SOP – CyberSource Payment Gateway

Prepared For

Iptor IP1

July 2021 Version 2.3

Table of Contents

Introduction

CyberSource is an online payment management gateway system used by businesses worldwide. IP1 customers that use CyberSource for their online credit card payment processing can use this document to install Payment Handler and setup and configure Web and IP1 application systems to process payments.

All the installation, setup and configuration including prerequisites and troubleshooting information required for credit card processing using CyberSource Payment gateway is included in this SOP document.

It details various CyberSource and IP1 configurations and setups and links to CyberSource user documentation for detailed information on specific setups.

Purpose

The purpose of this document is to assist Iptor consultants' setup and configure appropriate business rules in IP1 and CyberSource at customer's site for CyberSource Payment processing using the landing page PCI Compliance functionality. This landing page functionality is required for credit card payments for back end IP1 i.e. for Payment with Order Entry, AR Receipts etc.

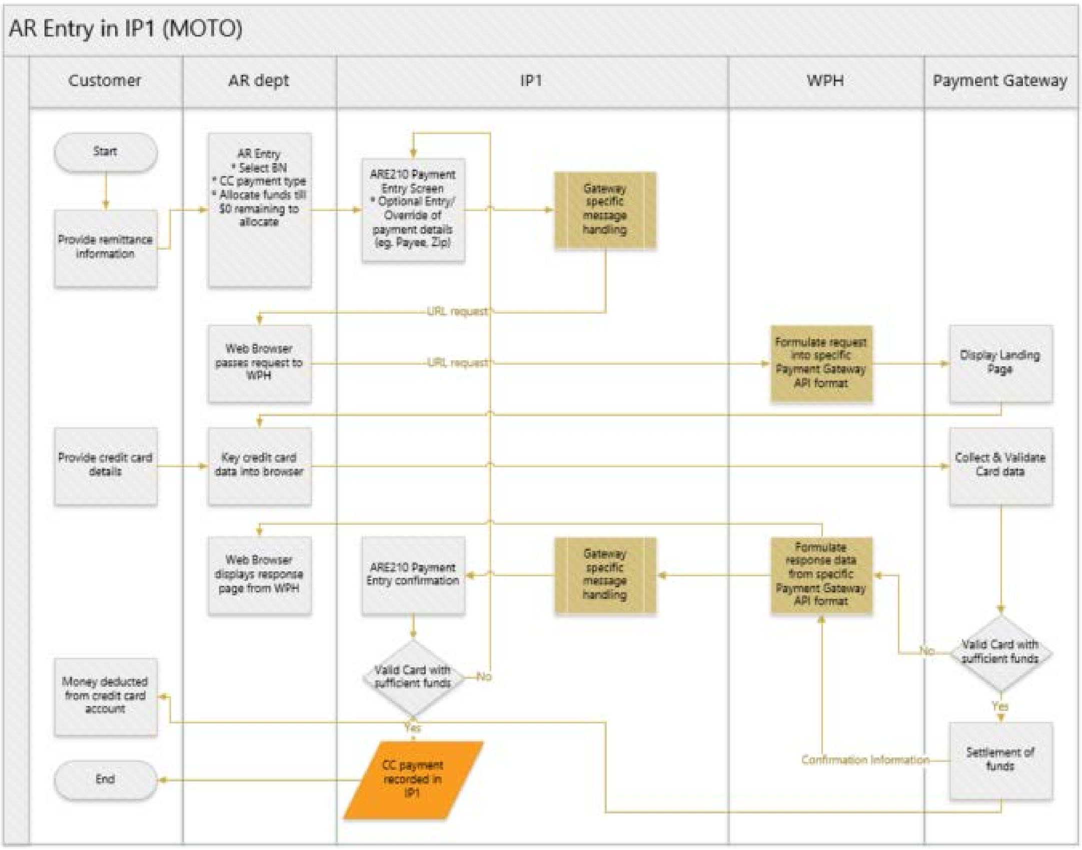
It also includes information the customer will need to assist with provisioning of necessary infrastructure & networking pre-requisites.

Process Flow

AR Entry (MOTO)

MOTO refers to Mail Order / Telephone Order. For us, it refers to cards captured in IP1 AR Entry or Order Entry.

For AR Entry, IP1 integrates with payment gateway landing page for initial capture & validation of card. It requests immediate settlement of full AR payment amount.

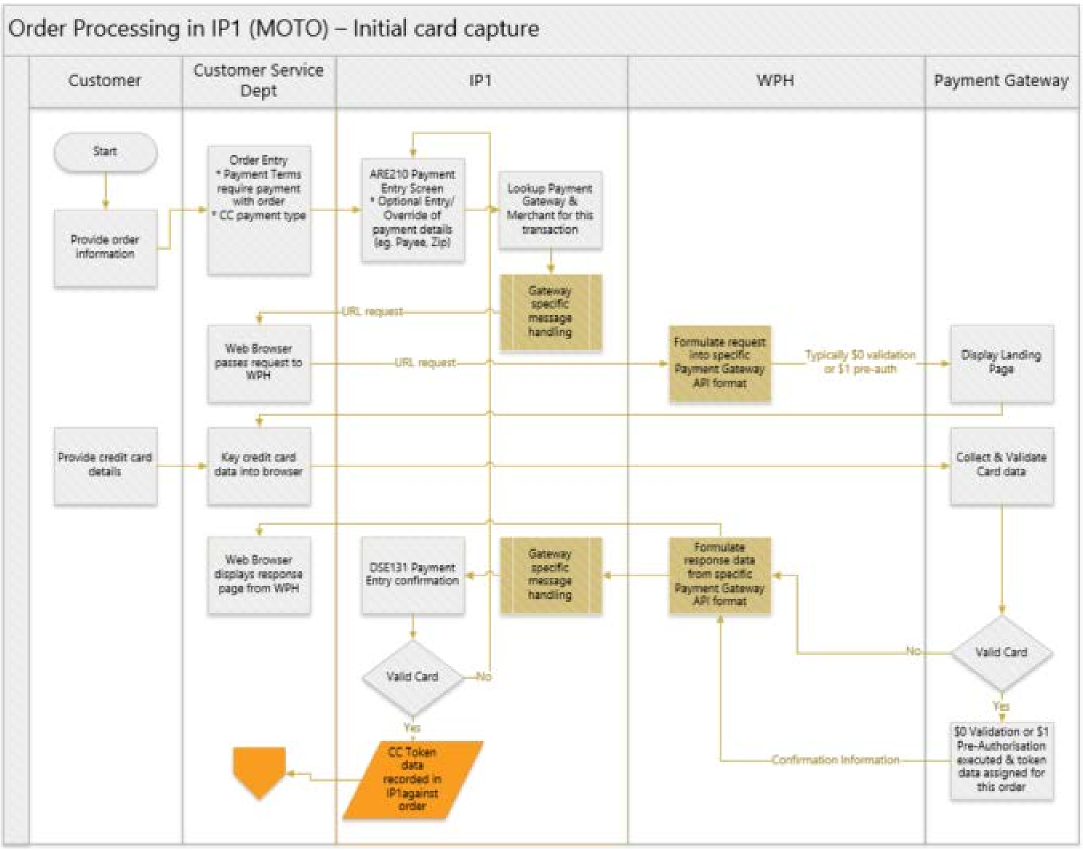

AR Entry in IP1 (MOTO)
Customer
AR dept
IP1
WPH
Payment Gateway
Start
Provide remittance information
AR Entry
* Select BN
* CC payment type
* Allocate funds till $0 remaining to allocate
ARE210 Payment Entry Screen
* Optional Entry/ Override of payment details (eg. Payee, Zip)
Gateway specific message handling
URL request
Web Browser passes request to WPH
URL request
Formulate request into specific Payment Gateway API format
Display Landing Page
Provide credit card details
Key credit card data into browser
Collect & Validate Card data
Web Browser displays response page from WPH
ARE210 Payment Entry confirmation
Gateway specific message handling
Formulate response data from specific Payment Gateway API format
No
Valid Card with sufficient funds
Valid Card with sufficient funds
No
Money deducted from credit card account
Yes
Yes
Confirmation Information
Settlement of funds
End
CC payment recorded in IP1

Order Processing (MOTO)

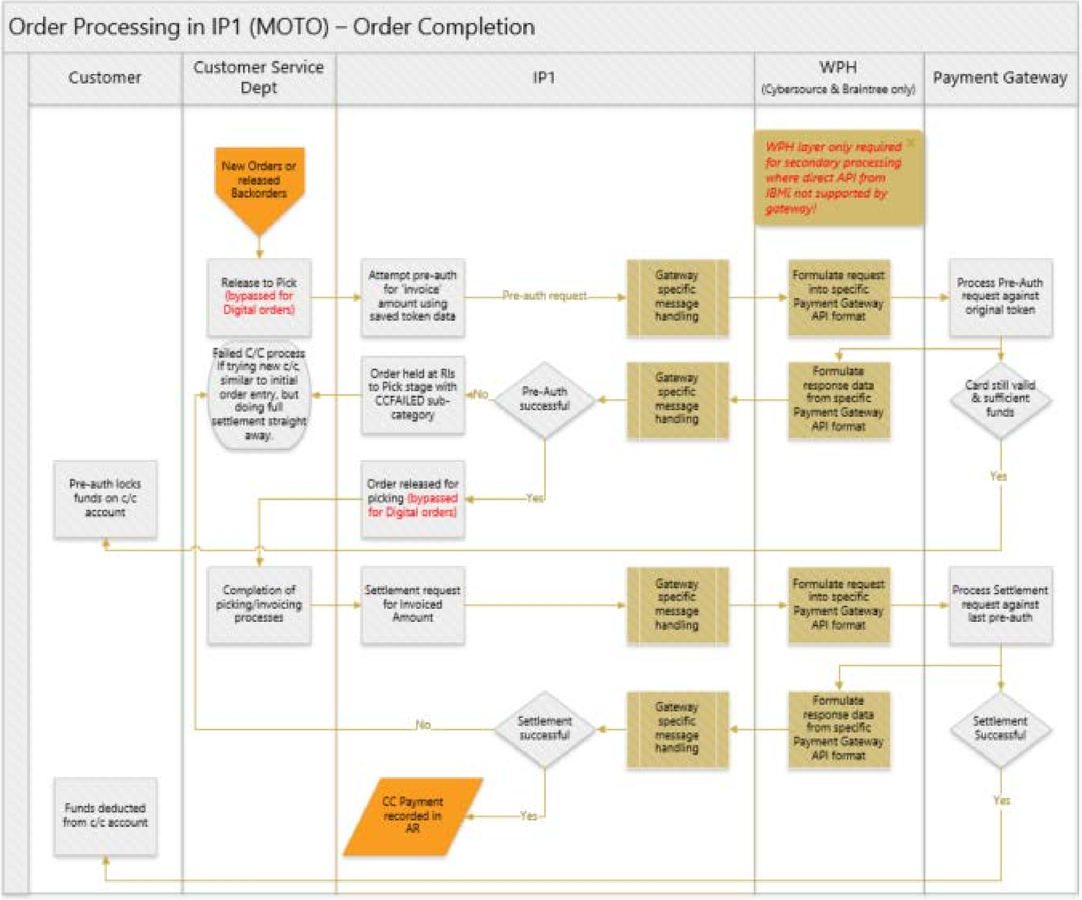
MOTO refers to Mail Order / Telephone Order. For us, it refers to cards captured in IP1 AR Entry or Order Entry.

