



PayPal Integration Guide

FOR SALESFORCE COMMERCE CLOUD



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1 Summary

This Implementation Guide describes how to integrate `int_paypal`, `bm_paypal` and `bm_paypal_configuration` cartridges version 20.1.3 into Commerce Cloud reference application Store Front Reference Architecture (SFRA).

Cartridges includes:

- PayPal Checkout from cart and payment pages
- Billing Agreement creation in the checkout process
- Review and post-process PayPal transactions in the Business Manager
- Dynamic Smart Button styling management from the Business Manager

PayPal integration uses PayPal REST Order API for checkout and Payment API for transaction post processing in Business Manager.

For more information, contact your PayPal support manager.

2 Component Overview

2.1 Supported Features

2.1.1 Smart Payment Button

PayPal Checkout with Smart Payment Buttons gives your buyers a simplified and secure checkout experience. PayPal intelligently presents the most relevant payment types to your shoppers, automatically, making it easier for them to complete their purchase using methods like Pay with Venmo, PayPal Credit, credit card payments.

[Button Demo](#)

2.1.2 Billing Agreement and Reference Transactions

The PayPal Billing Agreement (Reference Transactions) feature helps customers to pay more quickly. If a buyer accepts Billing Agreements with your site, they can check out without redirection to PayPal, both from the Cart and Billing page.

To learn more, see [Reference transactions overview](#).

NOTE: Reference transaction needs to be enabled in a merchant account setting.
Please contact your PayPal support manager enable this feature on your account

2.1.3 Alternative Payment Methods

Alternative payment methods allow customers across the globe to pay with their bank accounts, wallets, and other local payment methods. Relevant alternative payment methods are automatically presented with Smart Payment Buttons.

To learn more, see [Alternative Payment Methods overview](#).

2.1.4 Transactions post processing

Orders paid with integration can be post-processed from separate Business Manager module. Post-processing includes transaction capture, refund and void. Also, you can create a new transaction using existed billing agreement id.

Check [Business Manager](#) chapter for more details.

2.1.5 PayPal-provided Billing Address and Phone Number

To retrieve a buyer's billing address and phone number from the PayPal Checkout flow, please contact your PayPal representative or PayPal Support to enable them.

Important: Retrieve billing address and phone number should be enabled in merchant account before PayPal button will be enabled on a cart page.

2.2 Privacy and Payment

This integration requires access to the following customer data elements: Shipping Address, Order Details, Customer Profile.

3 Implementation Guide

3.1 Overview

Three cartridges support this integration:

1. `int_paypal` - Commerce Cloud storefront extension
2. `bm_paypal` - Business Manager extension “PayPal Transactions”
3. `bm_paypal_configuration` - Business Manager extension “PayPal Styles Configuration”

3.2 Installation

3.2.1 Import metadata archive

1. Upload and import meta.zip from the metadata folder. To do so, go to **Business Manager > Administration > Site Development > Site Import & Export**. Upload archive using Local option in the Upload Archive section. After upload choose metadata.zip in the list and click on import button.

Site Import & Export

This page allows you to export the current configuration of your organization including all of its sites. To download an archive, just click its file name.

Import

Upload Archive:

Local Remote

Browse... No file selected. Upload

Select	Name	Location	File Size	Last Modified
<input type="radio"/>	metadata.zip	local	6.08 KB	8/27/20 11:26:08 am
<input type="radio"/>	SiteGenesis Demo Site			
<input type="radio"/>	Storefront Reference Architecture Demo Sites			

Figure 1. metadata.zip archive import

3.2.2 Add cartridge to cartridge path

Add `int_paypal` into the cartridge path of a target site. To do so, go to **Business Manager > Administration > Sites > Manage Sites > Your Target Site > Settings** and insert `int_paypal` before your cartridges record, as shown in Figure 2.

RefArch - Settings

Click **Apply** to save the details. Click **Reset** to revert to the last saved state.

Instance Type: Sandbox/Development

Deprecated. The preferred way of configuring HTTP and HTTPS hostnames is by using new features of the site aliases configuration ("SEO > Aliases Configuration"). The HTTP/HTTPS hostnames are deprecated and are intended only to support an older configuration style.

HTTP Hostname:

HTTPS Hostname:

Instance Type: All

Cartridges: `int_paypal:app_storefront_base`

Effective Cartridge Path: `int_paypal`, `app_storefront_base`, `plugin_apple_pay`, `plugin_facebook`, `plugin_pinterest_commerce`, `plugin_web_payments`, `bc_content`, `core`

Figure 2. Storefront cartridge path

3.2.3 Adding API Credentials

Go to **Business Manager > Administration > Operations > Services > Credentials** and click on `Paypal_Sandbox_Credentials`. Enter Client Id as **User** and Secret as **Password**. Client Id and Secret can be obtained in the app details at the PayPal developer portal.

For more details about REST apps and credentials please visit [Get credentials](#) page at the PayPal Developer Portal.

For Production change URL to <https://api.paypal.com/>. Credentials Name could be changed to match credentials type, for example `PayPal_Production_Credential` but it is not required.

NOTE: Current integration supports only one credentials usage at a time. If you wish to use multiple credentials at one sandbox you should customize cartridge at `PaypalRestService.js` file

(Optional) For non-production activities we recommend enabling the communication log for the `int_paypal.http.rest` service. The communication log will log every request and response to the log files. To do this navigate to the **Business Manager > Administration > Operations > Services** and click on `int_paypal.http.rest`. Check Communication Log Enabled checkbox (Figure 4)

PLEASE NOTE: By enabling the communication log, some details such as customer's personal information including address, phone, and email will be logged in cleartext. This should only be used for debugging purposes. We recommend, if possible, only use this in a sandbox; however, when used in production, ensure you are disabling / unchecking the communication log box immediately after you are done with your debugging. Further, some credentials will also be saved in cleartext.

[Administration > Operations > Services](#) > `int_paypal.http.rest` - Details

int_paypal.http.rest[?]

Fields with a red asterisk (*) are mandatory. Click **Apply** to save the details. Click **Reset** to revert to the last saved state.

The screenshot shows the configuration page for the `int_paypal.http.rest` service. The form fields are as follows:

- Name: `int_paypal.http.rest`
- Type: `HTTP`
- Enabled:
- Service Mode: `Live`
- Log Name Prefix: `PayPalRest`
- Communication Log Enabled: (This field is highlighted with a red box.)
- Force PRD Behavior in Non-PRD Environments:
- Profile: `PayPal_Profile`
- Credentials: `Paypal_Sandbox_Credentials`

Figure 3. Service Example

3.2.4 Papal Transaction and PayPal Styles Configuration Business Manager modules installation

Add `bm_paypal` into the record of the Business Manager cartridge path. Go to **Business Manager > Administration > Sites > Manage Sites > Manage the Business Manager Site > Settings** and add `bm_paypal` and `bm_paypal_configuration` to the input as shown in Figure 4.

Settings Cache Hostnames

Business Manager - Settings

Click **Apply** to save the details. Click **Reset** to revert to the last saved state.

Instance Type: Sandbox/Development

Deprecated. Up to two instance specific hostname aliases for Business Manager can be configured here.

