples. Merchants, taking into account variables must define values for them. These codes reference purpose formed. ASP Code Sample

5.1 ASP Code Sample

5.1.1 Request Sample Codes

For ASP Classic, there exists no built-in SHA-512 Hash Calculation library. Because of this reason, ASP classic code should be extended to use C# or VB.Net code which have a built-in library for SHA 512 hash generation. Below, you can find example C# and VB Code example for Hash Version 2.

5.1.2 Response Code Sample

```
<html>
<head>
```

```
<title>3D Pay Payment Page</title>
  <meta http-equiv="Content-Language" content="tr">
  <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-9">
  <meta http-equiv="Pragma" content="no-cache">
  <meta http-equiv="Expires" content="now">

</head>

<body>
<!-- #include file = "hex_sha1_js.asp" -->
 <h1>Payment Page</h1>

   <h3> Payment Response</h3>
   <table border="1">
      <tr>
         <td><b>Parameter Name</b></td>
         <td><b>Parameter Value</b></td>
      </tr>

    dim
    obj,ok,mdstatus,hashparams,hashparamsval,hash,index1,index2,storekey,hashparam,val,hashval,par
    amsval
    dim paymentparams(5)
    ok = 1


'hash checking parameters

    storekey = "xxxxxx"
    index1 = 1
    index2 = 1
    hashparams = request.form("HASHPARAMS")
    hashparamsval = request.form("HASHPARAMSVAL")
    hashparam = request.form("HASH")
    paramsval = ""
    paymentparams (0) = "AuthCode"
    paymentparams (1) = "Response"
    paymentparams (2) = "HostRefNum"
    paymentparams (3) = "ProcReturnCode"
    paymentparams (4) = "TransId"
    paymentparams (5) = "ErrMsg"

    for each obj in request.form
```

```
        ok = 1
        for each item in paymentparams
                if(item = obj) Then
                        ok = 0
                        exit for
                end if
        next
        if ok = 1 then
        response.write("<tr><td>"&obj & "</td><td>" & request.form(obj) & "</td></tr>")
        end if
    next

    </table>
    <br>
    <br>

'hash cheking

    while index1 < Len(hashparams)
        index2 = InStr(index1,hashparams,":")
        xvalx = Mid(hashparams,index1,index2 - index1)
        val = request.form(xvalx)
        if val = null then
        val = ""
        end if
        paramsval = paramsval & val
        index1 = index2 + 1

    Wend

    hashval = paramsval & storekey
    hash = b64_sha1(hashval)
    'response.write("hash=" & hash & "<br/>hashparam=" & hashparam &"<br>paramsval=" &
    paramsval &"<br>hashparamsval=" & hashparamsval )

    if hash <> hashparam or paramsval <> hashparamsval then
        response.write("<h4>Security Alert. The digital signature is not valid.</h4>")
    end if

    mdstatus = Request.Form("mdStatus")
    if mdstatus = 1 or mdstatus = 2  or mdstatus = 3 or mdstatus = 4 Then

    <h5>3D Transaction is Success</h5><br/>
```

```
            <h3> Payment Host</h3>
            <table border="1">
               <tr>
                  <td><b>Parameter Name</b></td>
                  <td><b>Parameter Value</b></td>
               </tr>

    for each item in paymentparams
        response.Write("<tr><td>" & item &"</td><td>" & request.form(item) & "</td></tr>")
    next

    </table>

    if "Approved" = request.form("Response") Then
        Response.write("<h6>Transaction is Success</h6>")
    Else
        Response.write("<h6>Transaction is not Success</h6>")
    end if

    else
        Response.Write("<h6>3D not Approved </h6>")

    end if
</body>
</html>
```

5.2 .Net Code Sample

5.2.1 Request Sample Codes

5.2.1.1 Hash Version 2

5.2.1.1.1.Net - C# Code Sample

```
<%@ page language="C#" autoeventwireup="true"
    inherits="_3DModel, App_Web_fr4klrwv"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>3D Model</title>
</head>
```

```
<body>
    <%
       // plaintext = clientid + | + oid + | + amount +| + okurl +| + failurl + | + transaction type + | +
    instalment +
       // | + rnd +|||| + currency +| + storeKey

       //unEscaped values
       String orgClientId = "990000000000001";
       String orgOid = "ORDER256712jbs\\j6b|";
       String orgAmount = "91.96";
       String orgOkUrl = "https://www.teststore.com/success.php";
       String orgFailUrl = "https://www.teststore.com/fail.php";
       String orgTransactionType = "Auth";
       String orgInstallment = "";
       String orgRnd = DateTime.Now.ToString();
       String orgCurrency = "949";
       // escaped values
       String clientId = orgClientId.Replace("\\", "\\\\").Replace("|", "\\|");
       String oid = orgOid.Replace("\\", "\\\\").Replace("|", "\\|");
       String amount = orgAmount.Replace("\\", "\\\\").Replace("|", "\\|");
       String okUrl = orgOkUrl.Replace("\\", "\\\\").Replace("|", "\\|");
       String failUrl = orgFailUrl.Replace("\\", "\\\\").Replace("|", "\\|");
       String transactionType = orgTransactionType.Replace("\\", "\\\\").Replace("|", "\\|");
       String installment = orgInstallment.Replace("\\", "\\\\").Replace("|", "\\|");
       String rnd = orgRnd.Replace("\\", "\\\\").Replace("|", "\\|");
       String currency = orgCurrency.Replace("\\", "\\\\").Replace("|", "\\|");
       String storeKey = "AB123456\\|".Replace("\\", "\\\\").Replace("|", "\\|");

       String plainText = clientId + "|" + oid + "|" + amount + "|" + okUrl + "|" + failUrl + "|"
              + transactionType + "|" + installment + "|" + rnd + "||||" +currency + "|" + storeKey;

       System.Security.Cryptography.SHA512 sha = new
    System.Security.Cryptography.SHA512CryptoServiceProvider();
       byte[] hashbytes = System.Text.Encoding.GetEncoding("ISO-8859-9").GetBytes(plainText);
       byte[] inputbytes = sha.ComputeHash(hashbytes);
       String hash = Convert.ToBase64String(inputbytes);

       String description = "";
       String xid = "";
       String lang = "";
       String email = "";
       String userid = "";
    %>
```

```
<center>
<form method="post" action="https://<Host_Address>/<3dgate_path>">
        <table>
                <tr>
                    <td>Credit Card Number</td>
                     <td><input type="text" name="pan" size="20" />
                </tr>
                <tr>
                        <td>CVV</td>
                        <td><input type="text" name="cv2" size="4" value="" /></td>
                </tr>
                <tr>
                        <td>Expiration Date Year</td>
                        <td><input type="text" name="Ecom_Payment_Card_ExpDate_Year"
                                value="" /></td>
                </tr>
                <tr>
                        <td>Expiration Date Month</td>
                        <td><input type="text"
name="Ecom_Payment_Card_ExpDate_Month value=" "/></td>
                </tr>
                <tr>
                        <td>Choosing Visa Master Card/td>
                        <td><select name="cardType">
                                <option value="1">Visa</option>
                                <option value="2">MasterCard</option>
                            </select>
                </tr>
                <tr>
                        <td align="center" colspan="2"><input type="submit"
                                value="Complete Payment" /></td>
                </tr>
        </table>
                <input type="hidden" name="clientid" value="<%=orgClientId%>">
                <input type="hidden" name="amount" value="<%=orgAmount%>">
                <input type="hidden" name="oid" value="<%=orgOid%>">
                <input type="hidden" name="okurl" value="<%=orgOkUrl%>">
                <input type="hidden" name="failUrl" value="<%=orgFailUrl%>">
                <input type="hidden" name="TranType" value="<%=orgTransactionType%>">
                <input type="hidden" name="Instalment" value="<%=orgInstallment%>">
                <input type="hidden" name="currency" value="<%=orgCurrency%>">
                <input type="hidden" name="rnd" value="<%=orgRnd%>">
```

```
                    <input type="hidden" name="hash" value="<%=hash%>">
                    <input type="hidden" name="storetype" value="3D">
                    <input type="hidden" name="lang" value="tr">
                    <input type="hidden" name="hashAlgorithm" value="ver2">
        </form>
    </center>
</body>
</html>
```