For orders keyed into IP1 requiring payment with order, IP1 *typically* integrates with payment gateway landing page as follows:

1. IP1 requests $0 or $1 Credit card validation/preauth via payment gateway landing page during order entry stage.
2. Token data for card is stored against order for secondary transaction processing.
3. At release to pick stage, IP1 requests a secondary pre-auth (via gateway's APIs) for the expected invoice amount using the stored token data for this order.
4. If pre-auth is successful, IP1 permits order to be released for picking.
5. Once goods are picked & invoiced, IP1 requests a settlement (via gateway's APIs) against the latest pre-auth for the amount invoiced.
6. If there are any backorders for an order, they repeat steps 3-5 again.
    a. That is, we Settle payments only as goods are supplied, so backorders will issue new pre-auth & settlement requests linked to original token.
7. *Notes:*
    a. *Different configuration options are available to do full pre-auth or charge up front in order entry if preferred.*
    b. *Secondary pre-auth can be configured to occur at Pending status instead of Release to Pick stage.*


Order Processing in IP1 (MOTO) – Initial card capture
Customer
Customer Service Dept
IP1
WPH
Payment Gateway
Start
Provide order information
Order Entry
* Payment Terms require payment with order
* CC payment type
ARE210 Payment Entry Screen
* Optional Entry/ Override of payment details (eg. Payee, Zip)
Lookup Payment Gateway & Merchant for this transaction
Gateway specific message handling
URL request
Web Browser passes request to WPH
URL request
Formulate request into specific Payment Gateway API format
Typically $0 validation or $1 pre-auth
Display Landing Page
Provide credit card details
Key credit card data into browser
Collect & Validate Card data
Web Browser displays response page from WPH
DSE131 Payment Entry confirmation
Gateway specific message handling
Formulate response data from specific Payment Gateway API format
No
Valid Card
Valid Card
No
Yes
Yes
$0 Validation or $1 Pre-Authorisation executed & token data assigned for this order
Confirmation Information
CC Token data recorded in IP1against order

Note that secondary transaction processing for some gateways (eg. Datacash or Securepay) do NOT require the WPH layer as those gateways allow direct API integration with IBMi. For Cybersource, the WPH layer is required to communicate with Cybersource, so IP1 calls web service on WPH to perform this.


Order Processing in IP1 (MOTO) – Order Completion
Customer
Customer Service Dept
IP1
WPH
(Cybersource & Braintree only)
Payment Gateway
WPH layer only required for secondary processing where direct API from IBMi not supported by gateway!
New Orders or released Backorders
Release to Pick (bypassed for Digital orders)
Attempt pre-auth for 'invoice' amount using saved token data
Pre-auth request
Gateway specific message handling
Formulate request into specific Payment Gateway API format
Process Pre-Auth request against original token
Card still valid & sufficient funds
Formulate response data from specific Payment Gateway API format
Gateway specific message handling
Pre-Auth successful
No
Order held at RIs to Pick stage with CCFAILED sub-category
Failed C/C process If trying new c/c, similar to initial order entry, but doing full settlement straight away.
Yes
Order released for picking (bypassed for Digital orders)
Yes
Pre-auth locks funds on c/c account
Completion of picking/invoicing processes
Settlement request for Invoiced Amount
Gateway specific message handling
Formulate request into specific Payment Gateway API format
Process Settlement request against last pre-auth
Settlement Successful
Formulate response data from specific Payment Gateway API format
Gateway specific message handling
Settlement successful
No
Yes
CC Payment recorded in AR
Yes
Funds deducted from c/c account

Infrastructure prerequisites

Communication between servers

This section outlines the communication flow between servers. Note that the arrows (<->) indicate if inbound, outbound or both. The customer will need to ensure that the infrastructure is in place to allow the communication between servers as outlined here.

iSeries -> browser

- When user selects to pay by CyberSource c/c, IP1 will ‘bounce’ to the user’s browser, passing a HTML string that will activate the Payment Handler.
- Aside from the Payment Handler URL address, this string includes additional parameters to indicate the IP1 environment, type of transaction (pre-auth vs immediate settlement), amount, currency, merchant reference number, merchant ID, and the IP1 customer or process number.

Payment Handler Web server <-> CyberSource server

- The Payment Handler application will formulate the request into an XML request to activate CyberSource Hosted Pages Solution (HPS) for entry of credit card details via a secure web page.
- CyberSource will then send a response message back to the Payment Handler application indicating success or failure, but also including token & reference details which can be used for subsequent processing.
- Note that we are using the Card Tokenisation features in CyberSource to allow multiple pre-authorisations & settlements to occur for a single order.

Payment Handler Web server -> iSeries

- The Payment Handler application will call a program on the iSeries to login & setup the appropriate environment library list.
- It will then call another Payment Manager program in IP1 to send back the response data from CyberSource.

iSeries -> Payment Handler web service

- In cases where further ‘secondary’ credit card transactions are required from IP1, these often occur in the background rather than on an interactive user session.
- For example, Pre-authorisations, Settlements, Refunds on a customer order.
- Rather than IP1 directly calling API on the iSeries to the Cybersource gateway, IP1 does a remote call from the iSeries to the Payment Handler Web service to process this transaction utilising previously stored transaction data.
- The Payment Handler will again formulate this into a Cybersource API request and pass back response information to the iSeries as noted above.
- Only difference from initial card capture is that the browser & end user are not involved.

Web Payment Handler Prerequisites

General prerequisites

Following are guidelines on the requirements for the windows server for Web Payment Handler.

Windows server

1. Operating system should be Windows Server 2008 R2 or later
2. We recommend 4G RAM minimum as OS needs some.
3. This server may be a Virtual Machine. It doesn't have to be dedicated physical server.
4. Space on the server required by Web Payment Handler (WPH) will be less than 10MB.
5. Iptor need a temporary admin account to configure and install the web app.
6. Notepad or Wordpad required for editing configuration files.
7. SSL Certificate is required.
8. This server must have access to the IP1 iSeries environment(s) being used for c/c processing.
9. The server firewall must allow outbound and inbound access to CyberSource Payment Gateway. You may need to check with the Payment Gateway support team for specific IP addresses.

Websphere

1. Open Liberty Profile can be used which is a 'light' version that can be downloaded and utilised for free.

Firewall

The Payment Handler Web server will need both inbound & outbound access to the CyberSource servers. It will need outbound access to the iSeries, this is typically done via ports specified in Java WPH config file *Server.XML* and SQL ports.

Install SSL / TLS

It is better to install SSL for the web application to ensure cyber data is safe and secure; consult your IT support staff.

iSeries

WPH Server

The iSeries needs to allow inbound access from the Payment Handler Web server. This is typically done via ports 8472 and 8475.

Java Agent

Each user who enters credit cards in IP1 will need to have the Java Agent installed and running to facilitate the 'bounce' from iSeries to the browser to bring up the CyberSource HPS page.

Setup & Configuration

Business rules for CyberSource Payment Gateway must be setup with support from Iptor consultants.

Note: The following configurational setups & business rules has to be setup for CyberSource Payment Gateway & Payment Handler. This document does not cover customised setup tasks of specific companies. Deviations from this setup should be covered by setup tasks written by individual companies.

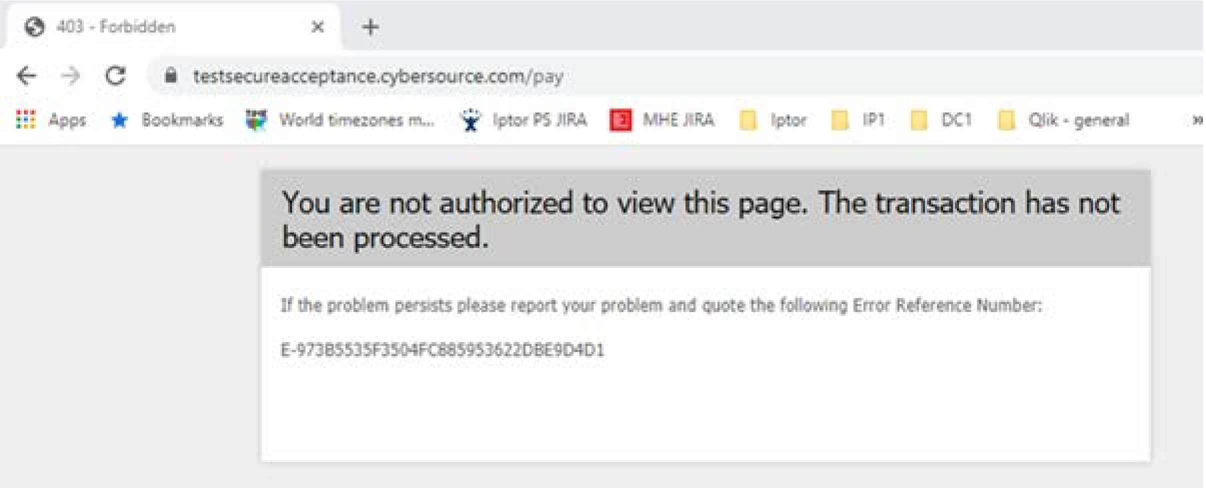
CyberSource security keys

Two sets of security keys must be generated before the user profile can be activated.

1. **Simple Order (SO) keys** – used for backend processing, settlement etc.
2. **Secure Access profile (SA) key** – used for front end processing to bring up the CyberSource landing page.

These sets of keys must be applied to the cybs.properties file in the appropriate folder on the WPH server for each merchant.

These keys expire after a while, so it is good policy to diarise the expiry date(s) and follow process to create new keys in advance of expiry. If you don’t do that, you may get error screen such as below when trying to key credit card data from IP1.



You are not authorized to view this page. The transaction has not been processed.

If the problem persists please report your problem and quote the following Error Reference Number:

E-973B5535F3504FC885953622DBE9D4D1

Refer article from CyberSource below:
https://support.cybersource.com/s/article/I-receive-the-following-error-when-sending-a-Secure-Acceptance-request-You-are-not-authorized-to-view-this-page-The-transaction-has-not-been-processed

Both these sets of keys need to be applied to the cybs.properies file in the appropriate folder on the WPH server for each merchant. You should be able to find this file in following folder:
c:\wlp\usr\servers\server_name\dropins\jph.war\WEB-INF\classes
(server_name is *wphtest* or *wphlive* for example).

Create test account

A test account must be created initially in CyberSource Business Center. The test account will enable you to test transactions from your e-commerce system to CyberSource, access reports and diagnostic information. Once you are satisfied with the test, you can contact CyberSource to obtain licence and get access and authorization to go live.

To create a test account, go to http://www.cybersource.com/register/
Click 'Register' button at the bottom, it will guide you through the registration process. When completed, you will receive an email with the test account ID, and the steps to finalise the registration. Follow the instructions as per the email to finalise the registration.

