

PayPal Braintree Add-on for Hybris 2005-2205

USER GUIDE



SAP Hybris 

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1 Introduction

This document contains functional descriptions and installation guidelines for the Braintree Add-on. The primary goal is to help you integrate a complete Braintree flow with Hybris Commerce Suite versions 2005-2205. The document will also provide some details around the implemented features and how they need to be configured. The Braintree functionality described here is intended to be a generic business use case and may require a previously customized checkout experience to be modified further to support the Braintree Add-on.

2 About this Document

2.1 Terms and Descriptions

Terms	Description
ApplePay	Feature to accept payments via ApplePay, a mobile and online purchasing experience for customers with supported iOS and macOS devices.
B2B	Business-to-Business e-commerce channel.
B2C	Business-to-Customer e-commerce channel.
Backoffice	Business-to-Customer e-commerce channel. User-friendly, browser-based, user interface for viewing, creating, and manipulating data within SAP Commerce.
Braintree	Braintree, a division of PayPal, is a company that specializes in mobile and web payment systems for e-commerce companies. Braintree provides its customers with a merchant account and a payment gateway, along with various related features.
Braintree account	The merchant's Braintree account. Available by URL: https://www.braintreegateway.com and https://sandbox.braintreegateway.com/
CMS	Content Management System.
HAC	Hybris Administration Console. Used by system administrators to manage/configure the Hybris engine.
Hosted Fields	The way to pay via regular credit card (Braintree feature).
Hybris	E-commerce application server. Extendable by extensions.
Hybris Platform initialization	This process drops all existing tables and recreates them from scratch.
JSv3	Braintree's client side javascript library - current version is version 3.
PayPal	PayPal Holdings, Inc. Payment provider that supports integration methods such as SOAP, NVP, and JSv4.
Responsive design	Application design that adapts the presentation to the device it is rendered on.
SAP SE	Enterprise software corporation that owns and produces the Hybris product.
PayPal Smart Payment Buttons	Smart Payment Buttons (SPB) provides a set of payment instruments that can be used by buyers and processed through PayPal. The Smart Payment Button code is integrated through the JSv3 javascript library.
Java SDK	Back-end library for communicating with the Braintree API server.
Venmo	Mobile purchasing experience for customers with supported iOS and Android devices
LPM	Local Payment Methods (a set of country specific payment providers)
Google Pay	Purchasing experience both in app and on the web for customers with supported Android devices

Terms	Description
SRC	Secure Remote Commerce payments

3 Delivered Package Description

The package includes the following folders:

Folder	Description
docs_release	Contains documentation for the release, including this guide.
extensions	Contains solution source code.
config-samples	Contains preconfigured configuration files for all supported Hybris versions. Developers need to select the appropriate files for their target Hybris version.
samples	Contains sample Bash-script and properties files. Bash-script shows how to roll out solution from scratch with Hybris B2C and B2B sample stores (Electronics for B2C, PowerTools for B2B).

3.1 Supported Hybris versions and features

The table below shows supported versions and features.

Feature / Version	2005-2205 B2C	2005-2205 B2B
Responsive design	+	+
Guest checkout	+	N/A
Logged in checkout	+	+
Simple checkout flow	+	+
Simple credit flow	+	+
Promotions	+	+
Discount	+	+
Replenishment order	N/A	+
PayPal Smart Payment Button configuration (HAC)	+	+
Backoffice extended	+	+
PayPal Credit Messages	+	+
Pay Later Offers	+	+
Error Handling	+	+
Spartacus storefront	+	+
Graph QL	+	+

3.2 Braintree APIs called

This solution uses Braintree's JSv3 for the UI layer, and Java library to communicate with the Braintree API server. The table below shows Braintree APIs called per solution:

API call / Version	2005-2205, B2C	2006-2205, B2B
Generate ClientToken	+	+

Transactions, Sale	+	+
Submit Settlement (Capture / Charge)	+	+
Submit for Partial Settlement	+	+
Refund Transaction, partial	+	+
Billing Agreement / Vault	+	+
Void	+	+