HTTP Hostname:

HTTPS Hostname:

Instance Type: All

Cartridges:

Effective Cartridge Path: app_business_manager:plugin_apple_pay:plugin_facebook:plugin_payments:plugin_pinterest_commerce:plugin_web_payments:bc_im

Figure 4. Business Manager Cartridge Path

Grant access to Business Manager modules:

- a. Go to **Business Manager** > **Administration** > **Organization** > **Roles & Permissions** and select the target role that needs to have access to PayPal Transaction management.
- b. Select the **Business Manager Modules** tab in the drop-down list on top. You must select your target site as the active context.
- c. Scroll to the **PayPal Transactions** module. Grant access to it by selecting the checkbox and clicking **Update**. Repeat same action for **PayPal Styles Configuration**.

Once you do this, every Business Manager user with that role can manage PayPal Transactions by selecting **Business Manager** > **Merchant Tools** > **Ordering** > **PayPal Transactions** and change Smart Button styling under **Business Manager** > **Merchant Tools** > **Site Preferences** > **PayPal Styles Configuration**.

3.2.5 Custom cache configuration

Custom cache required for fast and stable work on the integration. Navigate to **Business Manager** > **Administration** > **Operations** > **Custom Caches** and check checkbox **Enable Caching**.

There are 2 custom cache objects used by the integration

1. **paypalPreferences** - custom site preferences cached. Out of the box, the integration supports single site usage and custom preferences are cached. For multiple sites we recommend removing cache definition from `caches.json` file in the cartridge.
2. **paypalRestOAuthToken** - OAUTH token for communication with PayPal REST API. Out of the box, the integration supports single site usage and token retrieved from

PayPal is cached. For multiple credentials usage we recommend removing cache definition from caches.json file in the cartridge.

NOTE: Custom Cache could be disabled for developing or testing purposes. But we don't recommend disabling it on production and staging to avoid performance issue and http calls quota violation.

3.3 Configuration

3.3.1 Updating Cartridge Custom Site Preferences

Go to **Business Manager > Merchant Tools > Site Preferences > Custom Site Preferences**. You'll see new Custom Site Preference Group called PayPal Configuration (Figure 7)

ID	Name	Description	Preferences	View Across Sites
Storefront Configs	Storefront Configurations		5	View
Paypal_Express_Checkout	Paypal Configuration		6	View

Figure 5. PayPal Custom Site Preferences

Click **View** for PayPal Express Checkout. Detailed description about each option is available under preference name on the page.

List of preferences:

- Transaction intent type
- Show PayPal button on the cart page
- Billing Agreement Enabled
- Brand Name
- Billing Agreement Description
- Merchant ID

NOTE: *Show PayPal button on the cart page* requires customer shipping address. Review [PayPal-provided Billing Address and Phone Number](#) before enabling this preference.

NOTE: Review section [Billing Agreement and Reference Transactions](#) section before enable Billing Agreement feature.

3.3.2 Job configuration for removal outdated transaction

To record transaction created from Business Manager cartridge use custom object feature. After the year transaction became outdated and to remove it job with recurring interval was imported with metadata.

Job has site context and default site id is RefArch. If you have different site id, navigate to **Business Manager > Administration > Operations > Jobs >**

RemoveOutdatedPayPalTransaction > Job Steps and click on RefArch mark near Scope and select new site to run.

By default, job will run every 2 months. If you don't create transaction from Business Manager or you want to change a job interval, navigate to **Business Manager** > **Administration** > **Operations** > **Jobs** > **RemoveOutdatedPayPalTransaction** > **Schedule and History**. Uncheck Enable checkbox if you want to disable the job or change an internal in the menu below.

3.3.3 Static values configuration

All configuration option available in `cartridge/config/sdkConfig.js` file. You could change

1. Allowed currencies. By default, all currencies are allowed. Currency list available under `allowedCurrencies` variable. More details [Currency](#)
2. Disable funds. By default, only alternative payment methods are disabled. More details [Disable funding](#) and [Alternative Payment Methods](#)
3. Static image for PayPal button. Will be rendered on a page in use cases where quick checkout is available, and load of the Smart Payment Button is not required. List of images for usage - [Available images](#)

3.3.4 Alternative Payment Methods Configuration

By default, all payment methods are disabled for Smart Button. To enable payment method, navigate to **Business Manager** > **Merchant Tools** > **Site Preferences** > **Custom Site Preferences** -> **PayPal Configuration**. Add payment method id to the list and click Add (Figure 6).

List of IDs can be found [here](#).

Will be displayed on the PayPal page if billing agreement feature is enabled. ...

The screenshot shows the 'Custom Site Preferences' section of the Business Manager. Under 'PayPal Configuration', there is a field for 'Merchant ID' which is a string type. Below it, there is a section for 'Available Alternative Payment Methods' which lists 'mvbank'. A red box highlights this section.

Merchant ID	(PP_API_Merchant_Id) (String)	The merchant for whom you are facilitating a transaction.
Available Alternative Payment Methods	(PP_API_APM_methods)	mvbank

List of IDs of the enabled alternative payment methods.

Figure 6. Alternative Payment Methods configuration

NOTE: Alternative Payment Methods are available only on the billing page and will appear only if *Capture funds immediately* preference set to Yes. For registered user also required to disable *Billing Agreement Enabled* preference.

3.3.5 Service Profile Configuration

By default, integration doesn't have any service profile configuration. We recommend putting limitation and timeout values according to a storefront traffic to prevent fraud or potential attack. You can read more about configuration values [here](#).

4 Operations and Maintenance

4.1 Data Storage

The int_paypal integration requires System Objects Extension to store payment-related information.

OrderPaymentInstrument custom properties:

- **paypalOrderId** - Result of a payment action (Auth, Order, Sale).
- **currentPaypalEmail** - The reference ID for PayPal API calls.
- **PP_API_ActiveBillingAgreement** - The PayPal Payer ID in the PayPal service.

Profile custom properties:

- **PP_API_billingAgreement** - Array of saved billing agreements. Each billing agreement is an object with bald, email, default keys

Order custom properties:

- **paypalPaymentMethod** - Property to differentiate PayPal related orders.

4.2 Logs

This integration introduces three new custom logs:

1. **PayPal Storefront Custom logs** - starts with prefix custom-PayPal-blade2-2-appserver-20150722.log. This Log file contains all errors related information in the int_paypal cartridge.
2. **PayPal Business manager custom logs** - starts with prefix custom- PayPal-BM-blade. This Log file contains all errors related information in the bm_paypal cartridge.
3. **Service communication logs** - starts with service-PayPalRest. These logs contain every request and response to the PayPal endpoint. To enable these logs, check [Adding API Credentials Optional](#) section.

4.3 HTTP Service Availability

You can track availability and downtime by service status in the Commerce Cloud Business Manager. Go to **Administration > Operations > Service Status > int_paypal.http.rest**.

You can configure options for HTTP calls to REST API related to this PayPal integration via the Commerce Cloud Service Profile Interface. To do this, go to **Administration > Operations > Services > Service Profiles -> PayPal_Default_Profile**. You can set a timeout for all requests, enable the Circuit Breaker mechanism, and adjust the Rate Limit.

PayPal_Default_Profile

Fields with a red asterisk (*) are mandatory. Click **Apply** to save the details. Click **Reset** to revert to the last saved state.

This profile is used by 1.00 service.

Name:*	PayPal_Default_Profile
Timeout (ms):	60,000
Enable Circuit Breaker:	<input type="checkbox"/>
Max Circuit Breaker Calls:	0
Circuit Breaker Interval (ms):	0
Enable Rate Limit:	<input type="checkbox"/>
Max Rate Limit Calls:	0
Rate Limit Interval (ms):	0

Figure 7. PayPal Service Profile Settings

4.4 Testing

You must obtain your own test account on the [PayPal Developer Portal](#). If you can't create your own PayPal Sandbox account, contact PayPal support.