5.2.1.1.2.Net - VB Code Sample

```
<%@ page language="VB" autoeventwireup="true"
    inherits="_3DModel, App_Web_fr4klrwv"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>3D Model</title>
</head>
<body>
    <%
                    Dim orgClientId As String = "990000000000001"
                    Dim orgOid As String = "ORDER256712jbs\j6b|"
                    Dim orgAmount As String = "91.96"
                    Dim orgOkUrl As String = "https://www.teststore.com/success.php"
                    Dim orgFailUrl As String = "https://www.teststore.com/fail.php"
                    Dim orgTransactionType As String = "Auth"
                    Dim orgInstallment As String = ""
                    Dim orgRnd As String = DateTime.Now.ToString()
                    Dim orgCurrency As String = "949"

                    Dim clientId As String = orgClientId.Replace("\", "\\").Replace("|", "\|")
                    Dim oid  As String = orgOid.Replace("\", "\\").Replace("|", "\|")
                    Dim amount As String  = orgAmount.Replace("\", "\\").Replace("|", "\|")
                    Dim okUrl As String = orgOkUrl.Replace("\", "\\").Replace("|", "\|")
                    Dim failUrl As String = orgFailUrl.Replace("\", "\\").Replace("|", "\|")
                    Dim transactionType As String = orgTransactionType.Replace("\",
    "\\").Replace("|", "\|")
                    Dim installment As String = orgInstallment.Replace("\", "\\").Replace("|", "\|")
                    Dim rnd As String = orgRnd.Replace("\", "\\").Replace("|", "\|")
```

```
                    Dim currency As String = orgCurrency.Replace("\", "\\").Replace("|", "\|")
                    Dim storeKey As String = "AB123456\|".Replace("\", "\\").Replace("|", "\|")

                    Dim plainText As String  = clientId + "|" + oid + "|" + amount + "|" + okUrl + "|"
+ failUrl + "|" + transactionType + "|" + installment + "|" + rnd + "||||" + currency + "|" +
storeKey
          Dim result As Byte()
          Dim mixer As String
          Dim sha As New System.Security.Cryptography.SHA512Managed()
          result = sha.ComputeHash(System.Text.Encoding.ASCII.GetBytes(plainText))
          Dim hashValue As String  = Convert.ToBase64String(result)

                    Dim description As String = "";
                    Dim xid As String = "";
                    Dim lang As String = "";
                    Dim email As String = "";
                    Dim userid As String = "";
%>

<center>
    <form method="post" action="https://<Host_Address>/<3dgate_path>">
            <table>
                    <tr>
                            <td>Credit Card Number</td>
                            <td><input type="text" name="pan" size="20" />
                    </tr>
                    <tr>
                            <td>CVV</td>
                            <td><input type="text" name="cv2" size="4" value="" /></td>
                    </tr>
                    <tr>
                            <td>Expiration Date Year</td>
                            <td><input type="text" name="Ecom_Payment_Card_ExpDate_Year"
                                    value="" /></td>
                    </tr>
                    <tr>
                            <td>Expiration Date Month</td>
                            <td><input type="text"
                                    name="Ecom_Payment_Card_ExpDate_Month value=" "/></td>
                    </tr>
                    <tr>
                            <td>Choosing Visa Master Card/td>
```

```
                                    <td><select name="cardType">
                                            <option value="1">Visa</option>
                                            <option value="2">MasterCard</option>
                                    </select>
                            </tr>
                            <tr>
                                    <td align="center" colspan="2"><input type="submit"
                                            value="Complete Payment" /></td>
                            </tr>
                    </table>
                    <input type="hidden" name="clientid" value="<%=orgClientId%>">
                            <input type="hidden" name="amount" value="<%=orgAmount%>">
                            <input type="hidden" name="oid" value="<%=orgOid%>">
                            <input type="hidden" name="okurl" value="<%=orgOkUrl%>">
                            <input type="hidden" name="failUrl" value="<%=orgFailUrl%>">
                            <input type="hidden" name="TranType" value="<%=orgTransactionType%>">
                            <input type="hidden" name="Instalment" value="<%=orgInstallment%>">

                            <input type="hidden" name="currency" value="<%=orgCurrency%>">
                            <input type="hidden" name="rnd" value="<%=orgRnd%>">
                            <input type="hidden" name="hash" value="<%=hash%>">
                            <input type="hidden" name="storetype" value="3D">
                            <input type="hidden" name="lang" value="tr">
                            <input type="hidden" name="hashAlgorithm" value="ver2">
            </form>
        </center>
    </body>
    </html>
```