3.3 Supported Braintree Features

The table below shows supported Braintree features:

Feature / Version	2005-2205, B2C	2005-2205, B2B
Pay via Hosted Fields	+	+
Pay via ApplePay	+	+
Pay via PayPal	+	+
Pay via Local Payments	+	+
Pay via Google Pay	+	+
Pay via Venmo	+	+
Pay via SRC	+	+
Vault	+	+
Custom Fields	+	+
Advanced Fraud Tools	+	+
Multiple Currency support	+	+
Level 2 and 3 data Processing	+	+
3-D Secure 2.0	+	+
PayPal Credit Banners	+	+
Pay Later Offers	+	+
Webhooks (LPM Complete and Revers and Cancel Billing Agreement webhooks)	+	+
PayPal Change Payment Method button	+	+
Drop-in UI	+	+

4 Solution Installation

This section reviews setting up the solution in a development environment.

Before installing and integrating a solution into your merchant code base, we recommend that you get a sample store working with the help of this guide. We also recommend that installation and integration of this extension be done by an SAP Certified Development Professional.

4.1 Prerequisites

4.1.1 Software, Network

Before continuing, make sure you have configured your environment as follows:

- Linux-system, 64-bit
- Oracle JDK:
 - Oracle JDK 11, 64-bit (For Hybris 2005-2105)
 - Oracle JDK 17, 64-bit (For Hybris 2205)
- Configured JAVA_HOME environment variable
- Configured Ant-1.9.1+
- Hybris package, with supported version

4.1.2 OS-level file "hosts"

Add the following two lines to update your local OS-level "hosts" file:

```
127.0.0.1      localhost
127.0.0.1      electronics.local powertools.local
```

4.2 Package Installation

The instructions below are specific to Hybris version 2005. Be sure to change this to the version you are installing.

4.2.1 B2C Installation

Required files to set up a 2005 sample store with PayPal:

File	Description
CXCOMM2005_XXX.ZIP	Hybris 2005 package
pypl-bt_1.7.X.X.zip	Delivered package

- 1) Copy the files to the directory you want to use as your "working" directory.
- 2) Unzip "pypl-bt_1.7.X.X.zip".
 - a) Rename the unzipped folder "pypl-bt_1.7.X.X" to "plugin".
- 3) Copy "/plugin/samples/prepare.sh" into the "working" directory.

The "working" directory should now contain four items:

File	Description
prepare.sh	Extracted Bash-script from delivered package
CXCOMM2005_XXX.ZIP	Hybris 2005 package
pypl-bt_1.7.X.X.zip	Delivered package
plugin	Unzipped folder containing contents of pypl-bt_1.7.X.X.zip

- 4) Execute “prepare.sh”.
 - a) Enter path to Hybris package with name (start with '/' before path), use tab for completion.
 - b) Enter output folder name, {output_folder} will be reference to it. The default value is [hybris].
 - c) Choose yes if you agree with the version of hybris (this version of hybris is taken from the archive that you specified)
 - d) In this step you need to specify accelerator type (for B2C accelerator choose b2c).
 - e) Choose yes if you will install Spartacus in future. Spartacus-related extensions will be installed.
 - f) This results in a working test store for merchant developers, who will see how the solution was rolled out and how it works with the default store.
 - g) It is recommended that you review the "prepare.sh" script and install recipe to see how it creates the environment and builds the platform.

Errors when executing “prepare.sh”

- Unzipping the Hybris package may display a “cannot create” error for an “.html” file.
 - The installation will continue and should not be impacted.
- “-bash: ant: command not found” error
 - May require running “setantenv.sh” before “ant createConfig” can be run.
 - It is recommended to open “prepare.sh” and run the lines individually from the “working” directory, starting with “cd {output_folder}/hybris/bin/platform”.
- “file not found” errors
 - Double-check that the “working” directory structure and “prepare.sh” contents match up.
- This install can take 15 minutes to run, possibly more.
- “sudo” may be required to run the “ant” commands.
- To restart the test store, run “./hybrisserver.sh” from the “{output_folder}/hybris/bin/platform” folder.
- Hybris test stores are valid for 30 days.
 - To re-initialize, run “ant clean all initialize” from the “{output_folder}/hybris/bin/platform” folder.

