Worldpay Hybris 1808 Plugin R4.0 - OCC Technical Implementation Guide

Worldpay OCC AddOn extension

The worldpayoccaddon facilitates Worldpay payment on shopping cart, placing orders with Worldpay payments, and handling the 3D secure authentication protocol when placing such an order.
It supports this using Worldpays client side encryption (CSE) in a B2C context.

The worldpayoccaddon is an OCC AddOn that depends on the worldpayapi extension for Worldpay payments operations.

This functionality is supplied by the three controllers **WorldpayCartsController, WorldpayOrdersController, ApplePayController.**

All REST endpoints supplied by this extension supports URL encoded parameters and a body payload of either XML or JSON.

For documentation on the full hybris OCC interface see:

Related Documentation
- OCC API documentation, version v2

Endpoints on the WorldpayCartsController

Method	Path	Parameters
POST	/users/{userId}/carts/{cartId}/worldpaypaymentdetails	The hybris OOB PaymentDetails is extended with a cseToken

Endpoints on the WorldpayOrdersController

Method	Path	Parameters
POST	/users/{userId}/worldpayorders	cartId - the id of the used shopping cart securityCode - the security code for the used credit card

POST	/users/{userId}/worldpayorders/3dresponse	cartId - the id of the used shopping cart paRes - the 3D protocols payer authentication response merchantData - the merchant data used in the 3D protocol, this contains the Worldpay order code

Endpoints on the GooglePay

Method	Path	Parameters	Reference links
POST	/checkout/multi/worldpay/googlepay/authorise-order	token - protocolVersion - The protocol Version - signature - The signature - signedMessage - The signed message billingAddress - address1 - The first line of the address - address2 - The second line of the address - address3 - The third line of the address - administrativeArea - The administrative area - countryCode - The country Code - locality - The locality of the address - name - The name of the receiver - postalCode - The postal code - sortingCode - The shorting code	https://developers.google.com/pay/api/web/guides/resources/payment-dat

Endpoints on the ApplePay

Method	Path	Parameters	Reference links
POST	/checkout/multi/worldpay/applepay/request-session	validationURL	

POST	/checkout/multi/worldpay/applepay/authorise-order	Token - ApplePayPaymentMethod -- displayName -- network -- type -- paymentPass --- primaryAccountIdentifier --- primaryAccountNumberSuffix --- deviceAccountIdentifier --- deviceAccountNumberSuffix --- activationState - transactionIdentifier - paymentData -- header --- ephemeralPublicKey --- publicKeyHash --- transactionId -- signature -- version -- data - billingContact -- phoneNumber -- emailAddress -- givenName -- familyName -- phoneticGivenName -- phoneticFamilyName -- addressLines[ ] -- subLocality -- locality -- postalCode -- subAdministrativeArea -- administrativeArea -- country -- countryCode - shippingContact: Same fields as billingContact	https://developer.apple.com/documentation/apple_p
POST	/checkout/multi/worldpay/applepay/update-payment-method	paymentMethod	

Payment flows

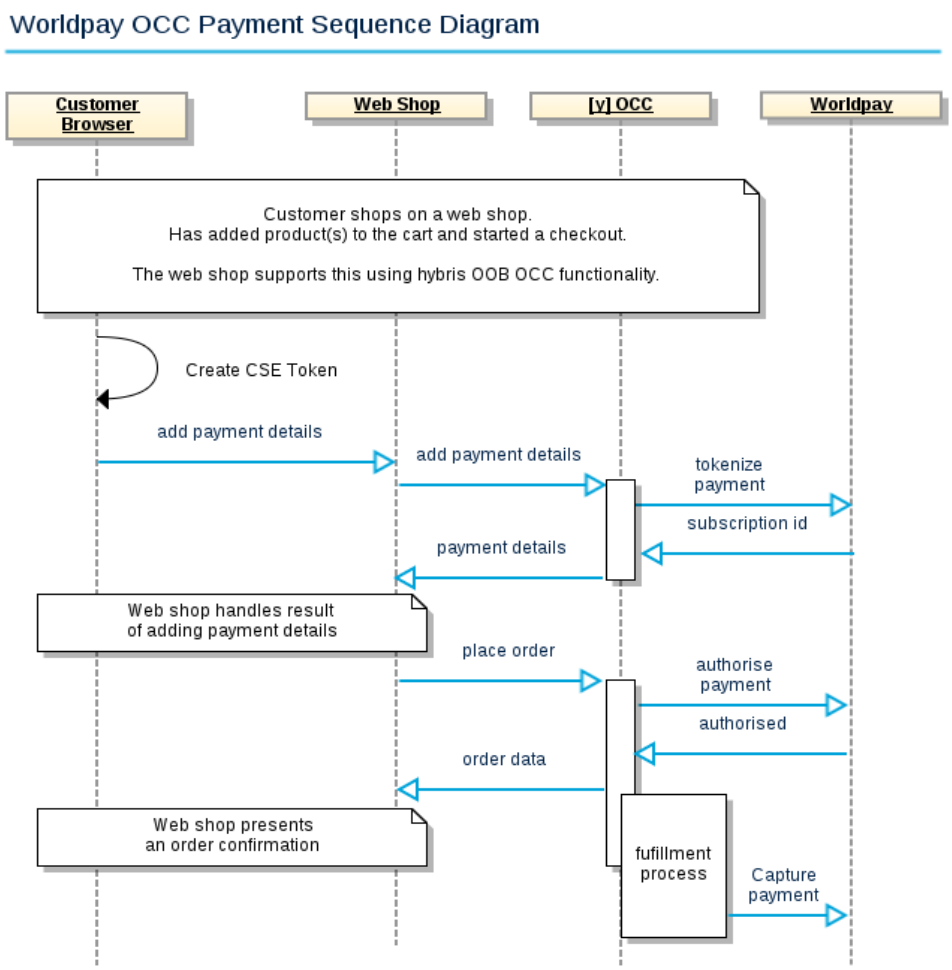
The section gives an overview of the Worldpay payment flows.