4.5 SFRA core templates overlay list

The following templates from app_storefront_base cartridges been overlay by int_paypal

cart/cart.isml

account/dashboardProfileCards.isml

checkout/billing/paymentOptions/paymentOptionsContent.isml

checkout/billing/paymentOptions/paymentOptionsSummary.isml

checkout/billing/paymentOptions/paymentOptionsTabs.isml

common/scripts.isml

Templates are up to date with SFRA 4.4.1

4.6 Support

To get help and support from PayPal:

- **PayPal Business support** – Go to PayPal's [Contact Us](#) and log in to your PayPal account.
- **Technical Support** – Go to the [Merchant Technical Support Help Center](#).

5 User Guide

5.1 Business Manager modules

5.1.1 PayPal Transactions

This integration introduces a new Business Manager function, PayPal Transactions. See [Paypal Transaction Business Manager module configuration](#) for a detailed description of how to grant access to the PayPal Transactions page.

The PayPal Transactions extension allows you to manage PayPal transactions assigned to Commerce Cloud Orders by the Commerce Cloud Business manager. PayPal Transactions module supports reauthorization (after 3 days), capture and partial capture, void, refund.

The main PayPal Transactions page displays all orders in a site that were paid or partially paid by PayPal. You can access this page in the Ordering menu by selecting **Business Manager > Merchant Tools > Ordering > PayPal Transactions**.

This page displays various information from the order record:

Number	Order Date	Created By	Registration Status	Customer	Email	Order Total	PayPal Amount	Paypal Payment Status
00001905	7/23/15 10:15 am	Customer	Unregistered	Guest	I.VinogradovVN@gmail.com	\$104.99	\$104.99	Pending Change
00001904	7/23/15 10:13 am	Customer	Unregistered	Guest	I.VinogradovVN@gmail.com	\$104.99	\$104.99	Pending Change
00001903	7/23/15 9:16 am	Customer	Unregistered	Guest	I.VinogradovVN@gmail.com	\$377.99	\$377.99	Pending Change
00001805	7/22/15 1:15 pm	Customer	Registered	Dmitry Vigranovsky	dmitry_vigranovsky@epam.com	\$971.24	\$621.24	Completed Change
00001804	7/22/15 12:13 pm	Customer	Registered	Dmitry Vigranovsky	dmitry_vigranovsky@epam.com	\$278.77	\$202.77	Completed Change
00001803	7/22/15 12:10 pm	Customer	Unregistered	Guest	I.VinogradovVN@gmail.com	\$3,045.85	\$3,045.85	Completed Change
00001802	7/22/15 12:07 pm	Customer	Unregistered	Guest	Denys_Lieukhyn-buyer@epam.com	\$76.00	\$76.00	Completed Change
00001801	7/22/15 12:06 pm	Customer	Unregistered	Guest	I.VinogradovVN@gmail.com	\$963.88	\$963.88	Completed Change
00001701	7/22/15 8:31 am	Customer	Registered	Dmitry Vigranovsky	dmitry_vigranovsky@epam.com	\$1,189.07	\$1,189.07	Pending Change
00001601	7/16/15 9:41 am	Customer	Registered	Dmitry Vigranovsky	dmitry_vigranovsky@epam.com	\$56.69	\$56.69	Pending Change

Figure 8. PayPal Transactions Business Manager Main Page Interface

You can search Orders placed within PayPal order number (as shown in Figure 9) or by PayPal Transaction ID (as shown in Figure 10).

The screenshot shows the Commerce Cloud interface for PayPal Transactions. The top navigation bar includes links for Sandbox - Instance SiteGenesis, Merchant Tools, Administration, Storefront, and user information (Vigranovsky). The main page title is "PayPal Transactions". A sub-header states: "This page allows you to search for orders which have PayPal transactions by order number. Also there is possibility to search PayPal transaction by id." Below this is a search form with a red box around the "Search Order" section. The "Order Number" field contains "00001803" and the "Find" button is visible. To the right are two tabs: "By Order Number" (selected) and "By Transaction ID". Below the search form is a table with columns: Number, Order Date, Created By, Registration Status, Customer, Email, Order Total, PayPal Amount, and Paypal Payment Status. One row is shown, corresponding to the search result. At the bottom left is a link "[<< Back to Ordering](#)".

Figure 9. Search Orders with PayPal Transaction by Commerce Cloud Order Number

This screenshot is identical to Figure 9, but the search results table shows a different order number: "00001803" instead of "00001803". The rest of the interface, including the search form and the table headers, remains the same.

Figure 10. Search Orders with PayPal Transaction by Transaction ID

You can see Transaction Details from the PayPal Payment Transaction of the actual order by clicking **Order Number** or the **Change** link on the right. If an order has more than one related transaction, you'll see a selection box with all the transactions that are related to the current order (as shown in Figure 11).

ons by order number. Also there is possibility to search PayPal transaction by id.

The screenshot shows a modal dialog titled "Transactions of order: 00015207". Inside, a specific transaction is highlighted with a blue border:

Transaction ID: 7AE52170XT8052505	
Name: Ivan C Vinogradov	
Transaction Email: I.VinogradovVN@gmail.com	
Amount: 244.63 USD Captured: 244.63 Refunded: 243.63	
Shipping: 0.00 USD	
Invoice ID: 00015207	
Order Date: 7/22/20 1:45 pm	
Payment Status: CAPTURED	
Shipping Address: Ezio Auditore Rome, Rome Rome, US 12345 DE	

Other transactions are listed in a dropdown menu:

- 7AE52170XT8052505
- Captured: 7GX80784LM544511C
- Captured: 3D495099BU1827429

Figure 11. Transaction Details Popup

The screenshot shows a modal dialog titled "Transactions of order: 00015207". A red box highlights the "Other transactions" dropdown menu, which contains three entries:

- ✓ 7AE52170XT8052505
- Captured: 7GX80784LM544511C
- Captured: 3D495099BU1827429

The rest of the interface is identical to Figure 11, displaying a single transaction with its details and payment status.

Figure 12. PayPal Transactions Selected for Their Relationships to Commerce Cloud Order Transactions

Depending on the transaction type and status, the order may have the following action buttons

- Capture (Figure 13)
- Void (Figure 13 and Figure 14)
- Issue Refund (Figure 15)
- Reauthorize (Figure 14)

After click on a button pop-up with details will appear

- Capture Form (Figure 17)
- Void Form (Figure 16)
- Issue Refund From (Figure 18)
- Reauthorize From (Figure 18)