5.2.2 Response Code Sample

5.2.2.1 .Net - C# Sample Code

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>3d Pay Payment Page</title>
</head>
<body>
    <h1>3D Payment Page</h1>
    <h3>Payment Response</h3>
    <table border="1">
```

```
<%
String originalClientId = "xxxxxx";
 String [] mustParameters = new String[] {"clientid","oid","Response"};
  boolean isValid = true;
  for(int i=0;i<mustParameters.length;i++)
   {
    if(Request.Form[mustParameters[i]] == null || Request.Form[mustParameters[i]] == "" )
     {
            if(mustParameters[i].equals("oid")){
        if(Request.Form["ReturnOid"] == null || Request.Form["ReturnOid"] == "" ){
          isValid = false;
          Response.Write("<tr><td>Missing Required Param</td>"+"<td>oid /
ReturnOid</td></tr>");
        }
       }else{
          isValid = false;
                Response.Write("<tr><td>Missing Required
Param</td>"+"<td>"+mustParameters[i]+"</td></tr>");
       }
     }
  }
  if(!Request.Form.Get("clientid").Equals(originalClientId)){
    Response.Write("<h4>Security Alert. Incorrect Client Id.</h4>");
    return;
  }

  if(!isValid){
    Response.Write("<h4>Security Alert. The digital signature is not valid. Required Paramaters are
missing.</h4>");
    return;
  } else {

%>
    <tr>
        <td><b>Parameter Name</b></td>
        <td><b>Parameter Value</b></td>
    </tr>
    <%
      String[] paymentparams = new String[] { "AuthCode", "Response", "HostRefNum",
"ProcReturnCode", "TransId", "ErrMsg" };
      IEnumerator e = Request.Form.GetEnumerator();
      while (e.MoveNext()) {
        String xkey = (String) e.Current;
```

```
            String xval = Request.Form.Get(xkey);
            boolean ok = true;
            for (int i = 0; i < paymentparams.Length; i++) {
                if (xkey.Equals(paymentparams [i])) {
                    ok = false;
                    break;
                }
            }
            if (ok)
                Response.Write("<tr><td>" + xkey + "</td><td>" + xval + "</td></tr>");
        }
    %>
</table>

<%
    String hashparams = Request.Form["HASHPARAMS"];
    String hashparamsval = Request.Form["HASHPARAMSVAL"];
     String hash = "";
    String storekey = "xxxxxx";
    String paramsval = "";
     String hashval = "";
    int index1 = 0, index2 = 0;

     if (Request.Form.Get("hashAlgorithm").Equals("ver2")){
            string[] parsedParams = hashparams.Split('|');
            foreach (string parsedParam in parsedParams)
            {
                    String val = Request.Form.Get(parsedParam) == null ? "" :
Request.Form.Get(parsedParam);
                    paramsval += val.Replace("\\", "\\\\").Replace("|", "\\|") + "|";
            }

            hashval = paramsval + storekey.Replace("\\", "\\\\").Replace("|", "\\|");
            String hashparam = Request.Form.Get("HASH");

            System.Security.Cryptography.SHA512 sha = new
System.Security.Cryptography.SHA512CryptoServiceProvider();
            byte[] hashbytes = System.Text.Encoding.GetEncoding("ISO-8859-
9").GetBytes(hashval);
            byte[] inputbytes = sha.ComputeHash(hashbytes);
            hash = Convert.ToBase64String(inputbytes);
    } else {
             do
```

```
            {
                    index2 = hashparams.IndexOf(":", index1);
                    String val = Request.Form.Get(hashparams.Substring(index1, index2-index1))
==   null ? "" : Request.Form.Get(hashparams.Substring(index1, index2-index1));
                    paramsval += val;
                    index1 = index2 + 1;
            }
            while (index1 < hashparams.Length);
            hashval = paramsval + storekey;
            String hashparam = Request.Form.Get("HASH");
            System.Security.Cryptography.SHA1 sha = new
System.Security.Cryptography.SHA1CryptoServiceProvider();
            byte[] hashbytes = System.Text.Encoding.GetEncoding("ISO-8859-
9").GetBytes(hashval);
            byte[] inputbytes = sha.ComputeHash(hashbytes);
            hash = Convert.ToBase64String(inputbytes);
     }

   if (!paramsval.Equals(hashparamsval) || !hash.Equals(hashparam)) {
      Response.Write("<h4>Security Alert. The digital signature is not valid.</h4>");
            Response.Write("<h4>Generated Hash Val : " + paramsval + "</h4>");
            Response.Write("<h4>Original Hash Val : " + hashparamsval + "</h4>");
   }

   String mdStatus = Request.Form["mdStatus"];
   if (mdStatus.Equals("1") || mdStatus.Equals("2") || mdStatus.Equals("3") ||
mdStatus.Equals("4")) {
%>
<h5>3D Transaction is Success</h5>
<br />
<h3>Payment Response</h3>
<table border="1">
    <tr>
            <td><b>Parameter Name</b></td>
            <td><b>Parameter Value</b></td>
    </tr>

    <%
       for (int i = 0; i < paymentparams.Length; i++) {
            String paramname = paymentparams [i];
            String paramval = Request.Form.Get(paramname);
            Response.Write("<tr><td>" + paramname + "</td><td>" + paramval +
"</td></tr>");
```

```
            }
        %>
    </table>
    <%
       if ("Approved".Equals(Request.Form["Response"])) {
    %>
    <h6>Transaction is Success</h6>
    <%
       } else {
    %>
    <h6>Transaction is not Success</h6>
    <%
       }
       } else {
    %>