For a good walk-through of the customer buying process using OCC see:

Related Documentation

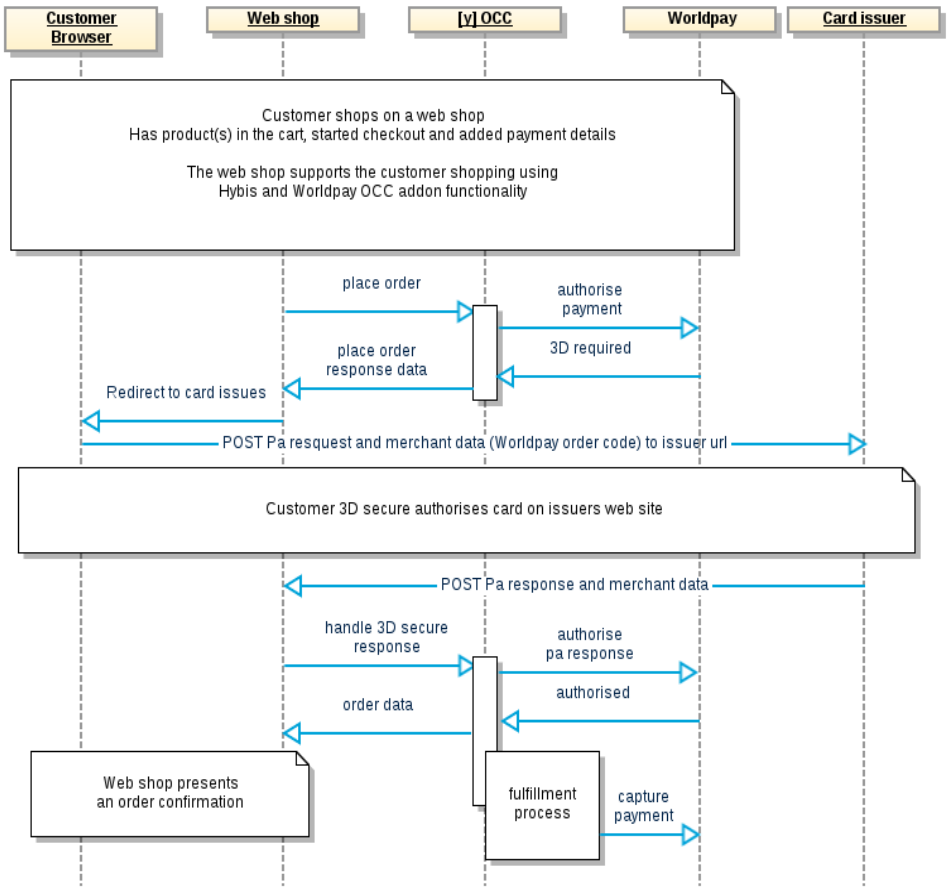
- Customer Buying Process Scenarios

Payments flow without 3D secure



Payments flow with 3D secure

Worldpay OCC Payment with 3D Sequence Diagram



Data adjustment on Worldpay communication

The section covers some special cases of data management in the hybris Worldpay communication

Handling session id in a stateless environment

Worldpay requires that identical session id's are supplied when an order is supplied more than once.
In the 3D secure scenario, the order is submitted once on authorise and once when the pa response is validated in the second call.

