

Code Of The Day

Syed Muhammad Humayun - Senior Developer, United States



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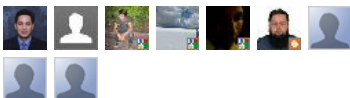
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Saturday, 6 July 2013

Paypal Button and Instant Payment Notification (IPN) Integration with Java

DZone 1 0

Integration with Payment Gateways is one of the most common integration in business applications. In this post, I will demonstrate how you can integrate your Java (Servlet/JSP/Struts/Spring/etc.) applications with Paypal using Paypal Button and Instant Payment Notification (IPN).

For those who hate to read long documentation, I've tried to capture "minimum" reading material [here from Paypal website that is required to understand Paypal IPN Protocol and Architecture](#); and which is a pre-requisite for our example below.

Besides that, you should also setup following (if not done already):

1. [Create Paypal Account](#)
2. Activate [Paypal Developer Account](#) by signing in with your Paypal Account credentials
3. [Create Paypal Payment Button](#)

Create PayPal payment button

PayPal payment buttons are an easy way to accept payments. Check the [PayPal Payments Standard Overview](#) for more information.

Use this page to customize your button and create the HTML you'll need to copy and paste into your website. [Learn more.](#)

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Step 1: Choose a button type and enter your payment details

Choose a button type

Buy Now

Item name

Item ID (optional)

Price

Currency

USD

Which button should I choose?

Customize button

☐ Add drop-down menu with price/option [Example](#)
☐ Add drop-down menu [Example](#)
☐ Add text field [Example](#)
[Customize text or appearance \(optional\)](#)

Your customer's view

Buy Now

Shipping

Use specific amount:

USD

[Help](#)

Tax

Use tax rate

%

Merchant account IDs

[Learn more](#)

☒ Use my secure merchant account ID
☐ Use my primary email address [smhumayun@gmail.com](#)

Step 2: Track inventory, profit & loss (optional)

Step 3: Customize advanced features (optional)

Create Button

'Ipnhandler.java'