    <h5>3D Transaction is not Success</h5>

    <%
       }
    }
    %>
</body>
</html>
```

5.2.2.2 .Net - VB.Net Sample Code

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title>3d Pay Payment Page</title>
</head>
<body>
    <h1>3D Payment Page</h1>
    <h3>Payment Response</h3>
    <table border="1">

        <%
        Dim originalClientId As String = "xxxxxx"
        Dim mustParameters() As String =  {"clientid","oid","Response"}
        Dim isValid As Boolean = True

        For Each paramName As String In mustParameters
                Dim paramValue As String = Request.Form(paramName)
```

```
            If String.IsNullOrEmpty(paramValue) Then

                    If paramName.Equals("oid") Then
                      Dim returnOidValue As String = Request.Form("ReturnOid")
          If String.IsNullOrEmpty(returnOidValue) Then
              isValid = False
              Response.Write("<tr><td>Missing Required Param</td>"+"<td>oid /
ReturnOid</td></tr>")
                      End If
        Else
            isValid = false;
                    Response.Write("<tr><td>Missing Required Param</td>"+"<td>"+
paramName+"</td></tr>")
                    End If
    End If
    Next

  If Not Request.Form("clientid").Equals(originalClientId) Then
     Response.Write("<h4>Security Alert. Incorrect Client Id.</h4>")
  End If

  If Not isValid Then
     Response.Write("<h4>Security Alert. The digital signature is not valid. Required Paramaters are
missing.</h4>")
  Else

%>
    <tr>
            <td><b>Parameter Name</b></td>
            <td><b>Parameter Value</b></td>
    </tr>
    <%
    Dim paymentparams () As String = { "AuthCode", "Response", "HostRefNum", "ProcReturnCode",
"TransId", "ErrMsg" }
    Dim allKeys() As String = Request.Params.AllKeys

  For Each xKey As String In allKeys
          Dim xval As String = Request.Form(xkey)
          Dim ok As Boolean = True

          For Each paymentParam As String In paymentparams
             If xkey.Equals(paymentParam) Then
                ok = False
```

```
                                    Exit For
                End If
                        Next

            If ok Then
                Response.Write("<tr><td>" + xkey + "</td><td>" + xval + "</td></tr>")
            End If
    Next
    %>
</table>

<%
    Dim hashparams As String = Request.Form("HASHPARAMS")
    Dim hashparamsval As String = Request.Form("HASHPARAMSVAL")
    Dim storekey As String = "xxxxxx"
    Dim paramsval As String = ""
    Dim index1 As Integer = 0
    Dim index2 As Integer = 0
     Dim hash As String = ""
     Dim hashparam As String = ""
     Dim hashval As String = ""


    If Request.Form("hashAlgorithm") == "ver2" Then
            Dim parsedParams() As String = hashparams.split("|")

            For Each parsedParam As String In parsedParams
                    If String.IsNullOrEmpty(parsedParam) Then
                            val = ""
                    Else
                            val = parsedParam
                    End If
                    paramsval += val.Replace("\", "\\").Replace("|", "\|") + "|"
            Next

            Dim hashval As String = paramsval + storekey.Replace("\", "\\").Replace("|", "\|")
            Dim hashparam As String = Request.Form("HASH")

            Dim result As Byte()
            Dim sha As New System.Security.Cryptography.SHA512Managed()
            result = sha.ComputeHash(System.Text.Encoding.ASCII.GetBytes(hashval))
            hash  = Convert.ToBase64String(result)
    Else
```

```
            Do While index1 < hashparams.Length
                    index2 = hashparams.IndexOf(":", index1)
                    Dim hashedParamValue As String = Request.Form(hashparams.Substring(index1,
index2 - index1))
                    Dim val As String
                    If String.IsNullOrEmpty(hashedParamValue) Then
                            val = ""
                    Else
                            val = hashedParamValue
                    End If
                    paramsval += val
                    index1 = index2 + 1
            Loop
            Dim hashval As String = paramsval + storekey
            Dim hashparam As String = Request.Form("HASH")
            Dim result As Byte()
            Dim sha As New System.Security.Cryptography.SHA512Managed()
            result = sha.ComputeHash(System.Text.Encoding.ASCII.GetBytes(hashval))
            hash As String  = Convert.ToBase64String(result)
     End If
    If (Not paramsval.Equals(hashparamsval)) Or  (Not hash.Equals(hashparam))  Then
       Response.Write("<h4>Security Alert. The digital signature is not valid.</h4>")
            Response.Write("<h4>Generated Hash Val : " + paramsval + "</h4>");
            Response.Write("<h4>Original Hash Val : " + hashparamsval + "</h4>");
    End If
    String mdStatus = Request.Form("mdStatus")
    If mdStatus.Equals("1") Or mdStatus.Equals("2") Or mdStatus.Equals("3") Or
mdStatus.Equals("4") Then
%>
<h5>3D Transaction is Success</h5>
<br />
<h3>Payment Response</h3>
<table border="1">
     <tr>
            <td><b>Parameter Name</b></td>
            <td><b>Parameter Value</b></td>
     </tr>

     <%
     For Each paramname As String In paymentparams
             Dim paramval As String = Request.Form(paramname)
             Response.Write("<tr><td>" + paramname + "</td><td>" + paramval + "</td></tr>")
            Next
```

```
        %>
    </table>
    <%
       If "Approved".Equals(Request.Form("Response")) Then
    %>
    <h6>Transaction is Success</h6>
    <%
       Else
    %>
    <h6>Transaction is not Success</h6>
    <%
       End If
       Else
    %>
    <h5>3D Transaction is not Success</h5>
    <%
       End If
    End If
    %>
</body>
</html>
```