Secure acceptance profile keys

Steps to create a Secure Acceptance profile keys,

1. Log into the Business Centre account (using the merchant ID, your username and password (from test account registration above).
2. Expand the Tools & Settings and click on the "Profiles" option under Secure Acceptance heading
3. If there are multiple profiles, find the one with profile key matching the SA.PROFILE.ID setting within the cybs.properties file for the respective environment e.g.

   env.test.SAprofile.id=BD815D9A-C480-4FD4-AAD5-FC62AB584EFD
4. Click on the "Security Keys" button in the Business Centre for this profile.
5. You should see existing keys with information on Date Created and Date Expires.
6. Press the "Create New Key" button to generate a new key (these will last for 2 years).
7. The new Access Key and Secret Key values created will have to be copied and pasted into the SA_ACCESS_KEY and SA_SECRET_KEY settings within the cybs.properties file for this env.

IMPORTANT NOTE: CyberSource Business Centre doesn't seem to let you deactivate old Secure Access Keys, even after they are expired. However, it allows multiple to be active, so we just need to ensure that the WPH configs link to the one that will remain active and isn't expired.

CyberSource document
https://apps.cybersource.com/library/documentation/dev_guides/Secure_Acceptance_Hosted_Checkout/html/

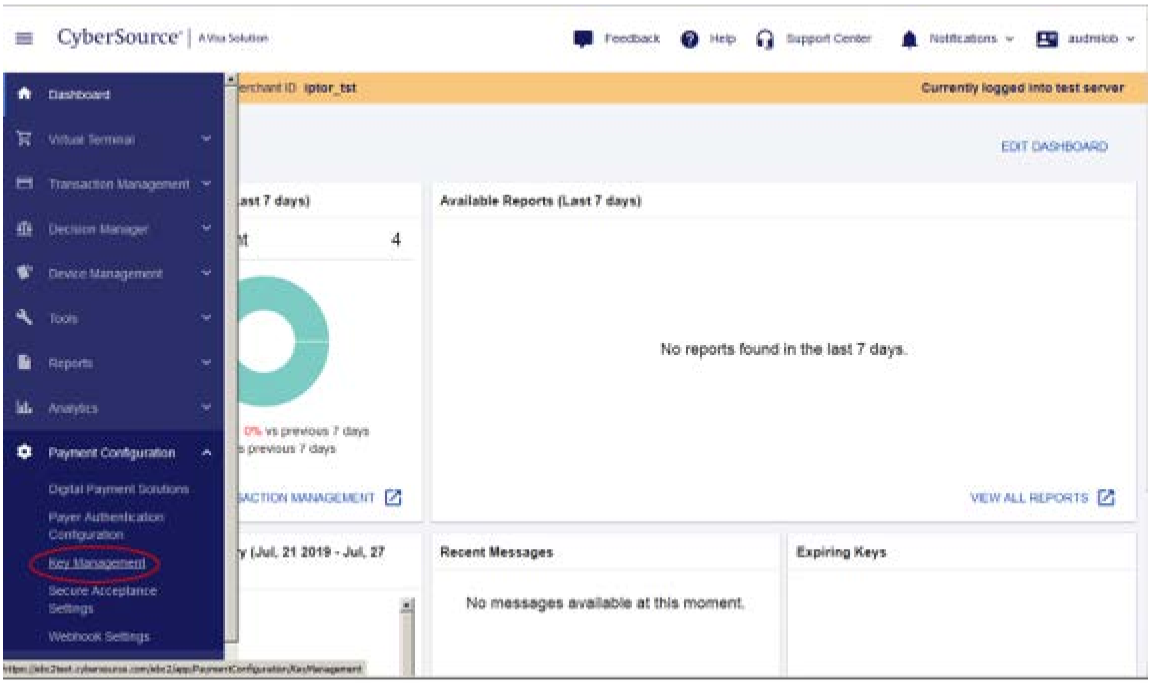
Simple order keys

With the Java WPH, we now use "SOAP Toolkit" instead of "Simple Order API".

CyberSource document - https://support.cybersource.com/s/article/How-do-I-update-an-existing-CyberSource-API-security-key-or-create-a-new-one-altogether

Steps to create Simple Order keys,

1. Log into the Business Centre account (using the merchant ID, your username and password (from test account registration above).
2. Select Payment Configuration, Key Management.



erchant ID iptor_tst

Currently logged into test server

ast 7 days)

nt 4

0% vs previous 7 days

s previous 7 days

Available Reports (Last 7 days)

No reports found in the last 7 days.

y (Jul, 21 2019 - Jul, 27

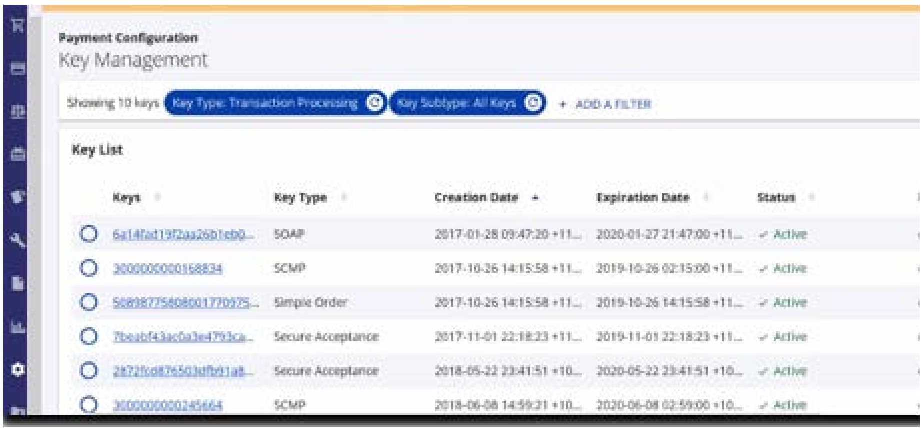
Recent Messages

No messages available at this moment.

Expiring Keys

https://ebc2test.cybersource.com/ebc2/app/PaymentConfiguration/KeyManagement

3. Press + Generate Keys.



Payment Configuration

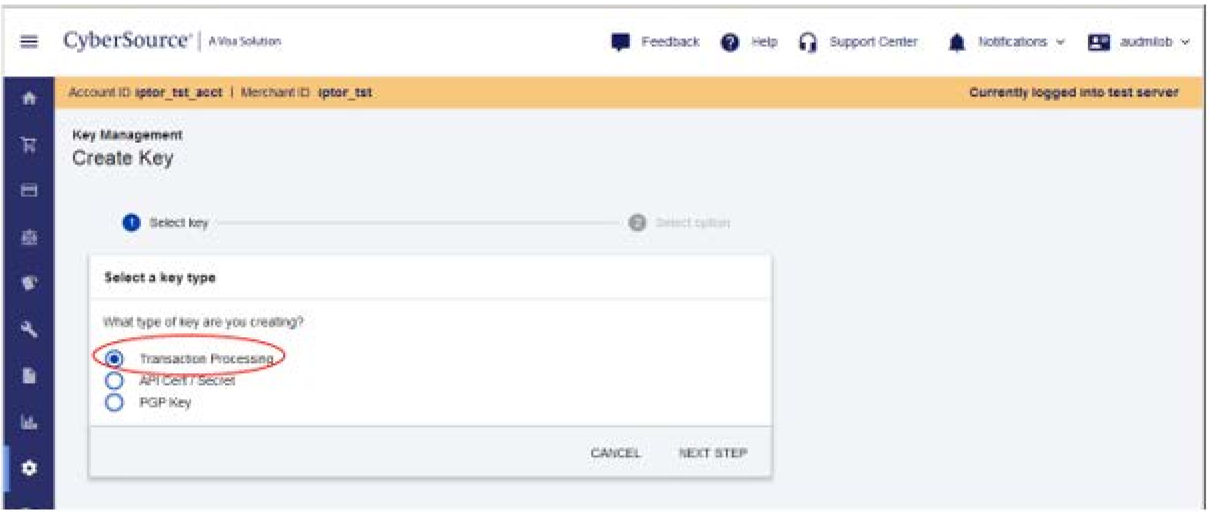
Key Management

Showing 10 keys Key Type: Transaction Processing Key Subtype: All Keys

Key List

	Keys	Key Type	Creation Date	Expiration Date	Status
○	6a14fad19f2aa26b1eb0...	SOAP	2017-01-28 09:47:20 +11...	2020-01-27 21:47:00 +11...	✓ Active
○	3000000000168834	SCMP	2017-10-26 14:15:58 +11...	2019-10-26 02:15:00 +11...	✓ Active
○	50898775808001770975...	Simple Order	2017-10-26 14:15:58 +11...	2019-10-26 14:15:58 +11...	✓ Active
○	7beabf43ac0a3e4793ca...	Secure Acceptance	2017-11-01 22:18:23 +11...	2019-11-01 22:18:23 +11...	✓ Active
○	2872fcd876503dfb91a8...	Secure Acceptance	2018-05-22 23:41:51 +10...	2020-05-22 23:41:51 +10...	✓ Active
○	3000000000245664	SCMP	2018-06-08 14:59:21 +10...	2020-06-08 02:59:00 +10...	✓ Active

4. Select Transaction Processing and press NEXT STEP.



Account ID iptor_tst_acct | Merchant ID iptor_tst

Currently logged into test server

Key Management

Create Key

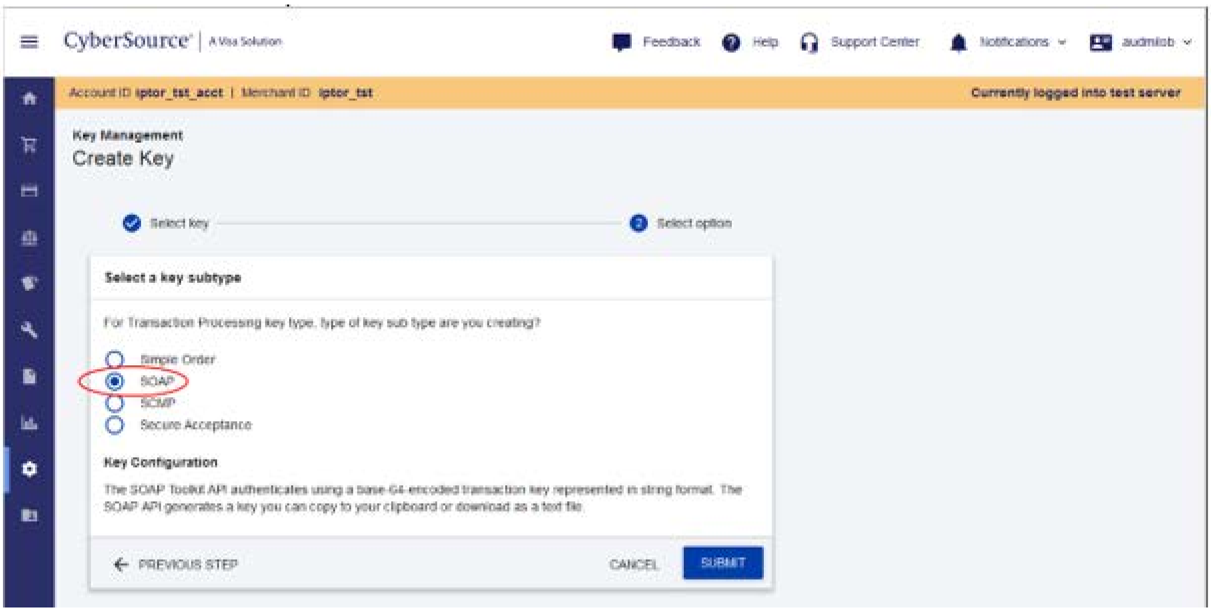
1 Select key — 2 Select option

Select a key type

What type of key are you creating?