Once you have access to the test store, you can continue with Solution Configuration.

URLs, credentials

Application	URL, Default Login / Password
Electronics site	https://electronics.local:9002/yacceleratorstorefront Guest access allowed. acceptanceuser@test.com / 12341234

4.2.2 B2B Installation

Use the installation steps listed in section 4.2.1. In the step 4.d specify B2B accelerator.

Once you have access to the test store, you can continue with Solution Configuration.

URLs, credentials

Application	URL, Default Login / Password
PowerTools site	https://powertools.local:9002/yb2bacceleratorstorefront Guest access not allowed. axel.krause@rustic-hw.com / 12341234 ulf.becker@rustic-hw.com / 12341234

4.3 Package Installation step-by-step

The instructions below are general for most Hybris versions.

Use this guide if prepare.sh isn't working or you're using Windows OS. You can skip 1-3 steps, if you have installed hybris accelerator

1. Unzip Hybris sources
2. Install recipe from \$HYBRIS_DIR/installer

```
./install.sh -r <needed-recipe> -A local_property:initialpassword.admin=nimda
```

* install.bat for Windows OS

Version	Recipe
2005, 2011, 2105, 2205	cx

3. cd \$HYBRIS_DIR/hybris/bin/platform

```
echo develop | ant createConfig
```

4. Unzip cartridge zip,
 - 4.1. Copy extensions from /extensions to \$HYBRIS_DIR/hybris/bin/custom-paypal-bt.

4.2. Copy properties from /samples/local.properties to your \$HYBRIS_DIR/hybris/config/ local.properties file.

Change configs (specify mandatory properties related to Merchant Credentials)

4.3. Add next extensions to \$HYBRIS_DIR/hybris/config/local-extensions.xml file (You can use file /samples/local-extensions.xml for convenient copying).

- Core-extensions.
<extension name="braintree"/>
<extension name="braintreeacceleratorfacades"/>
<extension name="braintreefacades"/>
<extension name="braintreeb2bfacades"/>
<extension name="braintreefulfilmentprocess"/>
<extension name="braintreecustomersupportbackoffice"/>
<extension name="braintreehac"/>
- B2C related extensions. Add If you use B2C accelerator
<extension name="braintreeaddon"/>
<extension name="braintreeweb service"/>
- B2B related extensions. Add If you use B2B accelerator
<extension name="braintreeb2baddon"/>
<extension name="braintreeb2bweb service"/>
- Spartacus related extensions. Add If you use Spartacus storefront.
<extension name="braintreespartacusdata"/>
<extension name='spartacussampled data' />
<extension name='ycommerceweb services' />
 - B2C related extensions.
<extension name="braintreeoccaddon"/>
 - B2B related extensions.
<extension name="braintreeb2boccaddon"/>

5. cd \$HYBRIS_DIR/hybris/bin/platform. Installing addons which were added on the fourth step.

- B2C. If you add braintreeaddon on the previous step

```
ant addoninstall -Daddonnames="braintreeaddon" -  
DaddonStorefront.yacceleratorstorefront="yacceleratorstorefront"
```

- B2B. If you add braintreeb2baddon on the previous step

```
ant addoninstall -Daddonnames="braintreeb2baddon" -  
DaddonStorefront.yacceleratorstorefront="yb2bacceleratorstorefront"
```

- Spartacus B2C. If you add braintreeoccaddon on the previous step

```
ant addoninstall -Daddonnames="braintreeoccaddon" -  
DaddonStorefront.ycommerceweb services="ycommerceweb services"
```

- Spartacus B2B. If you add braintreeb2bocaddon on the previous step

```
ant addoninstall -Daddonnames="braintreeb2bocaddon" -
DaddonStorefront.ycommerceservices="ycommerceservices"
```

6. Build, initialize, start

```
ant clean all initialize
./hybrisserver.sh
```

* hybrisserver.bat for Windows OS

7. Done

This results in a working test store for merchant developers, who will see how the solution was rolled out and how it works with the default store.