5.3 JSP Code Sample

5.3.1 Request Sample Codes

5.3.1.1 Hash Version 2

```
<%@page contentType="text/html;charset=ISO-8859-9"%>
<%@page import="org.apache.commons.codec.binary.Base64" %>
<%@page import="java.security.MessageDigest"%>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
  "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-9">
<title>Ver2 Request</title>
</head>
<body>
    <%
```

```
        String storeType="3D";
              //unEscaped values
        String orgClientId = "xxxxxxxxx";
        String orgOid = "";
        String orgAmount = "95.93";
        String orgOkUrl = "http://localhost:8080/SampleCodeJSPTest/GateResponseControl.jsp";
        String orgFailUrl = "http://localhost:8080/SampleCodeJSPTest/GateResponseControl.jsp";
        String orgTransactionType = "Auth";
        String orgInstallment = "";
        String orgRnd = new java.util.Date().toString();

        String orgCurrency = "949";
        // escaped values
        String clientId = orgClientId.replace("\\", "\\\\").replace("|", "\\|");
        String oid = orgOid.replace("\\", "\\\\").replace("|", "\\|");
        String amount = orgAmount.replace("\\", "\\\\").replace("|", "\\|");
        String okUrl = orgOkUrl.replace("\\", "\\\\").replace("|", "\\|");
        String failUrl = orgFailUrl.replace("\\", "\\\\").replace("|", "\\|");
        String transactionType = orgTransactionType.replace("\\", "\\\\").replace("|", "\\|");
        String installment = orgInstallment.replace("\\", "\\\\").replace("|", "\\|");
        String rnd = orgRnd.replace("\\", "\\\\").replace("|", "\\|");

        String currency = orgCurrency.replace("\\", "\\\\").replace("|", "\\|");
        String storeKey = "AB123456".replace("\\", "\\\\").replace("|", "\\|");

        String plainText = clientId + "|" + oid + "|" + amount + "|" + okUrl + "|" + failUrl + "|"
              + transactionType + "|" + installment + "|" + rnd + "||||" + currency + "|" + storeKey;

        MessageDigest messageDigest = MessageDigest.getInstance("SHA-512");
        messageDigest.update(plainText.getBytes());
       String hash= new String(Base64.encodeBase64(messageDigest.digest()),"UTF-8");
       String description = "";
      String xid = "";
      String lang="";
      String email="";
      String userid="";
%>
<center>
    <form method="post" action="http://localhost:8080/fim/est3dgate">
            <table>
                  <tr>
                        <td>Credit Card Number</td>
                        <td><input type="text" name="pan" size="20" value="" />
```

```
                </tr>
                <tr>
                        <td>CVV</td>
                        <td><input type="text" name="cv2" size="4" value="" /></td>
                </tr>
                <tr>
                        <td>Expiration Date Year</td>
                        <td><input type="text" name="Ecom_Payment_Card_ExpDate_Year"
                                value="" /></td>
                </tr>
                <tr>
                        <td>Expiration Date Month</td>
                        <td><input type="text" name="Ecom_Payment_Card_ExpDate_Month"
                                value="" /></td>
                </tr>
                <tr>
                        <td>Choosing Visa / Master Card</td>
                        <td><select name="cardType">
                                        <option value="1">Visa</option>
                                        <option value="2">MasterCard</option>
                        </select>
                </tr>
                <tr>
                        <td align="center" colspan="2"><input type="submit"
    value="Complete Payment" /></td>
                </tr>
        </table>
        <input type="hidden" name="clientid" value="<%=orgClientId%>">
        <input type="hidden" name="amount" value="<%=orgAmount%>">
        <input type="hidden" name="oid" value="<%=orgOid%>">
        <input type="hidden" name="okurl" value="<%=orgOkUrl%>">
        <input type="hidden" name="failUrl" value="<%=orgFailUrl%>">
        <input type="hidden" name="TranType" value="<%=orgTransactionType%>">
        <input type="hidden" name="Instalment" value="<%=orgInstallment%>">

        <input type="hidden" name="currency" value="<%=orgCurrency%>">
        <input type="hidden" name="rnd" value="<%=orgRnd%>">
        <input type="hidden" name="hash" value="<%=hash%>">
        <input type="hidden" name="storetype" value="<%=storeType%>">
        <input type="hidden" name="lang" value="tr">
        <input type="hidden" name="hashAlgorithm" value="ver2">
    </form>
</center>
```

```
   </body>
</html>
```

5.3.2 Response Code Sample

```
<%@page import="java.util.Enumeration" %>
<%@page import="org.apache.commons.codec.binary.Base64" %>
<%@page import="java.security.MessageDigest"%>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-9">
<title>Ver2 Response</title>
</head>
<body>
    <h1>Payment Page</h1>
    <h3>Payment Response</h3>
    <table border="1">
    <%
    String originalClientId = "xxxxxxxxx";
     String [] mustParameters = new String[] {"clientid","oid","Response"};
      boolean isValid = true;

       for(int i=0;i<mustParameters.length;i++){
          if(request.getParameter(mustParameters[i]) == null ||
    request.getParameter(mustParameters[i]) == "" ){
            if(mustParameters[i].equals("oid")){
               if(request.getParameter("ReturnOid") == null || request.getParameter("ReturnOid") == ""
    ){
                  isValid = false;
                  out.println("<tr><td>Missing Required Param</td>"+"<td>oid /
    ReturnOid</td></tr>");
               }
            }else{
                 isValid = false;
                        out.println("<tr><td>Missing Required
    Param</td>"+"<td>"+mustParameters[i]+"</td></tr>");
            }
```

```
        }
      }
      if(!request.getParameter("clientid").equals(originalClientId)){
         out.println("<h4>Security Alert. Incorrect Client Id.</h4>");
         return;
      }
      if(!isValid){
        out.println("<h4>Security Alert. The digital signature is not valid. Required Paramaters are
   missing.</h4>");
         return;
      } else {
  %>
        <tr>
                <td><b>Parameter Name</b></td>
                <td><b>Parameter Value</b></td>
        </tr>
        <%
       Enumeration enu = request.getParameterNames();
       while(enu.hasMoreElements()){
          String param = (String)enu.nextElement();
          String val = (String)request.getParameter(param);
          out.println("<tr><td>"+param+"</td>"+"<td>"+val+"</td></tr>");
        } %>
   </table>
   <br>
   <%
String hashparams = request.getParameter("HASHPARAMS");
String hashparamsval = request.getParameter("HASHPARAMSVAL");
String storekey="AB123456";
String paramsval="";
String hashval = "";
String hash = "";
int index1=0,index2=0;
if(request.getParameter("hashAlgorithm").equals("ver2")){

        String[] parsedParams = hashparams.split("|");

        for(String parsedParam: parsedParams){
                  String val = request.getParameter(parsedParam) == null ? "" :
   request.getParameter(parsedParam);
                paramsval += val.replace("\\", "\\\\").replace("|", "\\|") + "|";
        }
         hashval = paramsval + storekey.replace("\\", "\\\\").replace("|", "\\|");
```

```
        String hashparam = request.getParameter("HASH");

        MessageDigest messageDigest = MessageDigest.getInstance("SHA-512");
        messageDigest.update(hashval.getBytes());
        hash= new String(Base64.encodeBase64(messageDigest.digest()),"UTF-8");
} else {
      do{
       index2 = hashparams.indexOf(":",index1);
       String val = request.getParameter(hashparams.substring(index1,index2)) == null ? "" :
 request.getParameter(hashparams.substring(index1,index2));
       paramsval += val;
       index1 = index2 + 1;
    }
   while(index1<hashparams.length());

   hashval = paramsval + storekey;
   String hashparam = request.getParameter("HASH");

   MessageDigest messageDigest = MessageDigest.getInstance("SHA-512");
   messageDigest.update(hashval.getBytes());
   hash= new String(Base64.encodeBase64(messageDigest.digest()),"UTF-8");

 }

 if(!paramsval.equals(hashparamsval)|| !hash.equals(hashparams)) {
      out.println("<h4>Security Alert. The digital signature is not valid.</h4>");
      out.println("<h4>Generated Hash Val : " + paramsval + "</h4>");
      out.println("<h4>Original Hash Val : " + hashparamsval + "</h4>");
}

 String mdStatus = request.getParameter("mdStatus");
if(mdStatus!=null && (mdStatus.equals("1") || mdStatus.equals("2") || mdStatus.equals("3")||
 mdStatus.equals("4"))) {

%>
 <h5>3D Transaction is Success</h5>
 <br />
 <h3>Payment Response</h3>
 <table border="1">
      <tr>
            <td><b>Parameter Name</b></td>
            <td><b>Parameter Value</b></td>
      </tr>
```

```
        <%
         String [] paymentparams = new String[]
    {"AuthCode","Response","HostRefNum","ProcReturnCode","TransId","ErrMsg"};

          for(int i=0;i< paymentparams.length;i++){
             String paramname = paymentparams [i];
             String paramval = request.getParameter(paramname);
             out.println("<tr><td>"+paramname+"</td><td>"+paramval+"</td></tr>");
           }
        %>
    </table>
    <%
    if("Approved".equalsIgnoreCase(request.getParameter("Response"))){ %>
    <h6>Transaction is Success</h6>
    <%
      }else{  %>
    <h6>Transaction is not Success</h6>
    <% }
    } else { %>
    <h5>3D Transaction is not Success</h5>
    <%}
      }   %>
</body>
</html>
```