● Transaction Processing
○ API Cert / Secret
○ PGP Key

5. Select SOAP, then press the SUBMIT button.



Account ID iptor_tst_acct | Merchant ID iptor_tst

Currently logged into test server

Key Management

Create Key

✓ Select key — 2 Select option

Select a key subtype

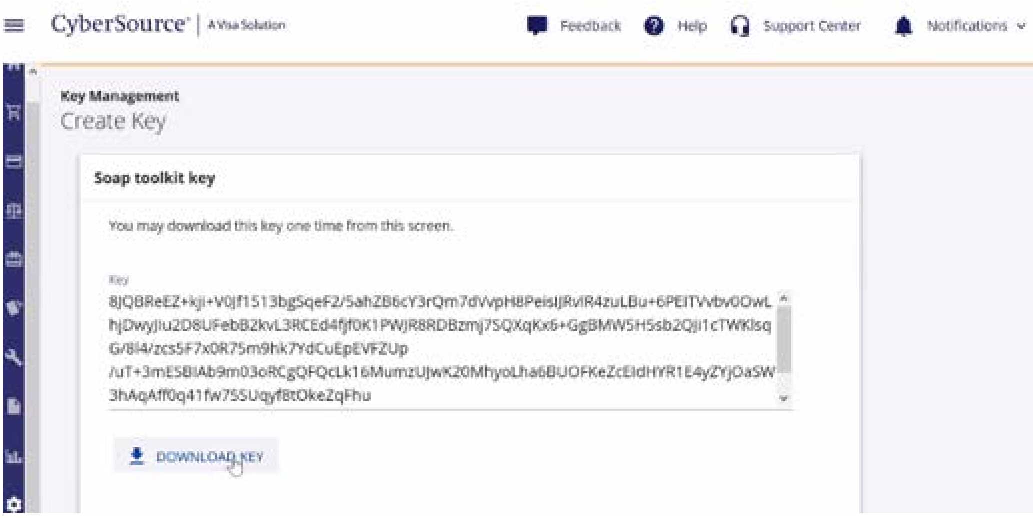
For Transaction Processing key type, type of key sub type are you creating?

○ Simple Order
● SOAP
○ SCMP
○ Secure Acceptance

Key Configuration

The SOAP Toolkit API authenticates using a base-64-encoded transaction key represented in string format. The SOAP API generates a key you can copy to your clipboard or download as a text file.

6. Press DOWNLOAD KEY.



Key Management

Create Key

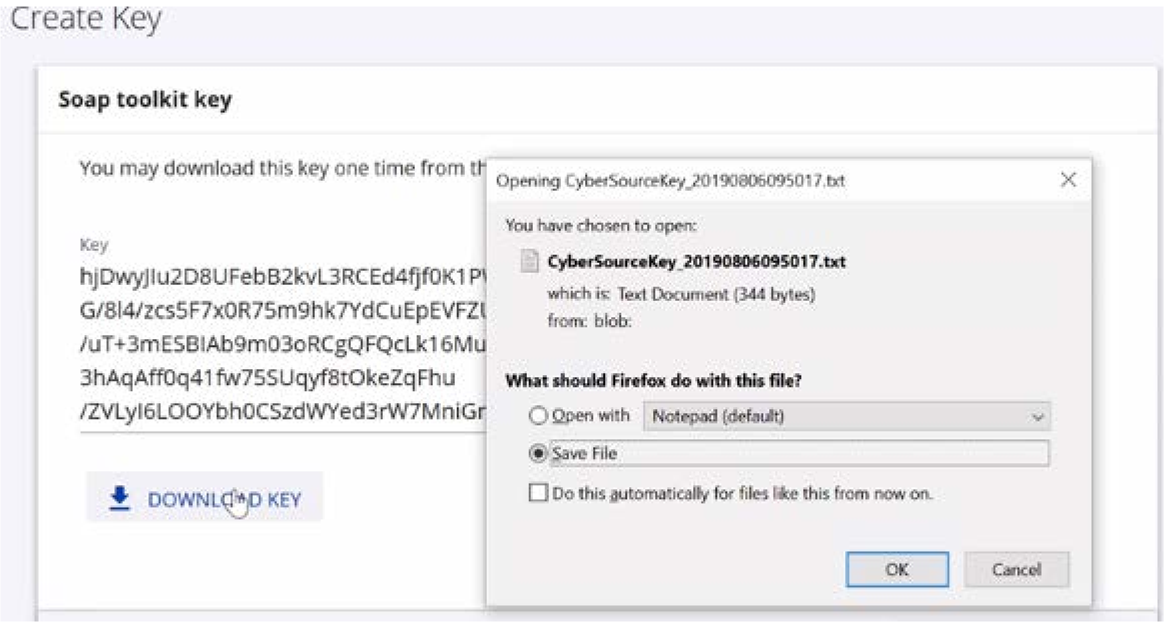
Soap toolkit key

You may download this key one time from this screen.

Key

```
8JQBReEZ+kji+V0Jf1513bgSqeF2/5ahZB6cY3rQm7dVvpH8PeisIJRvIR4zuLBu+6PEITVvbv0OwL
hjDwyJlu2D8UFebB2kvL3RCEd4fjf0K1PWJR8RDBzmj7SQXqKx6+GgBMW5H5sb2QJi1cTWKlsq
G/8I4/zcs5F7x0R75m9hk7YdCuEpEVFZUp
/uT+3mESBIAb9m03oRCgQFQcLk16MumzUJwK20MhyoLha6BUOFKeZcEIdHYR1E4yZYjOaSW
3hAqAff0q41fw75SUqyf8tOkeZqFhu
```

7. Choose where to save text file containing the key (or open with Notepad).



Create Key

Soap toolkit key

You may download this key one time from th

Key

```
hjDwyJlu2D8UFebB2kvL3RCEd4fjf0K1P
G/8I4/zcs5F7x0R75m9hk7YdCuEpEVFZ
/uT+3mESBIAb9m03oRCgQFQcLk16Mu
3hAqAff0q41fw75SUqyf8tOkeZqFhu
/ZVLyI6LOOYbh0CSzdWYed3rW7MniGr
```

Opening CyberSourceKey_20190806095017.txt

You have chosen to open:

CyberSourceKey_20190806095017.txt

which is: Text Document (344 bytes)

from: blob:

What should Firefox do with this file?

○ Open with Notepad (default)

● Save File

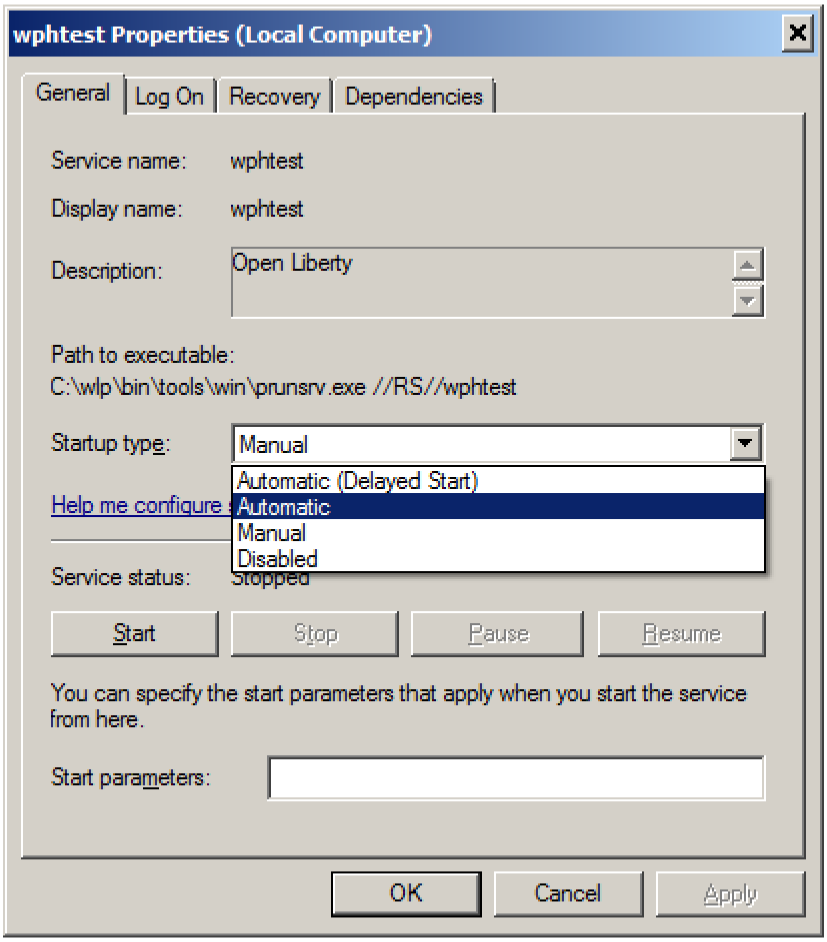
□ Do this automatically for files like this from now on.

8. Copy and paste the generated key into cybs.properties file, under SOtransaction.key e.g. env.test.SOtransaction.key=4VmvHp4tcrp1xeN71YIYJOUjd9fx/+gsF5RaueZDocZN2BCEw8B193jKY6fFauLO+KI08M0Jg8VHlubKkOQyxdlmcjIAWxFHKG+94yeU2eTtjq/gpdfn1GZp/DuOXbzsYY9huqFn3ObrRvCPqivUIF4fdUs0IOmH+BpjOKB05zBag3eALoABOEWj1kJJpY6IP0M8ypUTJj+4CEo0+T6s3XeDUKB7bq0iFpX1iqBhTN1cgliyXlwY/miBPsF8WdLr/O4RjCmb6MTdYx

Install the Payment Handler

Iptor will supply a deployment package, follow the instructions below to install the Payment handler web application.

1. Unzip wlp.zip file to the relevant drive resulting in folder like C:\wlp
2. Create test server and live server (*wphtest* and *wphlive* for example)
   2.1. Open command prompt as administrator and change directory to C:\wlp\bin
   2.2. Create test server - **server create server_name** (server_name is *wphtest* for example)
   2.3. Create Windows service - server registerWinService server_name
   2.4. Using Windows Services configuration tool set desired running mode:



wphtest Properties (Local Computer)

Service name: wphtest

Display name: wphtest

Description: Open Liberty

Path to executable:
C:\wlp\bin\tools\win\prunsrv.exe //RS//wphtest

Startup type: Manual

Help me configure

Service status: Stopped

You can specify the start parameters that apply when you start the service from here.