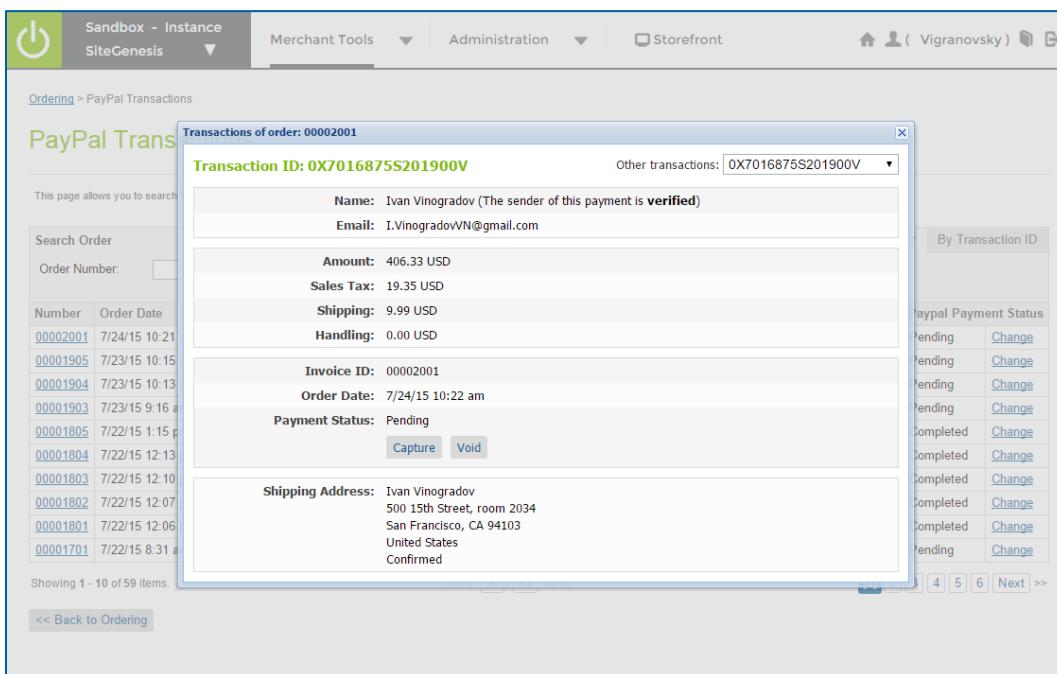


Figure 13. Authorized transaction payment actions

This screenshot shows the SiteGenesis interface for managing PayPal transactions. A modal window titled 'Transactions of order: 00015207' is displayed, showing details for a transaction with Transaction ID: 7AE52170XT8052505. The modal includes fields for Name (Ivan C Vinogradov), Transaction Email (I.VinogradovVN@gmail.com), Amount (244.63 USD), Shipping (32.99 USD), Sales Tax (11.65 USD), Invoice ID (00015207), Order Date (7/02/20 4:29 pm), and Payment Status (CREATED). Buttons for Reauthorize, Capture, and Void are visible. Below the modal, a table lists other transactions with columns for Total, PayPal Amount, and PayPal F. A sidebar on the right shows a history of transactions with columns for Total, PayPal Amount, and PayPal F.

Figure 14. Authorized transaction payment actions (after 3 days)

This screenshot shows the SiteGenesis interface for managing PayPal transactions. A modal window titled 'Transactions of order: 00002001' is displayed, showing details for a transaction with Transaction ID: 90348064AS593644R. The modal includes fields for Name (Ivan Vinogradov (The sender of this payment is verified)), Email (I.VinogradovVN@gmail.com), Amount (406.33 USD), Sales Tax (19.35 USD), Shipping (9.99 USD), Handling (0.00 USD), Invoice ID (00002001), Order Date (7/24/15 10:23 am), and Payment Status (Completed). Buttons for Issue Refund and a shipping address (Ivan Vinogradov, 500 15th Street, room 2034, San Francisco, CA 94103, United States, Confirmed) are visible. To the right, a sidebar shows a history of transactions with columns for PayPal Payment Status and Change. A search bar at the top left allows searching by Order Number or Number.

Figure 15. Captured transaction payment actions

Sandbox - Instance SiteGenesis

Merchant Tools Administration Storefront

Vigranovsky

Ordering > PayPal Transactions

Transactions of order: 00002001

Void Authorization 0X70168755201900V Other transactions: 0X70168755201900C

Void Authorization

Authorization ID: 0X70168755201900V
Name: Ivan Vinogradov
Email: I.VinogradovVN@gmail.com
Amount to Void: 406.33 USD
Note to Buyer: lorem ipsum lor....
236 characters left

San Francisco, CA 94103 United States

Submit Cancel

By Transaction ID

Paypal Payment Status

- Pending Change
- Pending Change
- Pending Change
- Pending Change
- Completed Change
- Completed Change
- Completed Change
- Completed Change
- Pending Change

4 5 6 Next >>

Figure 16. Void Authorization Form

Sandbox - Instance SiteGenesis

Merchant Tools Administration Storefront

Vigranovsky

Ordering > PayPal Transactions

Transactions of order: 00002001

Capture Funds

Capture Funds

Authorization ID: 0X70168755201900V
Name: Ivan Vinogradov
Email: I.VinogradovVN@gmail.com
Authorization Amount: 406.33 USD
Capture Amount: 406.33 USD

Note to merchant: Your buyer Ivan Vinogradov authorized a payment of 406.33 USD. If you capture an amount different than this, you should notify your buyer of this change.
PayPal strongly recommends that you explain any unique circumstances (e.g. multiple captures, changes in item availability) to your buyer in detail below. Your buyer will see this note in the Transaction Details.

Note to Buyer: (optional)

255 characters left

Submit Cancel

By Transaction ID

Paypal Payment Status

- Pending Change
- Pending Change
- Pending Change
- Pending Change
- Completed Change
- Completed Change
- Completed Change
- Completed Change
- Pending Change

3 4 5 6 Next >>

Figure 17. Capture Form

The screenshot shows the SiteGenesis ordering interface for PayPal transactions. On the left, there's a sidebar with a search bar and a table of recent orders. The main area displays a modal dialog titled "Issue Refund" for transaction ID 00002001. The dialog contains fields for Name (Ivan Vinogradov), Email (I.VinogradovVN@gmail.com), Original payment amount (406.33 USD), Refund amount (406.33 USD), and Invoice ID (00002001). A note field is present with a character limit of 255. At the bottom, there are "Submit" and "Cancel" buttons.

Figure 18. Issue Refund Form

This screenshot shows the reauthorization process for transaction 00015207. The main window lists transactions, and a modal dialog titled "Reauthorize Payment" is open for transaction ID 7AE52170XT8052505. It displays the original payment details (Name: Ivan C Vinogradov, Email: I.VinogradovVN@gmail.com) and the amount to reauthorize (244.63 USD). Below the dialog is a table of transactions with columns for Total and PayPal Amount.

Total	PayPal Amount
29	\$153.29
03	\$778.03
6.90	\$2,066.90
	\$1.00
3.04	\$1,093.04
34	\$218.34
3.03	\$2,143.03
63	\$244.63
63	\$244.63
63	\$244.63

Figure 19 Reauthorize form

5.1.2 PayPal Styles Configuration

PayPal Styles Configuration allow to choose styling of the Smart Button from the Business Manager. After installation new menu item will appear in under Site Preferences in the Business Manager (Figure 20).

Sandbox - paypal06
RefArch ▾

Merchant Tools ▾ Administration ▾ Storefront Toolkit

nt Tools feature lookup... 🔍

Products and Catalogs	Search	Online Marketing	Site Preferences
Products	Search Indexes	Campaigns	PayPal Styles Configuration
Product Sets	Search Index Rebuild Schedule	A/B Tests	Locking
Catalogs	Search Index Query Testing	Promotions	Baskets
Product Options	Search Dictionaries	Content Slots	A/B Tests
Variation Attributes	Searchable Attributes	Coupons	Locales
Recommendations	Search Driven Redirects	Source Code Groups	Currencies

its and co...

Figure 20 PayPal Styles Configuration in the Business Manager

If `int_paypal` cartridge was installed properly you should see styling options for the PayPal Smart Button. Depends on buttons locations will be for Billing page or for Cart page. To read more about styling options visit [Customize the PayPal Buttons](#). After configuration done click **Save Smart Button Configuration** to update styling.