OCC is a REST API that is stateless by design, so in this context, there is no session id on the request.

To solve this issue we hash the OAuth 2 token and apply this as a session id, hence 3D secure authentication has to be handled within the same OCC login session.

Passing client IP address through OCC to Worldpay

In order to secure that the correct customer IP address is passed to Worldpay the webshop implementer is responsible for parsing it through to OCC in an HTTP header property.
This is handled by a strategy, where the used header property name can be configured. The spring definition of this strategy is listed below.
It contains a list of alternative header properties that can be used.

If this strategy is not used, the OCC AddOn would only have the calling web shops IP address to pass to Worldpay.
Due to load balancers and similar components, the strategy is also used in an accelerator storefront context.

worldpayapi-spring.xml

```
<alias name="defaultWorldpayCustomerIpAddressStrategy" alias="worldpayCustomerIpAddressStrategy"/>
<bean id="defaultWorldpayCustomerIpAddressStrategy"
class="com.worldpay.strategy.impl.DefaultWorldpayCustomerIpAddressStrategy">
<property name="headerName" value="X-Forwarded-For"/>

<!-- Possible headers that contain the customer IP
<property name="headerName" value="Proxy-Client-IP"/>
<property name="headerName" value="WL-Proxy-Client-IP"/>
<property name="headerName" value="HTTP_CLIENT_IP"/>
<property name="headerName" value="HTTP_X_FORWARDED_FOR"/>
-->
</bean>
```

Test template extension - yworldpayocctest

The Worldpay OCC AddOn's endpoints are tested using the Spock test framework as supplied with the Hybris template extension **ycommercewebservicestest.**
These tests are all located in the template extension **yworldpayocctest**

The tests are released together with the Worldpay OCC AddOn in the template extension **yworldpayocctest**. This template extension is a self-contained test template with no dependencies to **ycommercewebservicestest**.
By creating the Worldpay OCC test extension as a template, it is possible to generate a custom OCC test extension using the tests created for Worldpay.

Using the yworldpayocctest template

The fact that **yworldpayocctest** is part of the **commercewebservices** module makes it possible to generate a custom Worldpay OCC test extension together with the Hybris OCC extension and Hybris OCC test extension.

Module generation

To generate a module containing the Worldpay OCC test extension, execute the following ant command from the hybris platform directory (substitute the bold **myocc** and **com.example** to match your organisation)

> ant -d modulegen -Dinput.module='commercewebservices' -Dinput.name='**myocc**' -Dinput.package='**com.example**'

This will generate an OCC module with the following extensions in the hybirs/bin/custom/myocc directory:

- myocc, OCC extension generated from ycommercewebservices
- myocchmc, HMC extension generated from ycommercewebserviceshmc
- myocctest, OCC Spock test extension generated from ycommercewebservicestest
- myoccworldpaytest, OCC Spock test extension generated from yworldpayocctest

Add the generated module to your hybris installation. E.g. by adding the following line to **localextensions.xml**:

localextensions.xml
<path autoload="true" dir="${HYBRIS_BIN_DIR}/custom"/>

To execute the tests in **myoccworldpaytest** execute the following ant command:

> ant all integrationtests -Dfailbuildonerror=yes -Dtestclasses.packages=**com.example**.worldpay.test.groovy.webservicetests.v2.spock.AllSpockTests

Extension generation

To generate a Worldpay OCC test extension execute the following command from the hybris platform directory (substitute the bold **myoccworldpaytest** and **com.example** to match your organisation)

> ant extgen -Dinput.template='yworldpayocctest' -Dinput.name='**myoccworldpaytest**' -Dinput.package='**com.example'**

Add the generated extension to your hybris installation. E.g. by adding the following line to **localextensions.xml**:

localextensions.xml

<extension name='**myoccworldpaytest**' />

To execute the tests in **myoccworldpaytest** execute the following ant command:

ant all integrationtests -Dfailbuildonerror=yes -Dtestclasses.packages=**com.example**.test.groovy.webservicetests.v2.spock.AllSpockTests

Test Data

The yworldpayocctest template extension only contains the basic OAuth 2 client configuration to get connected to the OCC API. The essential data is listed below.

essentialdataOAuthClientDetails.impex

```
INSERT_UPDATE
OAuthClientDetails;clientId[unique=true];resourceIds;scope;authorizedGrantTypes;authorities;clientSecret;r
;client-side;hybris;basic;implicit,client_credentials;ROLE_CLIENT;secret;http://localhost:9001/authorizati
icit_callback;
;mobile_android;hybris;basic;authorization_code,refresh_token,password,client_credentials;ROLE_CLIENT;secr
9001/authorizationserver/oauth2_callback;
;trusted_client;hybris;extended;authorization_code,refresh_token,password,client_credentials;ROLE_TRUSTED_
```

Client-side encryption (CSE) test

In order to be able to test CSE in an OCC context where payment details are added to cart, we have to simulate a running browser where the Worldpay CSE javascript is executed.