Start parameters:

   2.5. Repeat previous steps for the live server (server_name is *wphlive* for example)

3. Install web application
   3.1. Copy files *server.xml* and *cybs.wsdd* from WebApp.zip into newly created folders C:\wlp\usr\servers\wphtest and C:\wlp\usr\servers\wphlive. Override existing files if necessary.
   3.2. In both servers edit file *server.xml* and update iSeries connection properties to the relevant ones, like:

```
<properties.db2.i.toolbox dateFormat="iso" naming="system" password="chairfan5"
serverName="IBSBKDEV" timeFormat="iso" user="IBSWDB79D"/>
```

   3.3. In the test server file *server.xml* change ports to the values different from the live server (80 and 443), like:

<httpEndpoint host="*" httpPort="9080" httpsPort="9443" id="defaultHttpEndpoint">

3.4. Copy folder jph.war from WebApp.zip to C:\wlp\usr\servers\server_name\dropins

3.5. Review relevant payment system properties files in the folder C:\wlp\usr\servers\server_name\dropins\jph.war\WEB-INF\classes

3.6. If necessary, copy folder jph.war to the different name (like jpn.war) in the folder *dropins*, then update file web.xml, section <display-name> and file ibm-web-ext.xml, section <context-root ...> in the folder C:\wlp\usr\servers\server_name\dropins\jpn.war\WEB-INF

This will allow to run multiple applications in one server and use different URLs.

3.7. Start test server (or both servers) how described in section ‘Restart the Server’

4. Configuration network connection

4.1. Ports listed in files server.xml should be opened and https connectivity configured to the relevant payment system.

4.2. SQL ports should be opened to iSeries (default ports are – 449,8470,8471,8475,8476).

4.3. See section ‘iSeries configuration’ for the user profile and SQL stored procedure requirements.

Web application configuration

Server XML

This holds the information that allows communication between the Java WPH and IP1 environment(s). It replaces the environment.config file in .NET version.

Critical element to be configured is the <dataSource>. Check for the following:

- Points to the relevant iSeries
- User ID / password
- Libraries (this is optional, but if left out, then relies on the user id having JOBD with appropriate initial LIBL)

```
<server description="dev">
   <!-- Enable features -->
   <featureManager>
                                    <feature>servlet-4.0</feature>
                                    <feature>jsp-2.3</feature>
      <feature>jaxws-2.2</feature>
      <feature>jdbc-4.2</feature>
      <feature>jndi-1.0</feature>
<!--                                <feature>mpHealth-1.0</feature> -->
<!--                                <feature>localConnector-1.0</feature> -->
      <feature>localConnector-1.0</feature>
   </featureManager>
   <!-- For the keystore, default keys are generated and stored in a keystore. To provide the keystore
password, generate an
       encoded password using bin/securityUtility encode and add it below in the password attribute of
the keyStore element.
       Then uncomment the keyStore element. -->
   <keyStore id="defaultKeyStore" password="Liberty"/>

   <!--For a user registry configuration, configure your user registry. For example, configure a basic user
registry using the
```

```
        basicRegistry element. Specify your own user name below in the name attribute of the user element. For the password,
        generate an encoded password using bin/securityUtility encode and add it in the password attribute of the user element.
        Then uncomment the user element. -->
                <!--<basicRegistry id="basic" realm="BasicRealm">
        <user name="bob" password="passw0rd" />
                </basicRegistry>-->
                <!-- <administrator-role>
                <user>bob</user>
    </administrator-role> -->

    <!-- To access this server from a remote client add a host attribute to the following element, e.g. host="*" -->
    <httpEndpoint host="*" httpPort="80" httpsPort="443" id="defaultHttpEndpoint">
        <tcpOptions soReuseAddr="true"/>
    </httpEndpoint>
    <!-- Automatically expand WAR files and EAR files -->
    <applicationManager autoExpand="true" startTimeout="60s" stopTimeout="60s"/>
    <applicationMonitor updateTrigger="mbean"/>
    <jdbcDriver id="jtDrv" javax.sql.DataSource="com.ibm.as400.access.AS400JDBCDataSource" libraryRef="jt400">
    </jdbcDriver>
    <library id="jt400">
         <fileset dir="${shared.resource.dir}" includes="*.jar"/>
    </library>
    <!-- java:comp/DefaultDataSource -->
    <dataSource beginTranForResultSetScrollingAPIs="true" id="DefaultDataSource" isolationLevel="TRANSACTION_READ_UNCOMMITTED" jdbcDriverRef="jtDrv" jndiName="jdbc/jph" type="javax.sql.DataSource">
        <properties.db2.i.toolbox dateFormat="iso" naming="system" password="chairfan5" serverName="IBSBKDEV" timeFormat="iso" user="IBSWDB79D"/>
    </dataSource>
     <logging consoleLogLevel="INFO"/>
</server>
```

Cybs.properties

This holds the information that allows communication between Java WPH and CyberSource. It replaces the web.config file in .NET version.

Configure/check the following key elements:

- Merchant ID (merchant.id)
- SA access profile ID (SAprofile.id)
- SA access key (SAaccess.key)
- SA secret key (SAsecret.key)
- SOtransaction key (SOtransaction.key)

```
# values - test or live (change to env=live if running live)
env=test
env.test.merchant.id=iptor_tst
# allow to override default (jdbc/jph) for the given env.
env.test.jndi.CLT=jdbc/jph
env.test.ignoreAVSResult=true
# 0 for pre, 1 for final, default to 0
env.test.authIndicator=0
# locale of the Cybersource Secure Acceptance pages
env.test.SAlocale=en-au
# Secure Acceptance settings
env.test.SAprofile.id=BD815D9A-C480-4FD4-AAD5-FC62AB584EFD
env.test.SAaccess.key=f2afd8332e303429acdfb3f8d36a255a
env.test.SAsecret.key=9bcdb256324d42d3805d5a2c6a3a35ea6d9f30bdc3774923b8d5d5e88632ded62
b16cf93c27f4ef5893bafcde6d22a59dfb44ab38966462ea55e2bfddbecd393d1570f49aa61424da9248955
374a5fbcd4f078489e624d838ccc82020d66d1f2e725ed77c22f4802b87bee0e3f801c0a459e99d6670e43
c78d7252c59a8f9d53
env.test.SAPurl=https://testsecureacceptance.cybersource.com/pay
env.test.SATurl=https://testsecureacceptance.cybersource.com/token/create
# Silent Order settings
env.test.SOtransaction.key=4VmvHp4tcrp1xeN71YIYJOUjd9fx/+gsF5RaueZDocZN2BCEw8B193jKY6fF
auLO+KI08M0Jg8VHlubKkOQyxdlmcjIAWxFHKG+94yeU2eTtjq/gpdfn1GZp/DuOXbzsYY9huqFn3ObrR
vCPqivUlF4fdUs0IOmH+BpjOKB05zBag3eALoABOEWj1kJJpY6IP0M8ypUTJj+4CEo0+T6s3XeDUKB7b
q0iFpX1iqBhTN1cgliyXlwY/miBPsF8WdLr/O4RjCmb6MTdYx1BbxTRQj/ydqiPMcEatLGqSWmGejbt2ld0
PExO7cI5YCra2ZskFQoLz2AaBwhW6NWojDV7pQ==
env.test.SOurl=https://ics2wstesta.ic3.com/commerce/1.x/transactionProcessor


env.live.merchant.id=iptor
# allow to override default (jdbc/jph) for the given env.
env.live.jndi.CLA=jdbc/jpa
env.live.ignoreAVSResult=true
# 0 for pre, 1 for final, default to 0
env.live.authIndicator=0
# locale of the Cybersource Secure Acceptance pages
env.live.SAlocale=en-au
# Secure Acceptance settings
env.live.SAprofile.id=BD815D9A-C480-4FD4-AAD5-FC62AB584EFD
env.live.SAaccess.key=f2afd8332e303429acdfb3f8d36a255a
env.live.SAsecret.key=9bcdb256324d42d3805d5a2c6a3a35ea6d9f30bdc3774923b8d5d5e88632ded62
b16cf93c27f4ef5893bafcde6d22a59dfb44ab38966462ea55e2bfddbecd393d1570f49aa61424da9248955
374a5fbcd4f078489e624d838ccc82020d66d1f2e725ed77c22f4802b87bee0e3f801c0a459e99d6670e43
c78d7252c59a8f9d53
env.live.SAPurl=https://secureacceptance.cybersource.com/pay
env.live.SATurl=https://secureacceptance.cybersource.com/token/create
# Silent Order settings
env.live.SOtransaction.key=4VmvHp4tcrp1xeN71YIYJOUjd9fx/+gsF5RaueZDocZN2BCEw8B193jKY6fF
auLO+KI08M0Jg8VHlubKkOQyxdlmcjIAWxFHKG+94yeU2eTtjq/gpdfn1GZp/DuOXbzsYY9huqFn3ObrR
vCPqivUlF4fdUs0IOmH+BpjOKB05zBag3eALoABOEWj1kJJpY6IP0M8ypUTJj+4CEo0+T6s3XeDUKB7b
q0iFpX1iqBhTN1cgliyXlwY/miBPsF8WdLr/O4RjCmb6MTdYx1BbxTRQj/ydqiPMcEatLGqSWmGejbt2ld0
PExO7cI5YCra2ZskFQoLz2AaBw
hW6NWojDV7pQ==
env.live.SOurl=https://ics2wsa.ic3.com/commerce/1.x/transactionProcessor
```

After applying the changes, stop and restart the server. See next section.

Restart the server

Instructions to restart services:

- There two ways to do it as outlined below

- For either method, replace *server_name* as appropriate. i.e.
- *Server_name* = wphtest or wphlive

Method 1/

1. Stop relevant Windows service (wphtest or wphlive)
2. Check the log file (C:\wlp\usr\servers\server_name\logs\messages.log) to make sure server has stopped and then start Windows service again.
3. Unfortunately, Windows services option ‘restart’ can hang Java process quite badly, therefore it is necessary to do separate stop and start.

Method 2/

1. Open command prompt as Windows administrator.
2. CD c:\wlp\bin (or relevant folder where Open Liberty bin folder is).
3. Use the following command to stop the server:
   server stopWinService *server_name*
4. Check the log file (C:\wlp\usr\servers\server_name\logs\messages.log) to make sure server has stopped and then start Windows service again.
5. Use the following command to start the server:
   server startWinService *server_name*

iSeries configuration

User profile

User profile specified in the file server.xml should have JOBD with the following:

- TMSBASE/IBSBASE
- The base object library containing XAX000N e.g. TMSOBJZ79
- Another object library if XAS010 is elsewhere
- The data library containing XACTD00P e.g. TMSDTA79P

XAX000 Stored Procedure

On the iSeries, create stored procedure using the following SQL statement:
This should be created in the primary data library for each environment used by web payment handler.
For customers already using IP1 web services, this should already be there!

```
CREATE PROCEDURE TMSDTAxxx/XAX000 (IN ENV CHAR(3),
IN JBUS CHAR(10),
IN JBID CHAR(10),
IN PGMN CHAR(10),
OUT STS CHAR(1),
IN XIN blob(2M),
OUT XOUT Blob(16M),
OUT XMSG Blob(64K))
LANGUAGE RPGLE
PARAMETER STYLE GENERAL
NOT DETERMINISTIC
DYNAMIC RESULT SETS 0
EXTERNAL NAME TMSOBJZ79/XAX000N
```

Names of the libraries (in red) should correspond to ones in your environment.
Make sure that stored procedure is unique.