Choose a PayPal Button Location:
billing

Choose a color:
gold

Choose a shape:
rect

Choose a layout:
vertical

Choose a label:
checkout

Include a tagline:
false

Choose a height:
min: 25 35 max: 55

PayPal Checkout

Debit or Credit Card

Powered by **PayPal**

Save Smart Button configuration

Figure 21. Smart Button styling options

5.2 Storefront Functionality

Integration has 3 types of checkout with PayPal. All of them are available from payment page or cart page.

NOTE: Checkout from cart requires customer data from PayPal. Review [PayPal-provided Billing Address and Phone Number](#) before enable PayPal button on a cart page.

1. One-time checkout. Available for both guest and registered user types if billing agreement is disabled in Custom Preferences.
2. Checkout with billing agreement creation. Available for both guest and registered user types if billing agreement is enabled in Custom Preferences.
3. Checkout using saved billing agreement. Available for registered user who already path checkout once with billing agreement and saved it.

NOTE: Reference transaction feature must be enabled at the merchant account setting to activate flow 2 and 3. Review [Billing Agreement and Reference Transactions](#) for more details.

5.2.1 Email, Phone, Shipping and Billing Address behavior

When customer process with checkout using PayPal button on the cart page, phone, email, shipping and billing address will be taken from customer's PayPal account.

For checkout with saved account default account values will be taken as shipping address and phone.

When customer proceed with checkout using PayPal button on the billing page or with saved PayPal account, the shipping address will be taken from storefront and billing address with a phone will be taken from PayPal account according to the chosen payment option. If a customer enters email it won't be changed.

If a customer left the email field empty during checkout from payment page, last used email from the session will be automatically set in a form or PayPal account email, in case if session value is empty.

5.2.2 One-time checkout (non-billing agreement)

One-time checkout is available from payment page (Figure 25) and from cart page (Figure 22) (if custom preferences **Show PayPal button on the cart page** values if Yes).

After click on available payment method from Smart Payment Button customer will proceed through checkout on PayPal side (Figure 24) and return to the storefront to the order review page (Figure 27).

After checkout on PayPal side customer can update any basket info without needs to login to checkout for the second time. In this case on the cart page PayPal will be represented by static image on a cart page (Figure 23) and on a payment page user can choose previously used account or login into new PayPal account (Figure 26). Customer can have only one account active during checkout session. Login to the new PayPal account will replace previous account in the session. Review [Basic Integration](#) for more details.

Your Cart

[Continue Shopping](#)

1 Items

Need Help? Call 1-800-555-0199

Sony Bravia® XBR® 70" LCD High Definition TelevisionExtended Warranty: None
In Stock
Sun May 31 2009Each
\$14,999.99Quantity
1Total
\$14,999.99[Edit](#)

Enter Promo Code

 Promo Code[Submit](#)

Shipping

 Ground (7-10 Business Days)

Shipping cost \$15.99

Sales Tax \$750.80

Estimated Total \$15,766.78 [Оформить покупку](#)

Дебетовая или кредитная карта

Обработано

[Checkout](#)

Figure 22 Checkout from the cart page using Smart Button

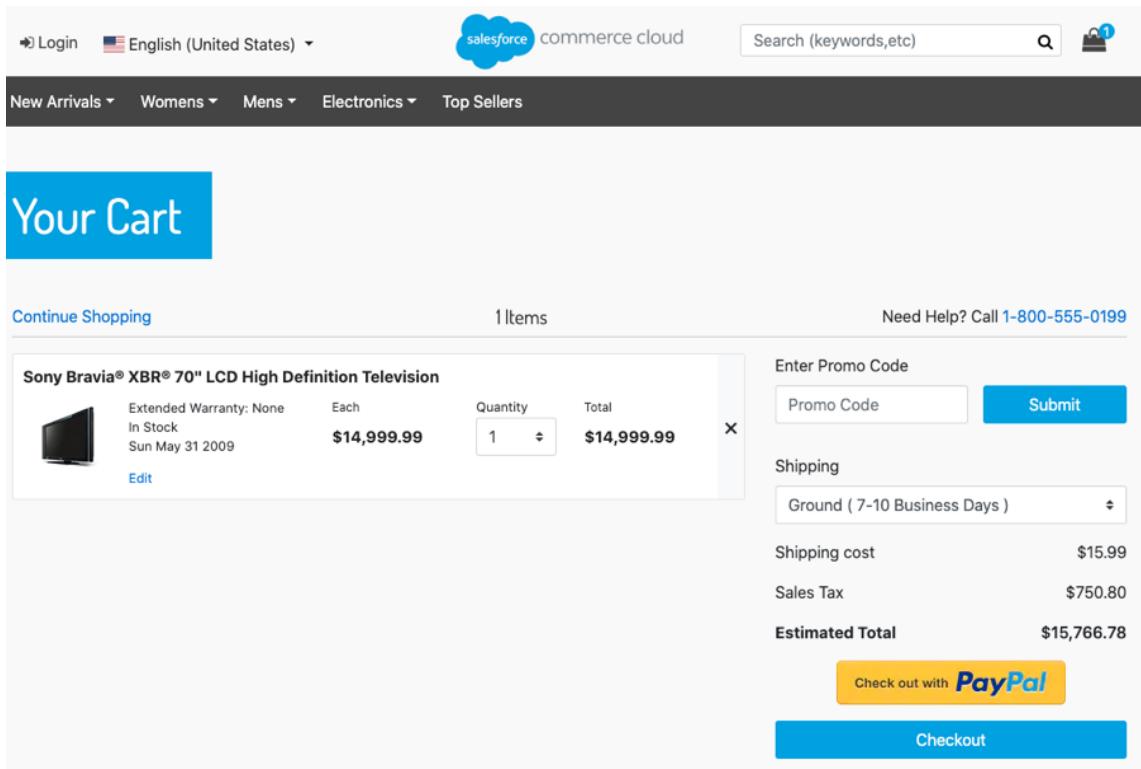


Figure 23. Checkout from the cart page using static image

PayPal

Hi, John! [Not you?](#)

Ship to [Change >](#)
John Doe
1 Main St, San Jose, CA 95131 United States

Pay with [Manage >](#)

Balance
Visa ****0139 (backup)
 Make my balance my preferred way to pay

CREDIT UNION 1
Checking ****6474

The Bank Card Platinum Rewards
Credit ****0139

[+ Add a debit or credit card](#)

[+ See Offers and Apply for PayPal Credit](#)
Enjoy special financing for your purchase of \$2,116.78 with PayPal Credit.
Subject to credit approval. [See terms](#)

[View PayPal Policies](#) and your payment method rights.