Possible errors during manual installation.

- There is a possible conflict between yacceleratorordermanagement and braintreefulfilmentprocess extensions.
- For correct Spartacus work, /rest/v2 endpoints of ycommerceservices extension should be available.

4.4 Hybris Out-of-the-Box Applications

Hybris provides the following applications out of the box. URLs are common for Hybris B2C, B2B.

Application	URL, Default Login / Password
HAC	https://localhost:9002/hac admin / nimda
Backoffice*	https://localhost:9002/backoffice admin / nimda As Customer Support Team member: CustomerSupportAgent / 1234

5 Solution Configuration

5.1 Backend configuration, local.properties (Persistent)

In each Hybris instance, review and update the next properties in the local.properties file.

Solution connectivity properties:

Property	Comment
braintree.merchant_id	Braintree Merchant ID.
braintree.public_key	Merchant public key.
braintree.private_key	Merchant private key.
braintree.environment.type	Profile name, either "sandbox" or "production" (case-sensitive).

Solution properties (default values are in bold)

Property	Values supported	Comment
braintree.merchant.account.[SITE].[CURRENCY]	[EMPTY] ID as [TEXT]	Generate Token with "merchant_account_id" property if it exists for current Site+Currency. These are "Site.Currency"-related properties. Example value for display purposes only: braintree.merchant.account.electronics.usd
braintree.paypal.intent	sale authorize order	<i>authorize</i> - This payment is a basic authorization subject to settlement with PayPal Authorization and Capture. <i>order</i> - This payment is an order authorization subject to settlement with PayPal Authorization and Capture. <i>sale</i> - This is a final sale for which you are requesting payment. Refer to Section 8, Solution Limitations, for important details on the limitations of this property.
braintree.submit.for.settlement	true false	<i>true</i> : immediately submit transactions for settlement <i>false</i> : create an Authorization that will be manually captured later.
braintree.store.in.vault	true false	<i>true</i> : save the payment method to the BT vault when transaction is successful

Property	Values supported	Comment
		<i>false</i> : never save the payment method to the BT vault
braintree.applePay.enable	false true	Toggle to enable the ApplePay feature
braintree.hosted.fields.enabled	true false	Toggle to enable hosted fields feature, accepting Credit Cards via Braintree
braintree.billing.agreement.text	[EMPTY]	Text to be displayed during PayPal flow when using <i>store.in.vault</i> = true
braintree.custom.field.field_1	[EMPTY]	Parameter(s) for adding custom fields already set in Braintree Control Panel
braintree.enable.level2.level3.data	false true	Toggle to enable Level 2 and 3 data processing
braintree.3d.secure	false true	Toggle to enable 3DS 2.0 protocol for card payments
braintree.skip.3dsecure.liability.result	false true	If enabled authentication will not be required. In this case, the liability remains with the merchant and is not shifted to the issuer.
braintree.disable.funding.*	[EMPTY] as text	To see details visit link .
braintree.express.paypal.enabled	true false	Allow rendering PayPal button on Cart page, Add to Cart pop-up and mini cart pop-up
braintree.googlePay.enable	true false	Toggle to enable the GooglePay feature
braintree.googlePay.merchant_id	[Empty] as text	Optional in sandbox; if set in sandbox, this value must be a valid production Google Merchant ID
braintree.googlepay.seller.country.code	US country iso	Country code is required for merchants based in European Economic Area (EEA) countries.
braintree.local.payments.enable	true false	Toggle to enable the Local Payment Methods feature
braintree.venmo.enable	true false	Toggle to enable the Venmo feature
braintree.venmo.profile.id	true false	Venmo profile id. Details
braintree.credit.enable	true false	Toggle to enable Pay Later
braintree.graphql.enable	true false	Toggle Indicates which API will be used during communication with the Braintree gateway. GraphQL API will be used, if true. REST API will be used, if false. The default value is true.
braintree.dropin.enable	true false	Activates drop-in integration, if it is activated default buttons will be disabled. The default value is false