Java Agent

1. Install Java Agent. For opening landing page URL, XAO641A uses Java Agent.

XAO641

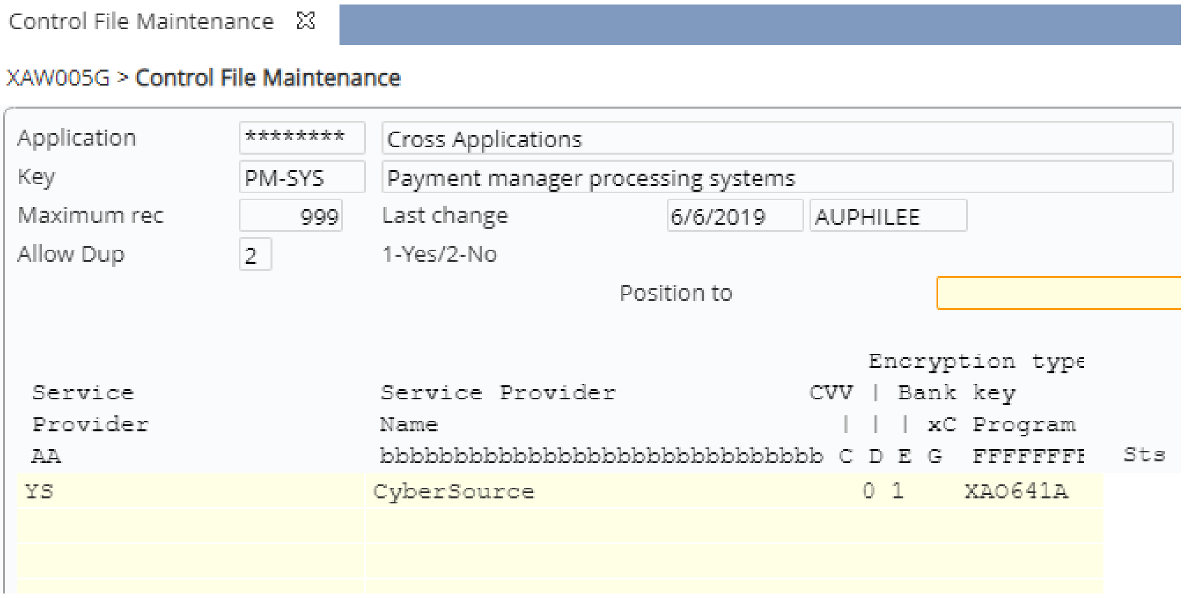
1. Deploy RPG program XAO641 if not already deployed.

IP1 Control files//Merchant details maintenance

1. Create/update the following control files entries.

   a. ** *****/PM-SYS** Payment manager processing system

   – include entry for CyberSource as below.



XAW005G > Control File Maintenance

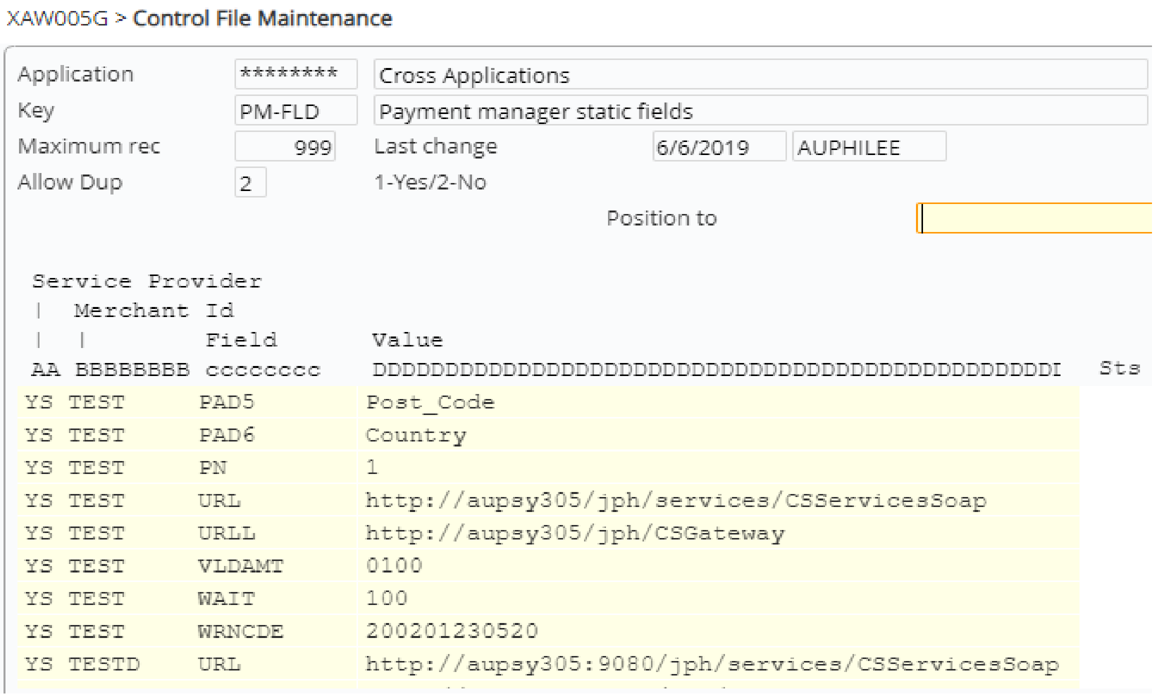
Application	*********	Cross Applications
Key	PM-SYS	Payment manager processing systems
Maximum rec	999	Last change 6/6/2019 AUPHILEE
Allow Dup	2	1-Yes/2-No

Position to

```
                                                      Encryption type
 Service                 Service Provider         CVV | Bank key
 Provider                Name                       | | | xC Program
 AA                      bbbbbbbbbbbbbbbbbbbbbbbbbbbbbb C D E G  FFFFFFFE    Sts
YS                      CyberSource                    0 1     XA0641A
```

b. ********/PM-FLD **Payment manager static fields**

- setup the various required fields for CyberSource



XAW005G > Control File Maintenance

Application	********	Cross Applications	
Key	PM-FLD	Payment manager static fields	
Maximum rec	999	Last change	6/6/2019 AUPHILEE
Allow Dup	2	1-Yes/2-No	

Position to

```
 Service Provider
 |  Merchant Id
 |  |         Field       Value
 AA BBBBBBBB cccccccc    DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDI   Sts
YS TEST      PAD5       Post_Code
YS TEST      PAD6       Country
YS TEST      PN         1
YS TEST      URL        http://aupsy305/jph/services/CSServicesSoap
YS TEST      URLL       http://aupsy305/jph/CSGateway
YS TEST      VLDAMT     0100
YS TEST      WAIT       100
YS TEST      WRNCDE     200201230520
YS TESTD     URL        http://aupsy305:9080/jph/services/CSServicesSoap
```

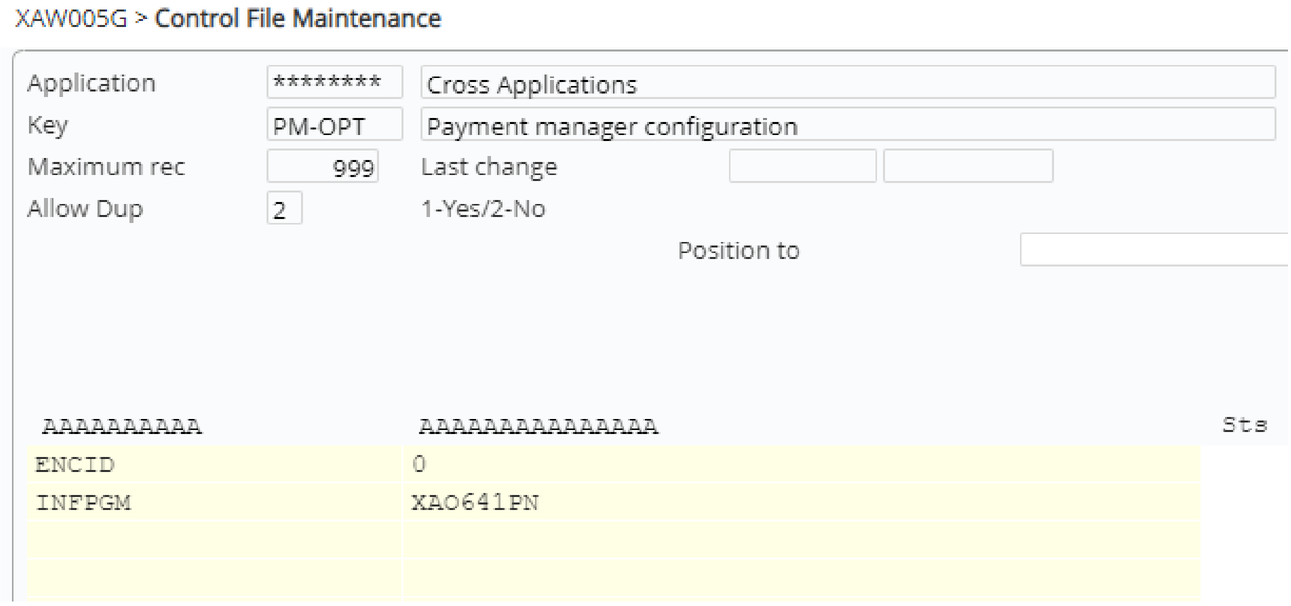
Field settings:

Field	Description
DEBUG	Universal; can have the value of 1 or 2 only, even though there is no validation on it. The transaction will process for both values but option 1 gives additional technical data on the transaction being processed, for investigational purposes. Logs comments in IFS temporary folder.
EMAIL	default email for CyberSource
INFO	for SecurePay gateway only; not applicable to CyberSource
LOGIN	for SecurePay gateway only; not applicable to CyberSource
LIVE	Not used any more
MERCHANT	for SecurePay gateway only; not applicable to CyberSource
PASSWORD	for SecurePay gateway only; not applicable to CyberSource
PN	sets what goes to CyberSource as IP1 primary reference “consumer_id”. If PN=1, then it is process number, otherwise customer number.
URL	WPH SO (Simple Order) URL

URLL	WPH SA (Secure Acceptance) URL
VENDOR	not supported anymore
VLDAMT	universal; Pre-authorised amount for c/c and expiry date validation via a dummy transaction. Can be overwritten. For US its 0.
VLDAUTH	the number of days/hours to hold the pre-authorisation. Format is 1DDHH, '1'-Yes 'DDHH'-days/hrs from auth date.
WAIT	universal; time in seconds for iSeries to wait for landing page
WRNCDE	List of error codes (3 char) for programs to ignore. Not recommended for use

c. ***********/PM-OPT*** Payment manager configuration

- Set INFPGM to XAO641PN
- ENCID must always be set to ‘0’



XAW005G > Control File Maintenance

Application	********	Cross Applications
Key	PM-OPT	Payment manager configuration
Maximum rec	999	Last change
Allow Dup	2	1-Yes/2-No