5.4 PHP Code Sample

5.4.1 Request Sample Codes

5.4.1.1 Hash Version 2

```
<html>
<head>
<title>3D</title>
<meta http-equiv="Content-Language" content="tr">
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-9">
<meta http-equiv="Pragma" content="no-cache">
<meta http-equiv="Expires" content="now">
</head>
<body>
<?php
        $orgClientId  =  "990000000000001";
        $orgOid =   "ORDER256712jbs\\j6b|";
```

```
    $orgAmount = "91.96";
    $orgOkUrl =  "https://www.teststore.com/success.php";
    $orgFailUrl = "https://www.teststore.com/fail.php";
    $orgTransactionType = "Auth";
    $orgInstallment = "";
    $orgRnd =  microtime();


    $orgCurrency = "949";

    $clientId  =  str_replace("|", "\\|", str_replace("\\", "\\\\", $orgClientId));
    $oid =   str_replace("|", "\\|", str_replace("\\", "\\\\", $orgOid));
    $amount = str_replace("|", "\\|", str_replace("\\", "\\\\", $orgAmount));
    $okUrl =  str_replace("|", "\\|", str_replace("\\", "\\\\", $orgOkUrl));
    $failUrl = str_replace("|", "\\|", str_replace("\\", "\\\\", $orgFailUrl));
    $transactionType = str_replace("|", "\\|", str_replace("\\", "\\\\", $orgTransactionType));
    $installment = str_replace("|", "\\|", str_replace("\\", "\\\\", $orgInstallment));
    $rnd = str_replace("|", "\\|", str_replace("\\", "\\\\", microtime()));

    $currency =   str_replace("|", "\\|", str_replace("\\", "\\\\", $orgCurrency));
    $storeKey =  str_replace("|", "\\|", str_replace("\\", "\\\\", "AB123456\\|"));

    $plainText = $clientId . "|" . $oid . "|" . $amount . "|" . $okUrl . "|" . $failUrl . "|" .
$transactionType . "|" . $installment . "|" . $rnd . "||||" . $currency . "|" . $storeKey;

    $hashValue = hash('sha512', $plainText);
    $hash = base64_encode (pack('H*',$hashValue)) ;
    $description = "";
    $xid = "";
    $lang="";
    $email="";
    $userid="";
?>
<center>
    <form method="post" action="https://<host_address>/<3dgate_path>">
            <table>
                    <tr>
                            <td>Credit Card Number</td>
                            <td><input type="text" name="pan" size="20" />
                    </tr>
                    <tr>
                            <td>CVV</td>
                            <td><input type="text" name="cv2" size="4" value="" /></td>
```

```
                    </tr>
                    <tr>
                        <td>Expiration Date Year</td>
                        <td><input type="text" name="Ecom_Payment_Card_ExpDate_Year"
                            value="" /></td>
                    </tr>
                    <tr>
                        <td>Expiration Date Month</td>
                        <td><input type="text" name="Ecom_Payment_Card_ExpDate_Month"
                            value="" /></td>
                    </tr>
                    <tr>
                        <td>Choosing Visa / Master Card</td>
                        <td><select name="cardType">
                            <option value="1">Visa</option>
                            <option value="2">MasterCard</option>
                        </select>
                    </tr>
                    <tr>
                        <td align="center" colspan="2"><input type="submit"
                            value="Complete Payment" /></td>
                    </tr>
            </table>
            <input type="hidden" name="clientid" value="<?php echo $orgClientId ?>">
            <input type="hidden" name="amount" value="<?php echo $orgAmount ?>">
            <input type="hidden" name="oid" value="<?php echo $orgOid ?>">
            <input type="hidden" name="okurl" value="<?php echo $orgOkUrl ?>">
            <input type="hidden" name="failUrl" value="<?php echo $orgFailUrl ?>">
            <input type="hidden" name="TranType" value="<?php echo $orgTransactionType ?>">
            <input type="hidden" name="Instalment" value="<?php echo $orgInstallment ?>">

            <input type="hidden" name="currency" value="<?php echo $orgCurrency ?>">
            <input type="hidden" name="rnd" value="<?php echo $orgRnd ?>">
            <input type="hidden" name="hash" value="<?php echo $hash ?>">
            <input type="hidden" name="storetype" value="3D">
            <input type="hidden" name="hashAlgorithm" value="ver2">
            <input type="hidden" name="lang" value="tr">
        </form>
    </center>
</body>
</html>
```

