

PaperCut | PaperCut Payment Gateway Module - PayPal Website Payments Standard

This guide is designed to supplement the *Payment Gateway Module* documentation and provides a guide to installing, setting up, and testing the Payment Gateway Module for use with PayPal's hosted credit card payment service, PayPal Website Payments Standard. The main Payment Gateway Module documentation may be downloaded from:

<http://www.papercut.com/files/pcng/ext/payment-gateway/PaymentGatewayModule.pdf>

IMPORTANT: *You should have a registered and active PayPal account with PayPal Website Payments Standard activated before installing the payment gateway module. This can be done via the [PayPal website](#). The login information will be required during setup.*

Setup and testing time should take around 30 minutes for basic setup, plus time for customizing the order pages if required. No system level restart is required; however the PaperCut application server will be restarted during the install process. If other administrators are using the PaperCut administration interface at this time, it may be advisable to warn them of the pending restart.

This document is written assuming the reader has good server administration skills and is experienced with general PaperCut administration.

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1 Installing the Payment Gateway Module

The Payment Gateway Module will function during the PaperCut NG 40-day trial period. After this, the module must be licensed. If you have been supplied with a new license take the time to install this now. The license install procedure is documented in the PaperCut user manual chapter 'Licensing and Support'.

1. Download the Payment Gateway Module from the PaperCut website at

<http://www.papercut.com/files/pcng/ext/payment-gateway/pcng-payment-gateway-module.exe>

2. Install the module into the same directory as PaperCut. This is normally:

C:\Program Files\PaperCut NG\

3. Open the file:

[app-path]\server\lib-ext\ext-payment-gateway-paypal.properties

in a text editor such as Notepad.

4. Locate the line `paypal.enabled=N` and change the `N` to `Y`. This will enable the PayPal module.
5. Locate the line `paypal.id` and enter your PayPal ID.
6. Ensure that the `paypal.currency` option is set to the correct currency for payments you will be accepting.
7. Configure other options in this file as discussed in General Configuration Options in the Payment Gateway Module documentation, or by referring to the comments in the file itself. Options include limits on the amount to transfer, access groups, custom error messages, and the messages displayed to users after a successful or failed transaction.

You may like to enable a group restriction to limit access to administrators until configuration is complete.

8. Save the file and exit the text editor.
9. Restart the *PaperCut Application Server* service via **Control Panel -> Administrative Tools -> Services** and wait 30 seconds.
10. Check the end of the log file at [app-path]\server\logs\server.log for any obvious error messages.

2 Network / Firewall Configuration

If you have *interface version 2*, PayPal will communicate with your PaperCut server using HTTPS on port 443. PaperCut's integration in this manual will be configured to use port 9192, however PayPal will force the use of port 443 on return calls to the PayPal Website Payments Standard Link integrations. This means that port 443 needs to be opened externally for this communication, and needs to be redirected to port 9192 internally to the PaperCut server to allow PayPal to PaperCut communication.

If you have *interface version 1*, PayPal will communicate with your PaperCut server using HTTP on port 80. Alternatively, you may use port forwarding from external port 80 to port 9191 on the PaperCut server, although the details of how to set up port forwarding are not covered in this guide as it varies depending on network environment.

You will need to ensure that PayPal servers are able to contact the PaperCut Application Server via the internet on the appropriate port. This will usually involve the following network changes:

1. Set up a public DNS entry to ensure the PaperCut server is publicly accessible via a friendly name (e.g. `papercut.myorg.edu`).
2. Either:
 - a. Allow internet access directly to the PaperCut server over port 80 (if running on Windows), or
 - b. Set up external firewall rules to port forward from the public address on port 80 to the PaperCut server port 9191. This is generally the preferred option on Linux, Mac or Novell.

It is important that the firewall policy only applies to external hosts. Internal hosts will require direct access to the PaperCut server.

During testing it may be appropriate to open access from any host then lock down access to the PayPal's server IP addresses later. Incoming messages from PayPal (IPNs) will be sent from `notify.paypal.com`. PayPal maintain a list of IP addresses for this hostname here:

https://cms.paypal.com/us/cgi-bin/?cmd=_render-content&content_ID=developer/howto_api_golivechecklist

At the time of writing a suitable range would be
`216.113.188.0/255.255.255.0,66.211.170.66`

Note that PayPal may change these addresses over time, so if transactions are failing check PayPal's IPN history section to see if the messages are not getting through.

3. Accessing the following URL with a web browser will display a simple confirmation page containing the current time, and can be used to test external access:

`http://papercut.myorg.edu/rpc/gateway/paypal-wps`

3 PayPal Configuration

1. Log into your PayPal merchant account site.
2. Navigate to **My Account -> Profile (click) -> Instant Payment Notification Preferences -> Choose IPN Settings**.

3. In the **Notification URL** field enter:

`http://papercut.myorg.edu/rpc/gateway/paypal-wps`

Where `papercut.myorg.edu` is the external hostname of your PaperCut server.