5.2 Backend configuration, HAC (Non-Persistent)

You can change properties at runtime using HAC. However, the next time you restart Hybris, the properties will return to their persistent values. See a sample screenshot of PayPal properties below:

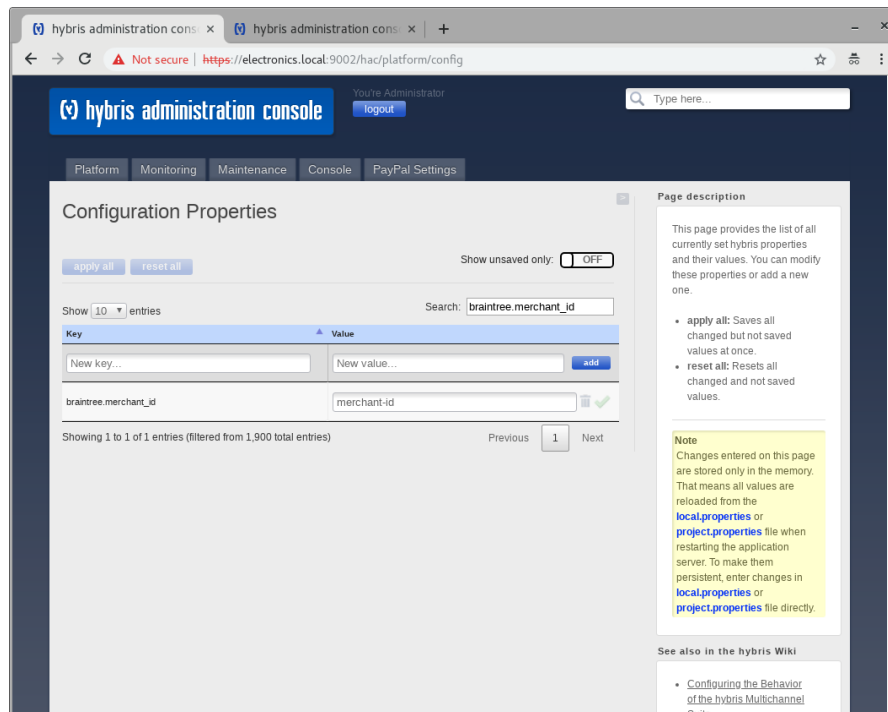


Figure 1. Configuration Properties

5.3 PayPal Smart Payment Buttons Configuration

This solution supports the use of HAC to configure PayPal Smart Payment Buttons. An administrator can configure Button properties that are new and not yet implemented within SAP. In that case, the application behavior should be tested for all flows.

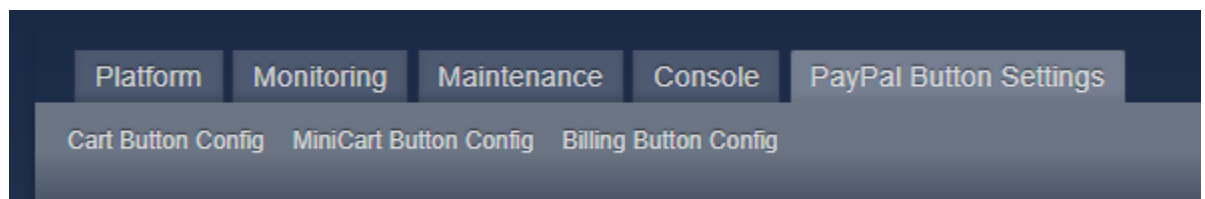


Figure 2. PayPal Smart Payment Button Config

NOTE: These values are stored in the Hybris local file system in the following file. This file is not cluster-aware, so if you have a clustered environment, make sure you deliver the correct content of that file on each node.

```
hybris-runtime/hybris/config/paypalbuttonconfig.properties
```

All three smart payment buttons can be configured Independently of each other.

Cart Page Smart Button configuration

Choose a color: gold ▾

Choose a shape: rect ▾

Choose a height: 35 ▾

Choose a label: paypal ▾

Choose a layout: horizontal ▾

☒ Enable Tagline

Save

The same widget is available for `MiniCartButton` and `BillingPageButton`.