5.4.2 Response Code Sample

```
<html>
<head>
<title>3D</title>
  <meta http-equiv="Content-Language" content="tr">
  <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-9">
  <meta http-equiv="Pragma" content="no-cache">
  <meta http-equiv="Expires" content="now">
</head>
<body>
<h1>3D Payment Page</h1>
<h3>Payment Response</h3>
<table border="1">

<?php
    $originalClientId = "xxxxxx";
     $mustParameters = array("clientid","oid","Response");
    $isValid = true;
        for($i=0;$i<3;$i++)
        {
         if($_POST[$mustParameters[$i]] == null || $_POST[$mustParameters[$i]] == "" )
          {
                    if($mustParameters[$i] == "oid"){
               if($_POST["ReturnOid"] == null || $_POST["ReturnOid"] == "" ){
                  $isValid = false;
                  echo "<tr><td>Missing Required Param</td>"+"<td>oid / ReturnOid</td></tr>";
               }
            }else{
                 $isValid = false;
                         echo "<tr><td>Missing Required Param</td>"+"<td>"+
    $mustParameters[$i]+"</td></tr>";
          }
         }
       }
      if($_POST["clientid"] != $originalClientId){
         echo "<h4>Security Alert. Incorrect Client Id.</h4>";
         return;
      }

      if(! $isValid){
         echo "<h4>Security Alert. The digital signature is not valid. Required Paramaters are
    missing.</h4>";
```

```
        return;
      } else {
?>
  <tr>
    <td><b>Parameter Name</b></td>
    <td><b>Parameter Value</b></td>
  </tr>
<?php
   $paymentparams =
   array("AuthCode","Response","HostRefNum","ProcReturnCode","TransId","ErrMsg");
   foreach($_POST as $key => $value)
   {
       $check=1;
       for($i=0;$i<6;$i++)
       {
               if($key == $paymentparams [$i])
               {
                       $check=0;
                       break;
               }
       }
       if($check == 1)
       {
               echo "<tr><td>".$key."</td><td>".$value."</td></tr>";
       }
   }
?>
</table>
<br>
<br>
<?php
  $hashparams = $_POST["HASHPARAMS"];
  $hashparamsval = $_POST["HASHPARAMSVAL"];
  $hashparam = $_POST["HASH"];
  $storekey="xxxxxx";
  $paramsval="";
  $index1=0;
  $index2=0;
  $escapedStoreKey = "";

   if ($_POST["hashAlgorithm"] == "ver2"){
       $parsedHashParams = explode("|", $hashparams);
       foreach ($parsedHashParams as $parsedHashParam) {
```

```
                $vl = $_POST[$parsedHashParam];
                if($vl == null)
                  $vl = "";
                $escapedValue = str_replace("\\", "\\\\", $vl);
                $escapedValue = str_replace("|", "\\|", $escapedValue);
                $paramsval = $paramsval . $escapedValue . "|";
        }
        $escapedStoreKey = str_replace("|", "\\|", str_replace("\\", "\\\\", $storekey));
        $hashval = $paramsval. $escapedStoreKey;
        $hash = base64_encode(pack('H*',hash('sha512', $hashval)));
    } else {
         while($index1 < strlen($hashparams))
         {
                $index2 = strpos($hashparams,":",$index1);
                $vl = $_POST[substr($hashparams,$index1,$index2- $index1)];
                if($vl == null)
                  $vl = "";
                  $paramsval = $paramsval . $vl;
                  $index1 = $index2 + 1;
        }
        $escapedStoreKey = $storeKey;
        $hashval = $paramsval.$escapedStoreKey;
        $hash = base64_encode(pack('H*',sha1($hashval)));
    }
    $hashparamsval = $hashparamsval. "|". $escapedStoreKey;

    if($hashval != $hashparamsval || $hashparam != $hash) {
        echo "<h4>Security Alert. The digital signature is not valid.</h4>"  . " <br />\r\n";
        echo "Generated Hash Value : ". $hashval . " <br />\r\n";
        echo "Sent hash value : " . $hashparamsval. " <br />\r\n";
        echo "Generated Hash  : ". $hash . " <br />\r\n";
        echo "Sent hash  : " . $hashparam. " <br />\r\n";
    }
    $mdStatus = $_POST["mdStatus"];
    $ErrMsg = $_POST["ErrMsg"];
    if($mdStatus == 1 || $mdStatus == 2 || $mdStatus == 3 || $mdStatus == 4)
    {
        echo "<h5>3D Transaction is Success</h5><br/>";
?>
    <h3>Payment Response</h3>
      <table border="1">
         <tr>
           <td><b>Parameter Name</b></td>
```

```
            <td><b>Parameter Value</b></td>
          </tr>
<?php
    for($i=0;$i<6;$i++)
     {
        $param = $ paymentparams [$i];
        echo "<tr><td>".$param."</td><td>".$_POST[$param]."</td></tr>";
     }
?>
    </table>
<?php
        $response = $_POST["Response"];
        if($response == "Approved")
        {
          echo "Payment Process is Successful.";
        }
        else
        {
          echo "Transaction is not Success. Error = ".$ErrMsg;
        }
    }
    else
    {
      echo "<h5>3D Transaction is not Success</h5>";
    }
}
?>
</body>
</html>
```