The utility method below uses Geb to simulate the browser.

Geb - browser automation tool

- http://www.gebish.org/manual/current/

The browser accesses the cseTest.html page below, whose only task it is to load the Worldpay CSE javascript and supply a javascript function (g enerateCseToken) to execute the card encryption function.

When the paged is loaded, generateCseToken is called and the resulting CSE token is obtained and passed back to the calling Spock test.

AbstractWorldpaySpockTest.groovy

```
protected getCseToken(cvc, cardHolderName, cardNumber, expiryMonth, expiryYear)
{
def cseToken
def browser = new Browser(driver: new FirefoxDriver())
browser.go "file://" + (String) config.HTML_PATH + "/cseTest.html"
cseToken = browser.js.generateCseToken("1#10001#c745fe13416ffc5f9283f4 ...",
cvc,
cardHolderName,
cardNumber,
expiryMonth,
expiryYear)
browser.close()
return cseToken
}
```

cseTest.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>CSE Test Form</title>
<script type="text/javascript"
src="https://ajax.googleapis.com/ajax/libs/jquery/1.12.2/jquery.min.js"></script>
<script type="text/javascript"
src="https://payments.worldpay.com/resources/cse/js/worldpay-cse-1.0.1.min.js"></script>
<script type="text/javascript" >
function generateCseToken(publicKey, cvc, cardHolderName, cardNumber, expMonth, expYear) {
Worldpay.setPublicKey(publicKey);

var data = {
cvc: cvc,
cardHolderName: cardHolderName,
cardNumber: cardNumber,
expiryMonth: expMonth,
expiryYear: expYear
};
var encryptedData = Worldpay.encrypt(data, this.errorHandler);

return encryptedData;
}

function errorHandler(errorCodes) {
for (var index in errorCodes) {
var errorCode = errorCodes[index].toString();
alert(errorCode);
}
}

</script>
</head>
<body></body>
</html>
```

3D secure test

In order to test the 3D secure flow you need to be able to simulate the following steps after a place order has been called on the WorldpayOrdersController.

1. Redirect the customer's browser to the card issuer (in our case the Worldpay 3D secure simulator) supplying the pa request, the merchantData, and a returning term URL.
   Again Geb and an HTML page are used to simulate this. The HTML page auto submits the supplied data in the form to the Worldpay 3D secure simulator.
2. Now the browser is located on the Worldpay 3D secure simulator, where the utility function chooses the outcome of the simulation and clicks the simulators button to proceed.
3. The simulator posts to the term URL. This hits the **Worldpay3DResponseMockController** method shown below, which returns a page where the pa response can be obtained and passed back to the calling Spock test.

The below test method illustrates how the three steps have been implemented.

AbstractWorldpaySpockTest.groovy

```
protected handleThreeDSecureInBrowser(issuerUrl, paRequest, merchantData, authorisationResponse) {

def browser = new Browser(driver: new FirefoxDriver())

def termUrl = getDefaultHttpsUri() + "/worldpayresponsemock/3dresponse"
def autoSubmitUrl = "file://" + (String) config.HTML_PATH + "/threeDSecureTest.html?" +
"IssuerUrl=" + URLEncoder.encode(issuerUrl, "UTF-8") +
"&PaReq=" + URLEncoder.encode(paRequest, "UTF-8") +
"&MD=" + URLEncoder.encode(merchantData, "UTF-8") +
"&TermUrl=" + URLEncoder.encode(termUrl, "UTF-8")

browser.go autoSubmitUrl

// The threeDSecureTest.html page auto submits and forwards to the
// worldpay 3D simulator page (the issuer url)
browser.$("form").paResMagicValues = authorisationResponse

// On the worldpay 3D simulator we select the given authorisationResponse and click the submit button
browser.getPage().$(org.openqa.selenium.By.className("lefty")).click()

// We are now on a mock endpoint in the worldpayresponcemock extension which collects the Pa response
def paRes = browser.getPage().$(org.openqa.selenium.By.className("PaRes")).value()
browser.close()

return paRes
}
```

Worldpay3DResponseMockController.java

```
@RequestMapping (method = POST)
public String mockWorldpayResponse(final ModelMap model, final HttpServletRequest request)
{

String paRes = request.getParameter("PaRes");
String merchantData = request.getParameter("MD");

model.put("paRes", paRes);
model.put("merchantData", merchantData);

return "pages/threeDSecureResponse";
}
```