[Continue](#)

You'll be able to review your order before you complete your purchase.
The merchant requires your billing address to complete this payment.
The merchant has requested an authorization for this payment, and the final payment amount may

Figure 24. Basic checkout pop-up example

Need Help? Call 1-800-555-0123

Shipping	Edit
Shipping Address: Rick Flores 2253 Hudson Street Denver CO 80207 9739747269	
Shipping Method: Ground (7-10 Business Days) \$15.99	
<hr/>	
Payment	
Billing Address	
Rick Flores 2253 Hudson Street Denver CO 80207	
Update Address Add New	
*Email i 3cd3ldtkdii@iffymedia.com	*Phone Number i 9739747269
<hr/>	
Your billing address and phone number will be changed according to the chosen payment method on PayPal side	
Дебетовая или кредитная карта	
Обработано	

Figure 25. Checkout from the payment page using Smart Button

Payment	
Billing Address	
Ivan C Vinogradov 1 Main St San Jose CA 95131	
Update Address Add New	
*Email i 3cd3ldtkdii@iffymedia.com	*Phone Number i 4084607119
<hr/>	
Your billing address and phone number will be changed according to the chosen payment method on PayPal side	
Select a PayPal account: New PayPal account ✓ I.VinogradovVN@gmail.com	
Next: Place Order	

Figure 26. Checkout from the payment page with already chosen account

Shipping		Edit	Order Summary		
Shipping Address: Joy Gray 473 Wiseman Street Sevierville, TN 37862 4084607119		Subtotal \$899.99			
Shipping Method: Ground (7-10 Business Days) \$15.99		Shipping \$15.99			
		Sales Tax \$45.80			
		Total \$961.78			
 Payment		Edit	 1 Items \$899.99		
Billing Address: Ivan C Vinogradov 1 Main St San Jose, CA 95131 I.VinogradovVN@gmail.com 4084607119		Sony Bravia® N-Series 26" LCD High Definition Te...			
Payment: I.VinogradovVN@gmail.com PayPal/\$961.78		 In Stock			
		Each \$899.99	Quantity 1	Total \$899.99	
Place Order					

Figure 27. Order review page

5.2.3 Checkout with billing agreement creation

For both guest and registered user integration provides an ability to create billing agreement. Registered customer could save billing agreement as payment method in a storefront. This would allow user to go through checkout with PayPal faster next time.

To enable billing agreement creation in Business Manager, navigate to **Merchant Tools -> Site Preferences -> PayPal Configuration** and set **Billing Agreement Enabled** preference value as **Yes**

Visually checkout with billing agreement like [Basic checkout \(non-billing agreement\)](#) with 2 exceptions

- 1) On payment page registered customer has additional checkbox **Save PayPal account** (Figure 28). On the cart page checkbox value will be set to true automatically.
- 2) On PayPal side after login customer will see **Save and Continue** instead of Save and no shipping address option (Figure 29). Check [Email, Phone, Shipping and Billing Address behavior](#) for more details.

If registered customer had **Save PayPal account** checkbox checked after order was placed successfully customer can review saved PayPal account in **My Account** section. (Figure 30). First customer account is always default.

Review [Billing agreement](#) and [Reference Transaction](#) section on PayPal developer portal for more details about billing agreement creation.

Payment

Billing Address

Rick Flores 2253 Hudson Street Denver CO 80207

[Update Address](#)

[Add New](#)

*Email [i](#)

3cd3ldtkdli@iffymedia.com

*Phone Number [i](#)

9739747269



Your billing address and phone number will be changed according to the chosen payment method on PayPal side

PayPal

Дебетовая или кредитная карта

Обработано **PayPal**

Save PayPal account

Figure 28. Smart Button for billing agreement creation on the payment page

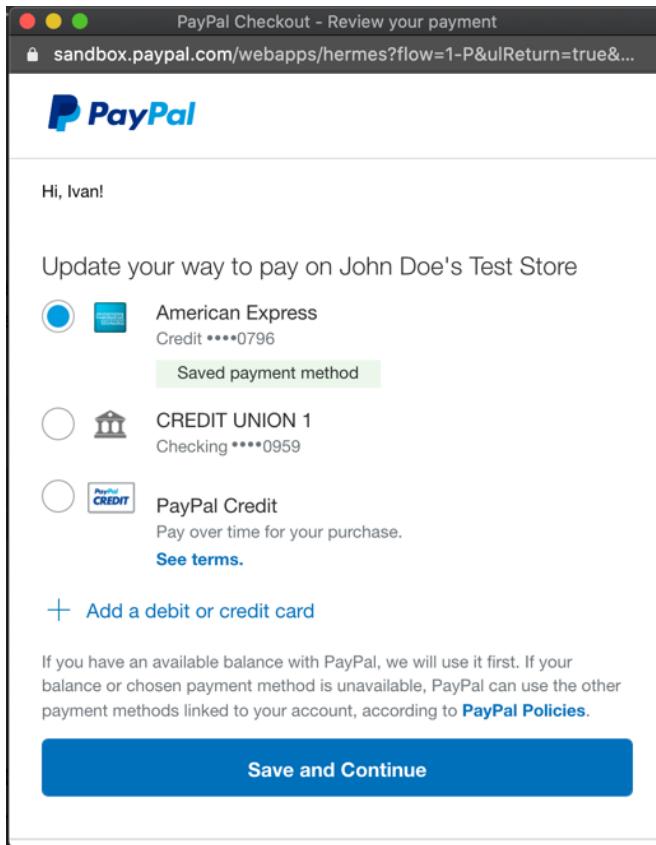


Figure 29. Billing Agreement creation on the PayPal page

A screenshot of a user's account settings page. The top section is "Order History" with a "View" link. It shows a "Most Recent Order" for a TV, with details: Order Number: pp_00185506, Date Ordered: 6/17/20, Order Status: NEW, Shipped to: Rick Flores. Below this is a summary: Total items 1 and Total \$15,766.78. The next section is "Payment" with an "Add New" link. The final section is "PayPal" showing the email "I.VinogradovVN@gmail.com (Default)".

Figure 30. My Account section with saved PayPal account

5.2.4 Checkout using saved billing agreement

After registered customer created billing agreement and save it as payment method (Figure 30) customer can pay for an order using billing agreement and proceed through the checkout without Smart Button loading.

Saved account will appear in dropdown on the payment page (Figure 31) and will be represented by static image on the cart page (Figure 23).

Review [Email, Phone, Shipping and Billing Address behavior](#) for more information about addresses behavior for saved account.

The screenshot shows a 'Payment' interface. At the top, there's a 'Billing Address' section with a dropdown menu containing the text 'Ivan C Vinogradov 1 Main St San Jose CA 95131'. Below this are 'Update Address' and 'Add New' buttons. Underneath the address, there are fields for 'Email' (containing 'I.VinogradovVN@gmail.com') and 'Phone Number' (containing '9739747269'). Below these fields are two payment method icons: 'CREDIT' and 'PayPal'. A blue callout box highlights the 'PayPal' icon. A message in the callout box states: 'Your billing address and phone number will be changed according to the chosen payment method on PayPal side'. Further down, there's a 'Select a PayPal account' section with a dropdown menu showing 'I.VinogradovVN@gmail.com (Default)'.

Figure 31. Saved PayPal account on the payment page

5.2.5 Checkout with multiple saved PayPal accounts

Customer can have up to 3 saved PayPal account one on them is always default.

Customer can add new account from billing page. In a dropdown with saved account customer must choose **New PayPal** account option and load Smart Button (Figure 32). In this case experience in like [Checkout with billing agreement creation](#) except **Make Default** checkbox. Customer could make new account the default one or leave existed account as default.

After order was placed customer can observe new account in **My Account** section (Figure 33) and in dropdown on payment page (Figure 34).

Cart page will always use default saved account for checkout. Review [Checkout using saved billing agreement](#) for more details.

NOTE: Billing agreement type is MERCHANT_INITIATED_BILLING_SINGLE AGREEMENT (More details about Billing Agreement types [here](#)). Customer can't have multiple billing agreements created for one PayPal account. If user try to do so, his existed billing agreement for this account will be updated.