6.APPENDIX A: Gateway Parameters

6.1 Mandatory Input Parameters

Parameter	Description	Format
clientid	Merchant ID	Maximum 15 characters
storetype	Merchant payment model	Value is "3D"
trantype	Transaction type	Set to "Auth" for sale, "PreAuth" for authorization.
Amount	transaction amount	Use "." or "," as decimal

		separator, do not use grouping character
currency	ISO 3 digit code for transaction currency	3 characters (example: 949 for TL)
oid	Unique identifier of the order	Maximum 64 characters
pan	Card number	Maximum 20 digits
Ecom_Payment_Card_ExpDate_Year	Card expiry year	4 digits
Ecom_Payment_Card_ExpDate_Month	Card expiry month	2 digits
Cv2	Cv2 number	3 or 4 digits
okUrl	The return URL to which NestPay redirects the consumer if transaction is completed successfully.	Example: http://www.test.com/success.php
failUrl	The return URL to which NestPay redirects the consumer if transaction is completed unsuccessfully.	Example: http://www.test.com/fail.php
lang	Language of the payment pages hosted by NestPay	"tr" for Turkish, "en" for English
rnd	Random string, will be used for hash comparison	Fixed length, 20 characters
hash	Hash value for client authentication	
hashAlgorithm	Hash version	**"Ver2"**

6.2 Optional Input Parameters

Parameter	**Description**	**Format**
refreshtime	Redirection counter value (to okUrl or failUrl) in seconds.	
Encoding	Encoding of the posted data. Default value is "utf-8" if not sent	Maximum 32 characters
description	description	Maximum 255 characters
comments	Kept as "description" for the transaction	Maximum 255 characters
instalment	Instalment count	Number
GRACEPERIOD	Grace period, postpones the	Number (in months)

	payment of given months	
email	Customer's email address	Maximum 64 characters
tel	Customer phone	Maximum 32 characters
BillToCompany	BillTo company name	Maximum 255 characters
BillToName	BillTo name/surname	Maximum 255 characters
BillToStreet1	BillTo address line 1	Maximum 255 characters
BillToStreet2	BillTo address line 2	Maximum 255 characters
BillToCity	BillTo city	Maximum 64 characters
BillToStateProv	BillTo state/province	Maximum 32 characters
BillToPostalCode	BillTo postal code	Maximum 32 characters
BillToCountry	BillTo country code	Maximum 3 characters
ShipToCompany	ShipTo company	Maximum 255 characters
ShipToName	ShipTo name	Maximum 255 characters
ShipToStreet1	ShipTo address line 1	Maximum 255 characters
ShipToStreet2	ShipTo address line 2	Maximum 255 characters
ShipToCity	ShipTo city	Maximum 64 characters
ShipToStateProv	ShipTo state/province	Maximum 32 characters
ShipToPostalCode	ShipTo postal code	Maximum 32 characters
ShipToCountry	ShipTo country code	Maximum 3 characters
idl	Id of item #l, required for item #l	Maximum 128 Characters
itemnumberl	Item number of item #l	Maximum 128 Characters
productcodel	Product code of item #l	Maximum 64 Characters
qtyl	Quantity of item #l	Maximum 32 Characters
descl	Description of item #l	Maximum 128 Characters
pricel	Price of item #l	Maximum 32 Characters
amountl	Subamount of item #l	Maximum 32 Characters
printBillTo	Print BillTo address fields on payment page	"true" or "false"
printShipTo	Print ShipTo address fields on payment page	"true" or "false"

6.3 Transaction Response Parameters

Parameter	**Description**	**Format**
AuthCode	Transaction Verification/Approval/Authoriza	6 characters

	tion code	
Response	Payment status	Possible values: "Approved", "Error", "Declined"
HostRefNum	Host reference number	12 characters
ProcReturnCode	Transaction status code	Alphanumeric, 2 chars, "00" for authorized transactions, "99" for gateway errors, others for ISO-8583 error codes
TransId	Nestpay Transaction Id	Maximum 64 characters
ErrMsg	Error message	Maximum 255 characters
ClientIp	IP address of the consumer	Maximum 15 characters formatted as "###.###.###.###"
ReturnOid	Returned order ID, must be same as input oid	Maximum 64 characters
MaskedPan	Masked credit card number	12 characters, XXXXXX***XXX
PaymentMethod	Payment method of the transaction	Maximum 32 characters
EXTRA_TRXDATE	Transaction Date	17 characters, formatted as "yyyyMMdd HH:mm:ss"
rnd	Random string, will be used for hash comparison	Fixed length, 20 characters
HASHPARAMS	Contains the field names used for hash calculation. Field names are appended with ":" character	Possible values "clientid:oid:AuthCode:ProcReturnCode:Response:rnd:" for non-3D transactions, "clientid:oid:AuthCode:ProcReturnCode:Response:mdStatus:cavv:eci:md:rnd:" for 3D transactions
HASHPARAMSVAL	Contains the appended field values for hash calculation. Field values appended with the same order in HASHPARAMS field	Fixed length, 28 characters
HASH	Hash value of HASHPARAMSVAL and merchant password field	Fixed length, 20 characters

6.4 MPI Response Parameters

Parameter	Description	Format
mdStatus	Status code for the 3D transaction	1=authenticated transaction 2, 3, 4 = Card not participating or attempt 5,6,7,8 = Authentication not available or system error 0 = Authentication failed
merchantID	MPI merchant ID	15 characters
txstatus	3D status for archival	Possible values "A", "N", "Y"
iReqCode	Code provided by ACS indicating data that is formatted correctly, but which invalidates the request. This element is included when business processing cannot be performed for some reason.	2 digits, numeric
iReqDetail	May identify the specific data elements that caused the Invalid Request Code (so never supplied if Invalid Request Code is omitted).	
vendorCode	Error message describing *iReqDetail* error.	
PAResSyntaxOK	If PARes validation is syntactically correct, the value is true. Otherwise value is false.	"Y" or "N"
ParesVerified	If signature validation of the return message is successful, the value is true. If PARes message is not received or signature validation fails, the value is false.	"Y" or "N"
eci	Electronic Commerce Indicator	2 digits, empty for non-3D transactions
cavv	Cardholder Authentication Verification Value, determined by ACS.	28 characters, contains a 20 byte value that has been Base64 encoded, giving a 28 byte result.
xid	Internet transaction identifier	28 characters

cavvAlgorthm	CAVV algorithm	Possible values "0", "1", "2", "3"
md	MPI data replacing card number	Alpha-numeric
Version	MPI version information	3 characters (like "2.0")
sID	Schema ID	"1" for Visa, "2" for Mastercard
mdErrorMsg	Error Message from MPI (if any)	Maximum 512 characters