codeoftheday.blogspot.it/2013/07/paypal-button-and-instant-payment_6.html

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```
1 /**
2  * Paypal Button and Instant Payment Notification (IPN) Integration with Java
3  * http://codeoftheday.blogspot.com/2013/07/paypal-button-and-instant-payment_6.ht
4  */
5 package smhumayun.codeoftheday.PaypalIpnExample;
6
7 import javax.net.ssl.HttpsURLConnection;
8 import javax.servlet.http.HttpServletRequest;
9 import java.io.BufferedReader;
10 import java.io.InputStreamReader;
11 import java.io.PrintWriter;
12 import java.net.URL;
13 import java.net.URLEncoder;
14 import java.util.Enumeration;
15 import java.util.Iterator;
16 import java.util.Map;
17 import java.util.logging.Level;
18 import java.util.logging.Logger;
19
20 /**
21  * Paypal IPN Notification Handler Class
22  *
23  * User: smhumayun
24  * Date: 7/6/13
25  * Time: 5:48 PM
26  */
27 public class IpnHandler
28 {
29
30     private Logger logger;
31     private IpnConfig ipnConfig;
32     private IpnInfoService ipnInfoService;
33
34     /**
35      * This method handles the Paypal IPN Notification as follows:
36      *
37      * 1. Read all posted request parameters
38      * 2. Prepare 'notify-validate' command with exactly the same parameters
39      * 3. Post above command to Paypal IPN URL {@link IpnConfig#ipnUrl}
40      * 4. Read response from Paypal
41      * 5. Capture Paypal IPN information
42      * 6. Validate captured Paypal IPN Information
43      *     6.1. Check that paymentStatus=Completed
44      *     6.2. Check that txnId has not been previously processed
45      *     6.3. Check that receiverEmail matches with configured {@link IpnCo
46      *     6.4. Check that paymentAmount matches with configured {@link IpnCo
47      *     6.5. Check that paymentCurrency matches with configured {@link Ipn
48      * 7. In case of any failed validation checks, throw {@link IpnException}
49      * 8. If all is well, return {@link IpnInfo} to the caller for further bu
50
51      * @param request {@link HttpServletRequest}
52      * @return {@link IpnInfo}
53      * @throws IpnException
54      */
55     public IpnInfo handleIpn (HttpServletRequest request) throws IpnException {
56         logger.info("inside ipn");
57         IpnInfo ipnInfo = new IpnInfo();
58         try
59         {
60             //1. Read all posted request parameters
61             String requestParams = this.getAllRequestParams(request);
62             logger.info(requestParams);
63
64             //2. Prepare 'notify-validate' command with exactly the same parameter
65             Enumeration en = request.getParameterNames();
66             StringBuilder cmd = new StringBuilder("cmd=_notify-validate");
67             String paramName;
68             String paramValue;
69             while (en.hasMoreElements()) {
70                 paramName = (String) en.nextElement();
71                 paramValue = request.getParameter(paramName);
72                 cmd.append("&").append(paramName).append("=")
73                     .append(URLEncoder.encode(paramValue, request.getParameter
74             }
75
76             //3. Post above command to Paypal IPN URL {@link IpnConfig#ipnUrl}
77             URL u = new URL(this.getIpnConfig().getIpnUrl());
78             HttpsURLConnection uc = (HttpsURLConnection) u.openConnection();
79             uc.setDoOutput(true);
80             uc.setRequestProperty("Content-Type", "application/x-www-form-urlencoded");
81             uc.setRequestProperty("Host", "www.paypal.com");
82             PrintWriter pw = new PrintWriter(uc.getOutputStream());
83             pw.println(cmd.toString());
84             pw.close();
85         }
86     }
87 }
```

agains...

Java - Keytool - Create a KeyStore and Generate a ...

► 2012 (8)

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```

84
85 //4. Read response from Paypal
86 BufferedReader in = new BufferedReader(new InputStreamReader(uc.getInp
87 String res = in.readLine();
88 in.close();
89
90 //5. Capture Paypal IPN information
91 ipnInfo.setLogTime(System.currentTimeMillis());
92 ipnInfo.setItemName(request.getParameter("item_name"));
93 ipnInfo.setItemNumber(request.getParameter("item_number"));
94 ipnInfo.setPaymentStatus(request.getParameter("payment_status"));
95 ipnInfo.setPaymentAmount(request.getParameter("mc_gross"));
96 ipnInfo.setPaymentCurrency(request.getParameter("mc_currency"));
97 ipnInfo.setTxnId(request.getParameter("txn_id"));
98 ipnInfo.setReceiverEmail(request.getParameter("receiver_email"));
99 ipnInfo.setPayerEmail(request.getParameter("payer_email"));
100 ipnInfo.setResponse(res);
101 ipnInfo.setRequestParams(requestParams);
102
103 //6. Validate captured Paypal IPN Information
104 if (res.equals("VERIFIED")) {
105
106     //6.1. Check that paymentStatus=Completed
107     if(ipnInfo.getPaymentStatus() == null || !ipnInfo.getPaymentStatus
108         ipnInfo.setError("payment_status IS NOT COMPLETED {" + ipnInfo
109
110     //6.2. Check that txnId has not been previously processed
111     IpnInfo oldIpnInfo = this.getIpnInfoService().getIpnInfo(ipnInfo.g
112     if(oldIpnInfo != null)
113         ipnInfo.setError("txn_id is already processed {old ipn_info "
114
115     //6.3. Check that receiverEmail matches with configured {@link Ipn
116     if(!ipnInfo.getReceiverEmail().equalsIgnoreCase(this.getIpnConfi
117         ipnInfo.setError("receiver_email " + ipnInfo.getReceiverEmail(
118             + " does not match with configured ipn email " + this.
119
120     //6.4. Check that paymentAmount matches with configured {@link Ipn
121     if(Double.parseDouble(ipnInfo.getPaymentAmount()) != Double.parseD
122         ipnInfo.setError("payment amount mc_gross " + ipnInfo.getPayme
123             + " does not match with configured ipn amount " + this
124
125     //6.5. Check that paymentCurrency matches with configured {@link I
126     if(!ipnInfo.getPaymentCurrency().equalsIgnoreCase(this.getIpnConfi
127         ipnInfo.setError("payment currency mc_currency " + ipnInfo.get
128             + " does not match with configured ipn currency " + th
129     }
130     else
131         ipnInfo.setError("Invalid response {" + res + "} expecting {VERIFI
132
133     logger.info("ipnInfo = " + ipnInfo);
134
135     this.getIpnInfoService().log(ipnInfo);
136
137     //7. In case of any failed validation checks, throw {@link IpnExceptio
138     if(ipnInfo.getError() != null)
139         throw new IpnException(ipnInfo.getError());
140 }
141 catch(Exception e)
142 {
143     if(e instanceof IpnException)
144         throw (IpnException) e;
145     logger.log(Level.SEVERE, e.toString(), e);
146     throw new IpnException(e.toString());
147 }
148
149 //8. If all is well, return {@link IpnInfo} to the caller for further busi
150 return ipnInfo;
151 }
152
153 /**
154  * Utility method to extract all request parameters and their values from requ
155  *
156  * @param request {@link HttpServletRequest}
157  * @return all request parameters in the form:
158  *
159  *      param-name 1
160  *      param-value
161  *      param-name 2
162  *      param-value
163  *      param-value (in case of mu
164  */
165 private String getAllRequestParams(HttpServletRequest request)
166 {
167     Map map = request.getParameterMap();