Figure 3. Cart Page PayPal Smart Payment Button

Choose a color: silver ▾

Choose a shape: pill ▾

Choose a height: 55 ▾

Choose a label: paypal ▾

Choose a layout: horizontal ▾

☐ Enable Tagline




Figure 4. Example of Cart Page PayPal Smart Payment Button

5.4 PayPal Credit Message Configuration

This solution supports the usage of HAC to configure PayPal Credit Messages.

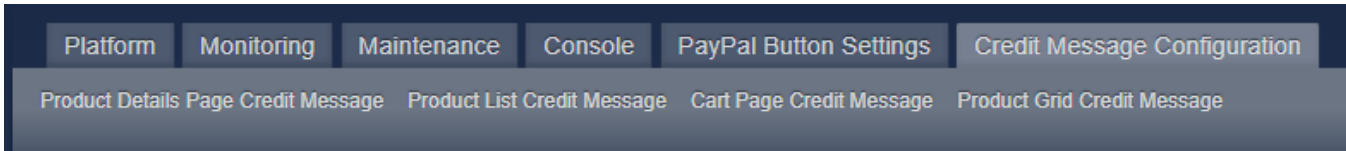


Figure 6. Credit Message Configuration

A screenshot of the 'Product Details Page Credit Message configuration' form. The form has a light gray background and contains several configuration options: 'Choose a layout:' with a dropdown menu set to 'flex'; 'Choose a color:' with a dropdown menu set to 'blue'; 'Choose a ratio:' with a dropdown menu set to '20x1'; and a checkbox labeled 'Enable Credit Message' which is checked. At the bottom left of the form is a blue 'Save' button.

Figure 6. PayPal Product Details Credit Message Config

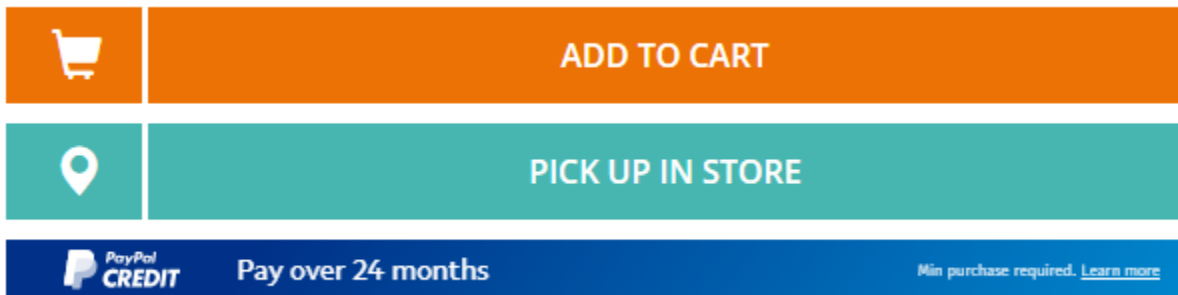


Figure 7. PayPal Product Details Credit Message View

NOTE: Changing the layout to text will add additional config parameters.

Product Details Page Credit Message configuration

Choose a layout:

Choose a logo type:

Choose a logo position:

Choose a text color:

☒ Enable Credit Message

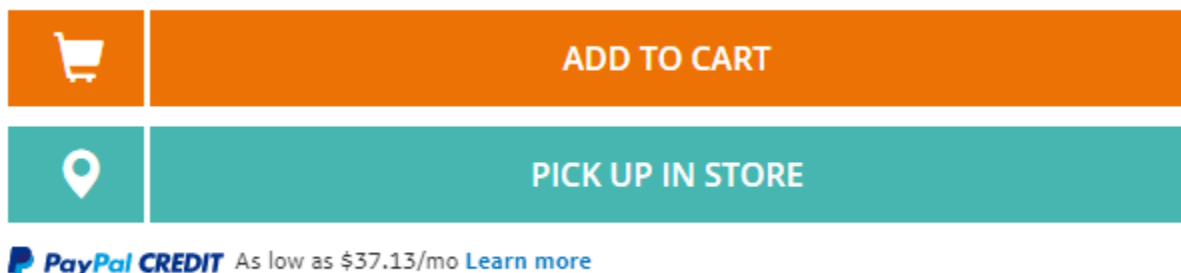



Figure 8. PayPal Product Details Credit Message View as text layout

5.5 PayPal Pay Later Offer

Pay Later

☐  **PayPal Credit**
You have PayPal Credit! No Interest if paid in full in 6 months for your purchase of \$260.87. [See terms](#)


☐  **Pay in 4**
4 interest-free payments of \$65.22 due every 2 weeks, starting today.
0% interest. No sign-up fees and nothing due today.