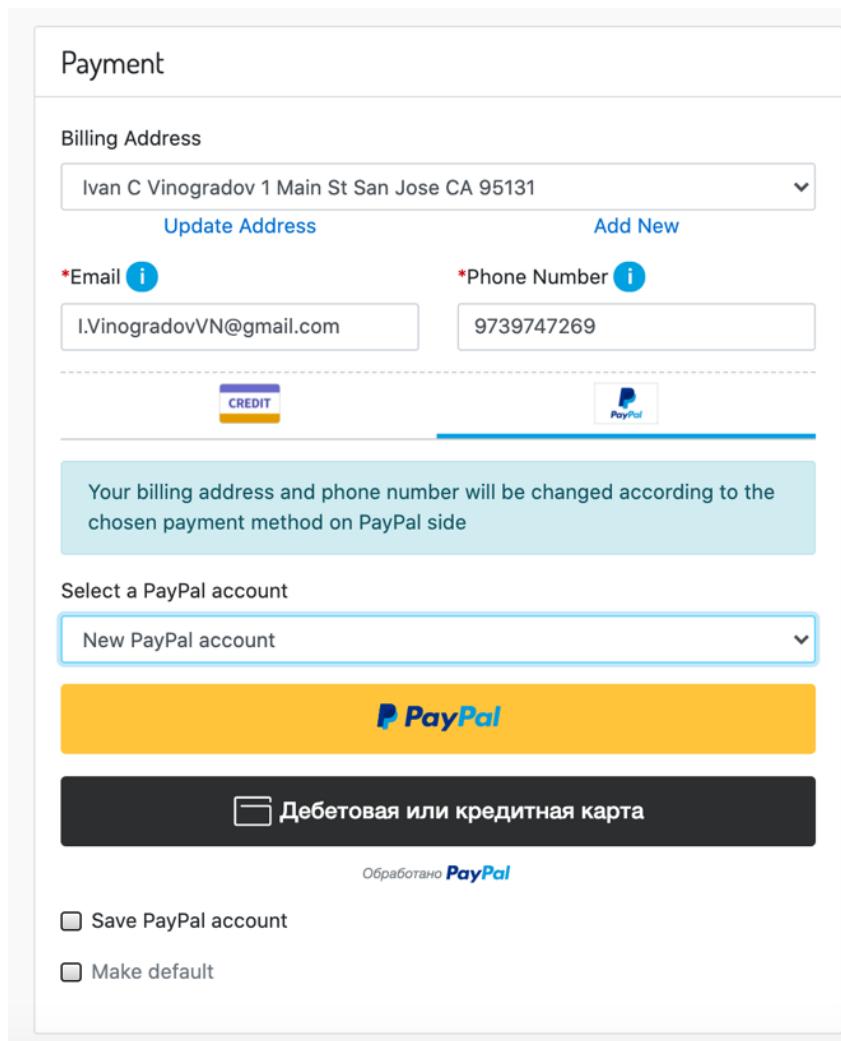


Figure 32. New PayPal account option on payment page

Password Edit Password *****	Credit Visa *****1111 Ending 11/2021 Add New
Address Book View Default Address 2253 Hudson Street - Denver - 80207 Rick Flores 2253 Hudson Street Denver, CO 80207 9739747269 Add New	PayPal I.VinogradovVN@gmail.com (Default) Remove p.lorenstest@gmail.com Remove Add New

Figure 33. Multiple saved accounts in My Account section

<h3>Payment</h3> <p>Billing Address</p> <div style="border: 1px solid #ccc; padding: 5px; width: 100%;"> Rick Flores 2253 Hudson Street Denver CO 80207 </div> <div style="display: flex; justify-content: space-between;"> Update Address Add New </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p>*Email i</p> <input type="text"/> </div> <div style="width: 45%;"> <p>*Phone Number i</p> <input type="text" value="9739747269"/> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> CREDIT PayPal </div> <div style="background-color: #e0f2fd; padding: 10px; margin-top: 20px;"> <p>Your billing address and phone number will be changed according to the chosen payment method on PayPal side</p> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>New PayPal account I.VinogradovVN@gmail.com ✓ p.lorenstest@gmail.com (Default)</p> </div>	
---	--

Figure 34. Multiple account view on payment page

5.2.6 Alternative Payment Methods

Alternative payment methods allow customers across the globe to pay with their bank accounts, wallets, and other local payment methods. Relevant alternative payment methods are automatically presented with Smart Payment Buttons.

For example, a customer in the Netherlands might want to pay using iDEAL, which is used by more than half of consumers in the Netherlands for online purchases, whereas a customer in Belgium on the same website might want to pay using Bancontact, a popular payment method there.

Alternative Payment Methods available on the billing page only. Shipping address and phone always provided by customer. Email will be pulled from billing page, if it was

provided by a customer, if email was empty customer will enter email on the PayPal side.

The transaction will be completed only when a customer returns to the storefront. If a transaction wasn't confirmed or the customer didn't finish checkout on the PayPal side customer's basket still will be available.

Important: after the customer will confirm the transaction and returns to the storefront, the order will be placed immediately, skipping the Order Review page.

NOTE: Alternative Payment Methods appearances based on customer's locale, not on storefront locale.

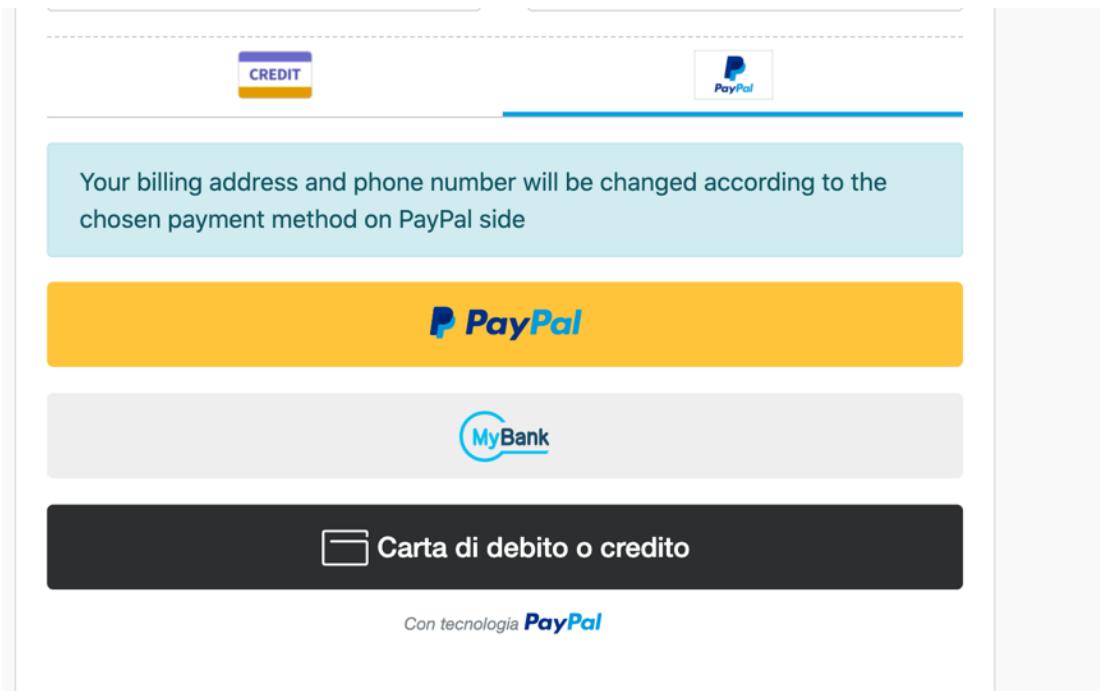


Figure 35. Alternative Payment Methods appearances in Smart Button



Figure 36. Alternative Payment Method transaction confirmation

5.2.7 Manage Billing Agreement from My Account

If Billing Agreement was enabled in the Custom Preferences customer can save PayPal Account as payment method for faster checkout or remove saved account from My Account section at a storefront (Figure 37).