```

```

167         StringBuilder sb = new StringBuilder("\nREQUEST PARAMETERS\n");
168         for (Iterator it = map.keySet().iterator(); it.hasNext();)
169         {
170             String pn = (String)it.next();
171             sb.append(pn).append("\n");
172             String[] pvs = (String[]) map.get(pn);
173             for (int i = 0; i < pvs.length; i++) {
174                 String pv = pvs[i];
175                 sb.append("\t").append(pv).append("\n");
176             }
177         }
178         return sb.toString();
179     }
180
181     public Logger getLogger() {
182         return logger;
183     }
184
185     public void setLogger(Logger logger) {
186         this.logger = logger;
187     }
188
189     public IpnConfig getIpnConfig() {
190         return ipnConfig;
191     }
192
193     public void setIpnConfig(IpnConfig ipnConfig) {
194         this.ipnConfig = ipnConfig;
195     }
196
197     public IpnInfoService getIpnInfoService() {
198         return ipnInfoService;
199     }
200
201     public void setIpnInfoService(IpnInfoService ipnInfoService) {
202         this.ipnInfoService = ipnInfoService;
203     }
204 }

```

IpnHandler.java hosted with ♥ by GitHub [view raw](#)

As for 'IpnConfig.java':

1. 'ipnUrl' should be:
 1. For Production/Live - <https://www.paypal.com/cgi-bin/webscr>
 2. For Sandbox/Testing - <https://www.sandbox.paypal.com/cgi-bin/webscr>
2. 'receiverEmail' should be the Paypal Account Email
3. 'paymentAmount' should be the 'Price' you setup while defining Paypal Button above.
4. 'paymentCurrency' should be the 'Currency' you mention while defining the Paypal Button above.

Now,

- [Test your IPN Listener using Paypal's IPN Simulator](#)
- [And, Setup IPN Notifications on Paypal](#)

COMPLETE SOURCE CODE IS AVAILABLE HERE TO DOWNLOAD

DZone 1 0

Posted by [Syed Muhammad Humayun](#) at 18:26

 +4 [Consigliarlo su Google](#)

Labels: [instant payment notification](#), [integration](#), [ipn](#), [java](#), [jsp](#), [payment gateway](#), [paypal](#), [servlet](#), [source code](#), [spring](#), [struts](#)

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