Figure 9. PayPal Pay Later offer

PayPal offers short-term, interest-free installments and other special financing options that allow customers to buy now and pay later, while merchants still get paid up front.

Pay later offers include the following:

- Pay in 4, which buyers can use to pay for purchases in four interest-free payments
- PayPal Credit, a revolving line of credit that buyers can use to pay over time

Pay Later support checkout with Vault.

5.6 Level 2-3 data

5.6.1 Overview

Starting from 19.1.2 version Braintree cartridge supports Level 2 and Level 3 data for Apple Pay and Credit Cards payments and Level 2 data for PayPal payments.

5.6.2 Configuration

In the hac navigate to platform -> configuration search for `braintree.enable.level2.level3.data` and set *true*.

Some fields required configuration on code level, and some are supported out of the box.

L2 Fields

Tax amount: Passed

Purchase Order Number: **Not passed**

L3 Fields

Shipping Amount: Passed

Discount Amount: Passed

Ships From Postal Code: Passed

Shipping.

- Postal Code: Passed
- Country Alpha 3: Passed (see notes below)

Line Items

- Name: Passed
- Kind: Passed

- Quantity: Passed
- Unit Amount: Passed
- Unit of Measure: **Not passed**
- Total Amount: Passed
- Tax Amount: Passed
- Discount Amount: Passed
- Product Code: Passed
- Commodity Code: **Not passed**

Unit of measure and commodity code can be configured on product level in BackOffice.

Purchase number and other option has to be added on code level

at DefaultBrainTreeAuthorizationCommand.java for RESP API (when `braintree.graphql.enable = false`) at line 91 and line 120.

at DefaultBrainTreeGraphQLAuthorizationCommand.java for GraphQL API (when `braintree.graphql.enable = true`) at line 265 and line 291.

6 Move to Production

Before moving the solution to your Production system, it is highly recommended that you test and validate the solution in a test environment.

To run the solution in production, update the following properties:

Property	Comment
braintree.merchant_id	Braintree Merchant ID.
braintree.public_key	Merchant public key.
braintree.private_key	Merchant private key.
braintree.environment.type	Set the profile name to "production" value (case-sensitive).
braintree.merchant.account.[SITE].[CURRENCY]	Braintree Merchant Account ID.

7 Known Issues

Known Hybris out-of-the-box issues:

Version, Channel	Comment, Link
IE browser	PayPal buttons might not work with an error message in the browser console: “Cannot render button in IE intranet mode”. To fix this issue, review/update your security settings in Internet options > Security > Local internet .
PayPal level3 data	Level 3 line item data support is not available for the PayPal payment method. This should have minor impact as there is no pricing changes on the PayPal side if you pass in Level 2 or Level 3 line item data.

8 Solution Limitations

Limitation	Comment
“braintree.paypal.intent” property runtime configuration	<p>Runtime configuration for this property is not supported. Once the server is up and running, do not change the value of the property.</p> <p>To be on the safe side, it is recommended to configure it once and use that value across the cluster environment, making sure the same and correct value is deployed for any single server instance.</p>
Single merchant per Hybris Setup	The solution supports only one Braintree merchant account per Hybris Setup.
Actions from PayPal	Any action made directly on the PayPal site will not be reflected in the Backoffice .
Cardholder Authentication Required Error (2099) during creating transaction	That error happens when we try to create payment transaction without performing 3DS verification. Our recommendation is to turn on ‘ braintree.3d.secure ’ property which enable 3DS verification during checkout process