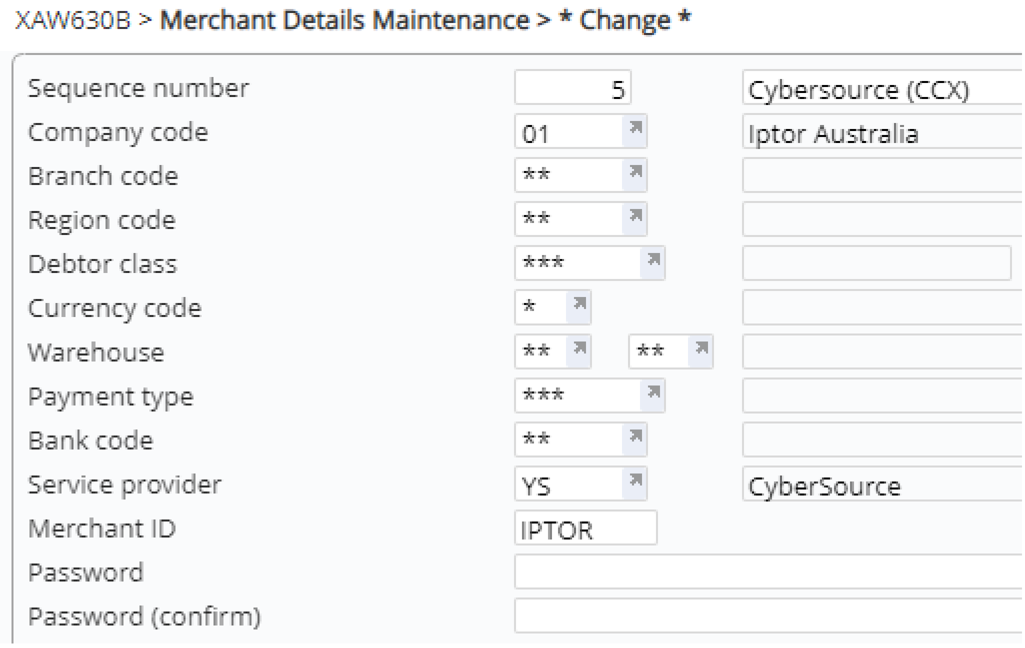
Position to

AAAAAAAAAA	AAAAAAAAAAAAAAA	Sts
ENCID	0	
INFPGM	XAO641PN	

2. Configure Merchant detail maintenance (XAW630A); use relevant CyberSource account entries as per ********/PM-FLD.

IMPORTANT NOTE:

- Make sure you include a ‘catch all’ rule that links with a valid CyberSource provider regardless of company, currency, payment type, etc.
- This is required to ensure F10=Confirm using an existing card that has already been linked to an order will work properly during order maintenance or Work with Failed Credit Card payment entry



XAW630B > Merchant Details Maintenance > * Change *

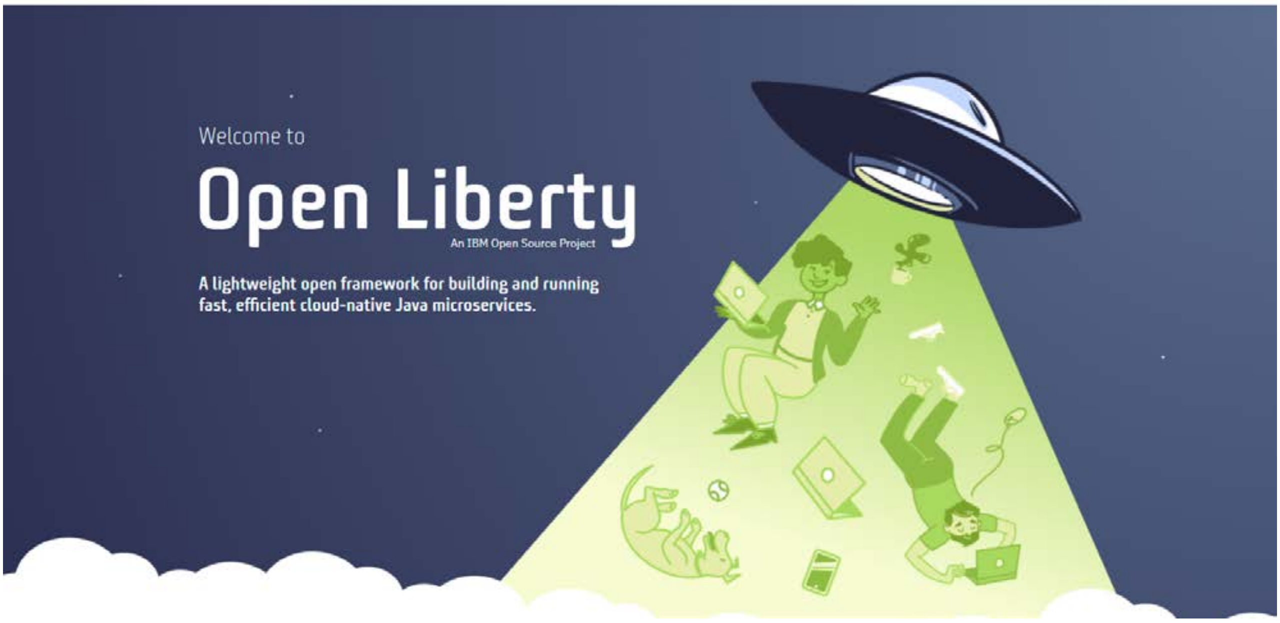
Sequence number	5		Cybersource (CCX)
Company code	01		Iptor Australia
Branch code	**		
Region code	**		
Debtor class	***		
Currency code	*		
Warehouse	**	**	
Payment type	***		
Bank code	**		
Service provider	YS		CyberSource
Merchant ID	IPTOR		
Password			
Password (confirm)			

Increase 'XA-TRNID Credit card transaction ID' control number to higher round number (for example - '00100000')

Testing

Check WEB Payment Handler Install

1. Test ability to connect to Open Liberty.
   a. After starting the service, on browser (from own PC if you are in same network or VPN as the payment handler wintel server), type URL to check if it gets a response.
      http://dnsservername:port/   or   http://ip:port/
      i. Port number can be left off if using default http port 80
   b. This verifies that user can connect over the network/VPN to Open Liberty using the designated port.
   c. On successful connection you should see below:



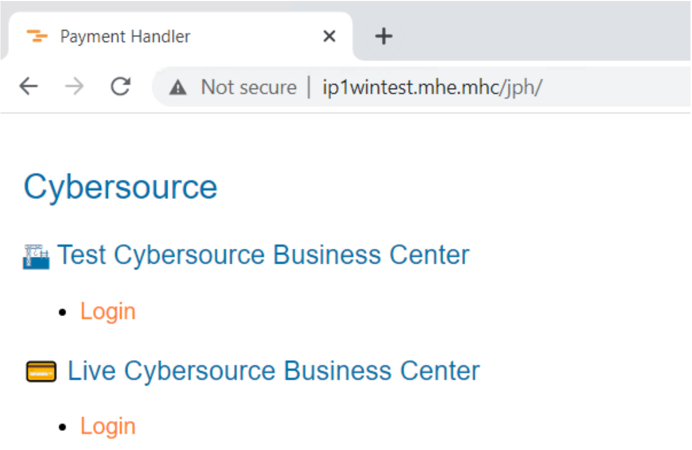
Welcome to

Open Liberty

An IBM Open Source Project

A lightweight open framework for building and running fast, efficient cloud-native Java microservices.

2. Test ability to connect to the wph application.
   a. Following above test, could include the /jph portion of URLL to also check that the wph application itself is running ok.
      http://dnsservername:port/jph/   or   http://ip:port/jph
   b. On successful connection you should see screenshot below. Note that this is a static page in the wph application. Presence of this page simply proves the wph application is running ok.



Cybersource

Test Cybersource Business Center

- Login

Live Cybersource Business Center

- Login

3. HTTPS testing
    a. If you wish to use https instead of http for the connection from user's browser to the wph, then they will first need to install & setup certificate in Open Liberty.
    b. Refer following link for information on how to set this up. https://www.ibm.com/support/knowledgecenter/en/SSEQTP_liberty/com.ibm.websphere.wlp.doc/ae/twlp_sec_comm.html
    c. Then repeat test 1 & 2 above with https instead of http prefix.

Check iSeries link to/from wph

1. Setup Java Agent to link to relevant iSeries.
    a. If Java agent doesn't connect:
        i. On iSeries, type command NETSTAT *CNN
        ii. Look for an entry that shows port 4454 listening.
        iii. If not found, CALL XAO255C to start agent listener on iSeries (sign off & on before doing this command to clear libl. i.e. Don't want IP1 environment specific libl).
        iv. Then recheck NETSTAT *CNN to confirm port 4454 is now showing ok
        v. Retry starting the agent on PC.
2. On the iSeries
    a. Update ********/PM-FLD control file to new URL pathnames
    b. Do initial verification testing using XAO630T
        i. Notes:
            1. Can do this test with cybs.properties unaltered from iptor_tst defaults (i.e. Using Iptor test merchant and keys). Should be able to get a valid acceptance response on card 4111111111111111
            2. This test verifies:
                a. All being well, should bring up the CyberSource landing page, accept test card info, and pass valid response back to the iSeries.
                b. If not, could imply one of following isn't correct.
                c. ********/FLD URL* settings
                d. Java agent setup on individual's PC or on iSeries
                e. WPH software installation & config
                f. Ports/firewall connections between WPH server & CyberSource, and between WPH and iSeries.
            3. You may need to create a dummy first sequence entry in Merchant Maintenance with catch all wildcard asterisks in criteria fields to force use of particular test merchant account since XAO630T doesn't know the company, payment type, etc.
            4. XAO630T currently uses hard coded AUD currency, so this may cause failures with some overseas merchant ids.
        ii. CALL XAO630T
        iii. Key request TC or CC using default card and reference information.
        iv. E.g. Card 4111111111111111, CVV 123, Expiry date after today's date. Amount=$10.08, Our Ref=date/timestamp value
        v. Press Enter
        vi. Should bring up landing page for your CyberSource payment gateway.
        vii. Key card information again.
        viii. Check appropriate response comes back to the iSeries program.

End to end testing with IP1

1. Ensure appropriate AR Payment types and other configuration preferences are setup.
2. Ensure Merchant Maintenance links to appropriate test or live merchant setups in ********/PM-FLD
3. AR Entry test

    a. Key payment using appropriate AR Payment Type(s) for c/c link with relevant payment manager.
    b. After finalising allocation of amount, should bounce to relevant payment manager host page for entry of card details to pay matching amount requested on the IP1 screen.
    c. Response should be returned to ARE005 screen.

4. Order Entry tests
    a. Key order with prompt payment terms and select payment with appropriate AR Payment Type(s) for c/c link with relevant payment manager.
    b. Should bounce to relevant payment manager host page for entry of card details. Amount and method (preauthorization vs immediate payment) will depend on configurations.

Troubleshooting

1. If URL brings up an IIS screen, this indicates that the designated port is already allocated to an IIS website.
   a. You may need to change configurations to use a different port, or stop the website in IIS.