Personal Information		Order Summary	
Email	3cd3ldtkdii@iffymedia.com	Order Status:	NEW
Phone	9739747269	Shipped to:	Rick Flores
		Total items	1
		Total	\$1,253.39
		Payment	
Password		View	
Password		Edit	
Address Book		View	
Default Address			
2253 Hudson Street - Denver - 80207 Rick Flores 2253 Hudson Street Denver, CO 80207 9739747269			
		Add New	
		PayPal	
		Add New	

Figure 37. PayPal section in My Account

After customer clicks **Add New** button PayPal Smart Button appears and customer must click on it to run through Billing Agreement flow. Once customer approves Billing Agreement page will be reloaded and new PayPal account email with billing agreement will appear under PayPal section (Figure 38).

Custom can cancel Billing Agreement by clicking on remove button or from PayPal side. If customer cancels billing agreement form PayPal it will be automatically removed from My Account.

The screenshot shows the 'My Account' interface with the 'Billing Agreement' section highlighted. On the left, there's a sidebar with 'Email' (3cd3ldtkdii@iffymedia.com) and 'Phone' (9739747269). The main area has two columns. The left column contains sections for 'Password' (with an 'Edit' link), 'Address Book' (with a 'View' link), and 'Default Address' (listing 2253 Hudson Street - Denver - 80207, Rick Flores, 2253 Hudson Street, Denver, CO 80207, 9739747269). The right column shows a summary: 'Total items 1' and 'Total \$1,253.39'. Below this is a 'Payment' section with a 'View' link, showing a Credit Visa card ending 11/2021. There are 'Add New' links for both the payment method and the PayPal account. The PayPal section lists 'I.VinogradovVN@gmail.com (Default)' with a 'Remove' link, also featuring an 'Add New' link.

Figure 38. Billing Agreement view in My Account

6 Locales and addresses

6.1 General info

Out of the box PayPal using build in SFRA locations for checkout from billing or cart page.

Checkout available only with one locale, multi shipping and multi locales are not supported.

For checkout from cart using cartridge doesn't provide any validation for addresses that was received from PayPal. Addresses will be mapped to Shipping or Billing address in Order automatically.

Example: After login to PayPal customer chooses Canada address while storefront locale is USA. Canadian address will be returned from PayPal and will be accepted by the cartridge.

7 Multi-site and multi-credential support

7.1 General info

PayPal cartridges doesn't come with multi-site or multi-credential support out of the box.

On service level build in logic will use only `int_paypal.http.rest` service and credential attached to the service to communicate PayPal REST API.

8 Gift Certificate Support

8.1 General info

PayPal cartridges doesn't provide an ability to add gift certificate to a basket or redeem gift certificates during checkout.

Customer can pay for a gift certificate using PayPal. If gift certificate is the only item in the basket shipping address won't be requested from a customer and billing address will be set as shipping address.

If customer add gift certificate as payment option and it partially covers order total customer can pay the rest using PayPal. In this case gift certificate amount will be treated as discount and subtracted from order total.

8.2 Technical info

Integration supports only gift certificates from B2C Commerce API. Gift certificate as product should be present as `GiftCertificateLineItem` in a basket. Gift Certificate as payment method should be applied as `OrderPaymentInstrument` using `createGiftCertificateLineItem` function.

For more information, contact your PayPal support manager.

9 Version and SFRA Support Info

9.1 JavaScript Files and Cartridge Version Location

The JavaScript files to be added to your page are located at:

`cartridges/int_paypal/cartridge/templates/default/paypal/cart/paypalButton.isml`

`cartridges/int_paypal/cartridge/templates/default/paypal/checkout/paypalContent.isml`

The file with the current version of the PayPal cartridge is located at:

`int_paypal/cartridge/templates/resources/paypal_version.properties`

The file with the current version of the SFRA cartridge is located at:

`app_storefront_base/cartridge/templates/resources/version.properties`

9.2 SFRA Version Support

PayPal cartridge version 20.1.3 supports SFRA 5.1.0 only.

9.3 Compatibility Mode

Cartridge tested with Compatibility Mode 18.10

10 Service Errors Handling

10.1 Service Timeout Handle

If a PayPal service becomes unavailable, error details can be found in the following logs:

- Error details can be found in the log with the **custom-PayPal** prefix.
- Service request/response details can be found in the log with the **service-PayPalRest** prefix.

On the storefront, the customer will see a PayPal button, but the pop-up will close instantly.

For more details about logs, see [Logs](#) section.

For more information about how to track service downtime and about possible options for configuration in situation when PayPal API is unavailable or throws an error review [HTTP Service Availability](#) section.

10.2 Fallback/Recovery

If you continue to see issues where the PayPal button and/or experience is not rendering, or if you are seeing 500 or 400 errors in the logs, please contact your PayPal representative or request to a Merchant Technical Support so that we may investigate this further. These orders will not be able to proceed with the PayPal payment option, and you may need to disable PayPal until the issue is resolved.

Please be aware that when contacting PayPal, we will ask for details that may need to be extracted from the logs as well as assistance with reproducing the issue step by step.

10.3 Handle Error Response

Error handling in the integration based on SFRA build in error logic. If it's possible detailed error will be shown to a customer (Figure 39). In cases where customization isn't possible customer will see SFRA system error (Figure 40). In this case detailed error from PayPal can be found at custom-PayPal log. Review [Logs](#) section for more details.

All errors text located at

`int_paypal/cartridge/templates/resources/paypalerrors.properties`.

You can add your own text for errors from REST API, using format: paypal.error + error code from paypal or error name in lower case. For example

```
paypal.error.transaction_refused=Transaction was refused by merchant
```

```
paypal.error.unprocessable_entity=Please check billing address
```

NOTE: Custom errors text won't appear on order review page due to build in SFRA logic. System message will always appear (Figure 40).

Order total 0 is not allowed for PayPal

Shipping

Edit

Shipping Address:

Rick Flores
2253 Hudson Street
Denver CO 80207
9739747269

Shipping Method:

Ground (7-10 Business Days) \$0.00

Payment

Billing Address

Rick Flores 2253 Hudson Street Denver CO 80207

[Update Address](#)

[Add New](#)

*Email 

3cd3ldtkdii@iffymedia.com

*Phone Number 

9739747269



Your billing address and phone number will be changed according to the chosen payment method on PayPal side

 **PayPal**

 Debit or Credit Card

Powered by **PayPal**

Figure 39. Custom error message example

We're sorry that your order could not be placed. This probably happened due to a high order volume or temporary connection errors. Please wait a few minutes and resubmit your order. We won't process your payment until you successfully place your order. If you have further questions, please contact us.

Shipping

[Edit](#)

Shipping Address:

Rick Flores
2253 Hudson Street
Denver CO 80207
9739747269

Shipping Method:

Ground (7-10 Business Days) **\$0.00**

Payment

[Edit](#)

Billing Address:

Dmitry Vigranovsky
1 Main St
San Jose CA 95131
3cd3ldtkdii@iffymedia.com
9739747269

Payment:

dmitry_vigranovsky-facilitator@epam.om
PayPal / \$944.99

Place Order

Figure 40. SFRA standard error message example

11 Automated Testing

The cartridge has unit, integration, and function tests included in the repository.

Please use the instructions described in the `test/unit/README.md`, `test/integration/README.md`, and `test/acceptance/README.md` files in the repository to configure and run tests.

12 Known Issues

No reported issues so far.