If using a non-standard port like 9191, then you can enter the port in the IPN URL like the following:

`http://papercut.myorg.edu:9191/rpc/gateway/paypal-wps`

4. Select **Receive IPN messages (Enabled)** and click **Save**

When PaperCut receives an IPN from PayPal it responds to acknowledge the message. If your PaperCut server has multiple external IP addresses, it is important that the response be sent from the same IP address that PayPal sent the IPN to (e.g. if PayPal sends the IPN to 1.1.1.2 it should not receive a reply from 1.1.1.3). If PayPal receives the response from a different IP address it will ignore it, which will cause problems.

5. Navigate to **My Account -> Profile -> My Selling Tools -> PayPal button language settings (Under More selling tools) -> More Options**

6. Set **Encoding** to UTF-8 and click **Save**.

When the user enters a name or a street address that contains non-latin characters UTF-8 must be enabled to prevent PayPal returning "INVALID"

4 Testing

The payment gateway module is now ready for testing. This test will involve performing a live transaction with a real credit card, testing real-world end-to-end functionality. Afterwards the payment may be refunded via the PayPal merchant interface. Note that transaction fees may still apply.

1. Log into the PaperCut user web interface at <http://papercut:9191/user>
2. A new link called **Add Credit** should be present on the left. Click this link.
3. Select an amount to add and click **Add Value**.

Add credit using PayPal

Username	tom
Current Balance	\$0.34
Amount to add	<input type="text" value="\$5.00"/>
<input type="button" value="Add Value"/>	

4. You should now be redirected to PayPal for payment. Enter the payment details including a valid credit card number and associated details as requested.
5. After entering payment details you should be presented with a success (or failure) page with a printable receipt link. At this stage the payment should have already taken place, and PayPal has contacted PaperCut via the IPN feature to report the transaction (causing PaperCut to add the value to the user's account).

There should also be a **Return** button. Click this to return to PaperCut.

6. You should now be back at the **Add Credit** page. You should see a green message indicating that the funds were added to your account, and **Current Balance** should show your new account balance. The **Transaction History** page should contain the payment transaction.

Note: it is possible in times of network congestion or a communication failure that the PayPal IPN has not yet been sent to PaperCut by the time the user returns to the **Add Credit** page. In this case an appropriate message will be displayed to the user, and their balance will be updated when the IPN arrives. See the Troubleshooting section for more information.

7. The transaction should appear in the PayPal merchant interface and may now be refunded.

5 Securing the System

Because PayPal sends the IPN transaction data to PaperCut directly (not along with the user), users are not provided with an opportunity to tamper with the order data. It is however possible for users who know the IPN URL to “spoof” a transaction if they know the right data and format. This risk can be mitigated by:

1. Restricting the IPN URL so that it can only be called by PayPal’s server IP addresses. See the `paypal.postback-allowed-ip` option in the config file.
2. Implementing a “shared secret”. This is a secret token/password that is known only to PayPal and the PaperCut server, and never exposed to the user. PaperCut will then only accept IPN messages that contain the shared secret, so that a user can only forge IPN messages if they also know it. To implement the IPN shared secret:
 - a. Find the `paypal.shared-secret` option in the config file and assign a random alphanumeric string that will serve as the secret/password. E.g.
`paypal.shared-secret=1n2bxn5h`
 - b. Update the IPN notification URL in the PayPal merchant interface and append a slash and your shared secret to the end. E.g.
`http://papercut.myorg.edu/rpc/gateway/paypal-wps/1n2bxn5h`.
 - c. IPN messages should now only be accepted if they contain the configured shared secret. If you like you can try entering the wrong shared secret in the IPN URL to ensure that it is rejected. Note that this will result in a charge on the PayPal side but no transaction on the PaperCut side (an error message will be logged to the App. Log).

6 Go-Live

If a group restriction was enabled in Stage 2 it can now be removed or altered to allow access to end-users. Your system is now live and will accept and charge credit cards.

7 Troubleshooting

Administrators may find information in the following log files useful when trying to troubleshoot setup/configuration problems or issues reported by end-users.

Payment Gateway Event Log:

`[app-path]\server\logs\payment-gateway\event.log`

This log contains gateway specific error messages and events.

Application Log:

`[app-path]\server\logs\server.log`

This log contains general application specific error messages and events.

Transaction Log:

`[app-path]\server\logs\payment-gateway\transaction.log`

This log contains a list of successful transactions in a tab-delimited form.

Contact your reseller or Authorized Solution Center for assistance. You can find their contact information in your PaperCut Admin interface on the **About** page.

7.1 PayPal Charging Correctly, Balances Not Updated in PaperCut

If PayPal is charging cards/accounts correctly but no balances are being updated in PaperCut, there is most likely a problem with the IPN messages getting through.

1. In the PayPal merchant interface, navigate to **My Account -> History -> IPN**

History . This page lists the IPN messages that PayPal has attempted to send to PaperCut (the configured IPN Notification URL). Ensure that the IPN that matches the transaction has status **Sent**. Any other status indicates that the IPN didn't get through. This may be temporary (PayPal will retry at intervals for up to 4 days), or it may indicate a connectivity problem. Ensure that the IPN Notification URL is accessible from the internet.

2. If the IPN was marked **Sent**, check the payment gateway event log file (location above) for error messages. If there are no obvious messages, you can reproduce the problem with debug logging enabled to see more information about the messages sent and received.