2. If URL brings up **error 404 – File or directory not found** error on browser.
   a. Check all installation steps have been completed on both windows and iSeries.
   b. Check that the relevant windows service is running.
   c. You may need to include specific port# in the ********/PM URL* field settings, rather than relying on default.
   d. If still issues, check log files in C:\wlp\usr\servers\server_name\logs
      i. Messages log file has I, A and E entries. Look for E (error) messages.
      ii. For example, following error line indicates that the port configured in server.xml file could not be allocated.

```
[1/5/21, 18:45:44:454 EST] 00000026 com.ibm.ws.tcpchannel.internal.TCPPort
E CWWKO0221E: TCP Channel defaultHttpEndpoint initialization did not succeed.  The
socket bind did not succeed for host * and port 80.  The port might already be in use.
Exception Message: Address already in use: bind
```

   e. For port usage clash,
      i. Refer to the following for instructions to check which application(s) are using a port https://www.printsupportcenter.com/hc/en-us/articles/115003386949-Determine-which-program-uses-or-blocks-a-port
      ii. If clash exists, you may need to end the other applications using this port, or change server.xml and PM-FLD URL* to use a different port.

3. Unsuccessful response from payment gateway.
   a. It is quite possible that the Receipt screen may show ‘valid’ errors in the normal course of entry (e.g. Expired card, invalid CVV, etc.). However, there may be other cases where problem exists in programming or setup.

4. Top left corner of response page shows ““&#x1F3D7 Receipt”. What does this mean?
   a. This is Unicode character “Building Construction” (https://www.compart.com/en/unicode/U+1F3D7) showing we are in test mode
   b. It should show up as following image🏗 , however Internet Explorer can’t show it.
   c. Other browsers display it ok, so try changing your default browser, or just ignore this.

5. Other checks – IP1 log files.
   a. You may need to check & verify URL being called and the response received.
   b. Check XAPCA, XAPCB, XAPC files for payment handler.
   c. Check log file - XAPCD00P.

Appendix

FAQ – Web Payment Handler (WPH) prerequisites

a) Do we need separate installation & configuration for each Merchant Id?
Currently Iptor has only one deployment file which can be used for all supported Payment Gateway merchants. However, each merchant will require its own customised configuration file specifying client preferences and merchant id information.

b) Even though there is one deployment file, do we need to do multiple installs to handle the different merchant Ids, or can we handle multiple configurations/merchants within single installation?
This is up to client to decide. A single WPH server can handle multiple URLs, so it is possible to do one installation of the software but set up separate URLs for each Merchant account. Each URL would be linked to a separate copy of the WPH configuration file which is specific to that merchant account. This also means we can allow multiple iSeries environments with one deployment of the WPH software, as the configuration file for each URL will point back to the appropriate iSeries environment.

Generally, Iptor suggests that it is simpler to have a single WPH server and web payment handler software install, with different URLs & configuration files for test vs live or other separate merchant accounts.

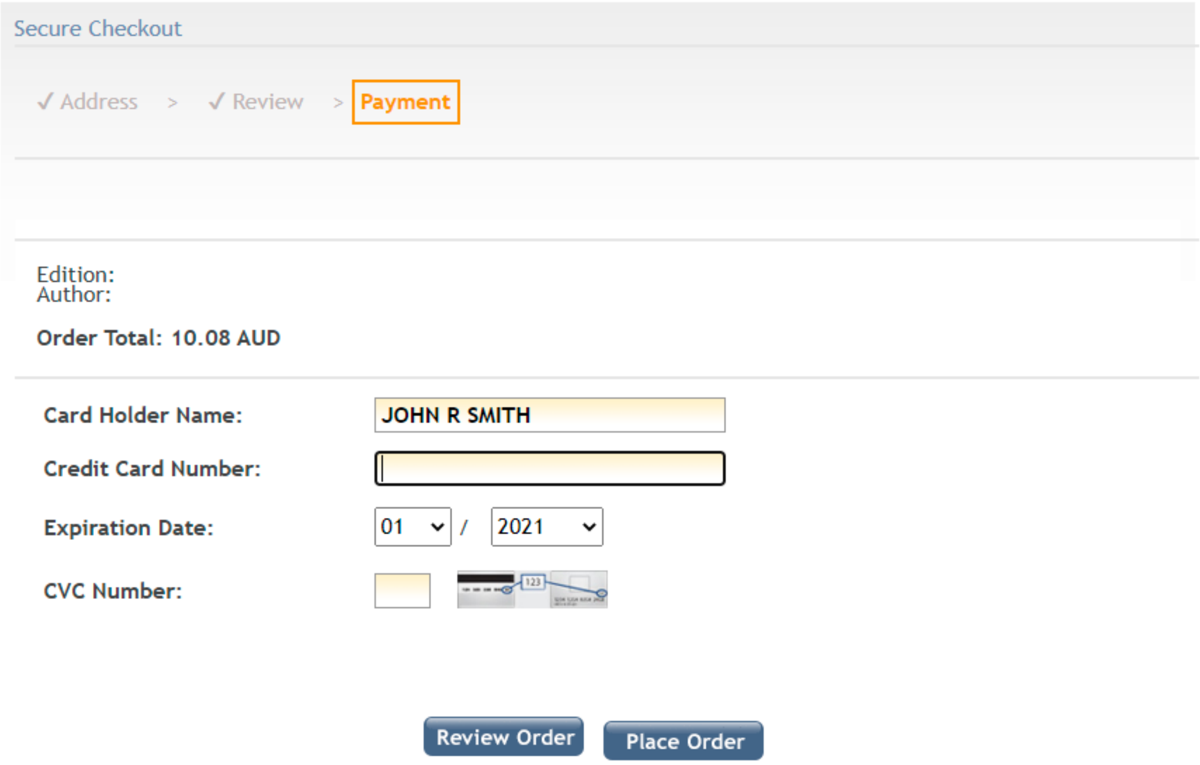
However, clients may prefer to install multiple copies of the application onto one server, or onto multiple servers.

c) Are there any requirements for number of ports?
No specific requirements, default HTTP is still using port 80, and SSL port uses 443. Ports can be customised by client’s own IT department, and SSL can be added and specified by the clients also.

d) Would there be any problems if installed within same VM as other applications (e.g. Book Production file server), or do we suggest better to keep this WPH in separate VM?
Our landing page can be with any other applications, as it only consumes very little resource, and it has very high security features.

Sample Data Entry Web Page

Sample Data Entry web page used for Credit Card entering.



Secure Checkout

✓ Address > ✓ Review > Payment

Edition:
Author:

Order Total: 10.08 AUD

Card Holder Name:	JOHN R SMITH
Credit Card Number:	
Expiration Date:	01 / 2021
CVC Number:	

Other Tips

Installation summary if migrating from old .Net to new Java version of wph

1. Wintel setup
   a. As per Install the Payment Handler section in this document.
2. iSeries
   a. You may already have a common user profile that you were using with the .Net version which can be used again here.
   b. Review if you need to amend user profile jobd/libl, or alternatively set the libraries keyword in the se in the server.xml
3. IP1 config
   a. New XAX000 stored procedure must be created in each IP1 environment.
   b. TMSWWW / ENV-DFT – must be set to matching IP1 environment code for each IP1 environment.
   c. ******** / PM-FLD
      i. Change all URLL entries for CyberSource service provider.
         1. Use /jph instead of /phlive or /phtest
         2. Other suffixes may be required if you used multiple Context Ids during the Payment Handler Install and configuration.
      ii. Eg.
         From
         http://dnsservername /ph/CSGateway
         to
         http://dnsservername /jph/CSGateway

UAT test plan suggestions

1. There are NO changes in secondary transaction processing with the migration from .Net to Java WPH. This is all handled directly between IP1 and CyberSource servers, and there are no program changes on IP1 side at all.
2. Therefore, key requirement is simply to test the initial capture of card details via the CyberSource Landing Page.
3. Only reason to check secondary transaction would be to ensure Java version has captured back correct token data into IP1 for secondary processing.

IP1 Test environment refresh from live (and using live vs test merchant/cards)

1. TMSWWW / ENV-DFT must be reset to relevant environment id.
2. ******** / PM-FLD
   a. Suggest that it is best practice to include both LIVE and TEST merchant entries here, so that you can simply use Merchant Details Maintenance to point to relevant one for this environment.
3. To point IP1 environment to TEST instead of LIVE wintel & merchants.
   a. Go into menu opt 50,60. Credit Merchant Detail Maintenance
   b. Review each of the sequence entries for CyberSource provider and swap the merchant id from LIVE to TEST.
   c. If you have multiple merchants, you may have something like xxTEST or xxLIVE merchant's setup in ******** / PM-FLD.
   d. Restart IP1 background processing jobs to ensure changes picked up.
4. Of course, if you want to point test environment to live merchant/card, then simply revert the setups in step 3.

Creation of new IP1 environment

1. If you create a new IP1 environment that you want to handle CyberSource card payments, then you will need to:
2. Wintel server
   a. Add new IP1 environment entries into the cybs.properties and server.xml files.
   b. If this is a test IP1 environment, then suggest that you do this on both dev and prod wintel servers, so that you can point the IP1 environment to both test and live merchants.
   c. Restart wph services.
3. IP1 config
   a. Ensure stored procedure XAX000 is created in this environment.
   b. As noted on IP1 Test environment refresh from MAP.

Object library change (e.g. Upgrade to IP1)

1. If new versions of XAX000 or XAS010 service programs are created, then you will need to do following:
2. iSeries userid
   a. Check if jobd/libl needs updating
3. Wintel servers
   a. If server.xml <datasource> tags are currently using libraries="TMSBASE,TMSDTAxxx,TMSOBJZ78"
   b. You will need to change each <datasource> tag to the new object library (eg. TMSOBJZ78 may change to TMSOBJZXI).
   c. Restart the wph services.
4. IP1
   a. Delete and recreate the XAX000 stored procedure, pointing the EXTERNAL NAME setting to appropriate library containing XAX000N object.

```
EXTERNAL NAME TMSOBJZXI/XAX000N
```

Linking HPS landing page with merchant (pageset)

1. Iptor can assist with providing sample html pages.
2. Send relevant html to Datacash support, asking them to link that with the particular merchant id (vtID)
3. They will provide a pageset number that they have allocated this html layout against for that merchant id (vtID)
4. Edit Dc.properties file(s) in test and/or live wintel servers to set env.live.DCpgs.setting. eg. Following sets the page set to 3933 for test merchant id 99007724
   a. env.test.DCpgs.99007724=3933
5. Note:
   a. Be careful if modifying the html layout that you don't change the field number settings, as these are important to how our WPH s/w passes appropriate information to Datacash. Our default html page uses field number settings:

DCCapfNam	=1
DCCapfCns	=7
DCCapfEnv	=8
DCCapfMch	=9

New Merchant ID

1. Ensure appropriate HPS landing page has been loaded with Datacash for the merchant id (vtID) and pageset number allocated
2. You will also need to know the password from Datacash for this vtID

3. Wintel servers
    a. Dc.properties
        i. If merchant id is not already in the file, then copy and modify from one of the existing merchants
        ii. Change the .nnnnnnnn portion to new merchant id
        iii. Set DCpwd to the new password for this vtID
        iv. Set DCpgs to the page set number that has been allocated to this vtID
        v. Double check each of the DCCap* settings (see notes in prev section about field numbers)