PaperCut | PaperCut Payment Gateway Module - PayEx Quick Start Guide

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 the PayEx system. The main *Payment Gateway Module* documentation may be downloaded from:

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

This document is written assuming the reader has good server administration skills and is experienced with general PaperCut administration. PaperCut should be configured, installed and tested before installing the Payment Gateway Module with PayEx support.

Contents

1 Introduction

PayEx (www.payex.com) is one of the leading companies in payment solutions, with operations throughout Europe. They offer a complete payment package that includes all necessary payment methods, such as:

- Micro Account (Payex Account)
- Credit Card
- WyWallet

PayEx allows people to pay for services using various types of payment methods. The PaperCut PayEx payment gateway allows PaperCut to integrate with PayEx to allow students to pay for printing from their PayEx account, Credit Card, or WyWallet.

Key Feature Summary

- Automatic integration with PayEx – no hardware dependence
- No need for the user to leave their computers to conduct a deposit/transfer
- Different operation modes:
    - End-user instigated transfer
    - Automatic transfer on-demand (Live)
    - Automatic transfer on-demand (Batched amount) Combination thereof as set by administrator
- Administrator control configuration options
- Full transaction auditing for both end-user and administrators
- Live integration with Active Directory (if secure) and/or an external database to facilitate associated of network login identities with PayEx Micro Accounts
- Implementation does not compromise/replace standard PaperCut features such as free quotas, overdraft rules, or the ability to add alternate payment types in the future (e.g. PayPal, Credit Card, Loan Systems, etc.).

2 Architecture

The solution is designed with security as the number one objective. All communication with PayEx (and external credit source) is done via the PaperCut Server. No client software is used. Communication with end-users is encrypted using SSL/TLS Browser encryption.
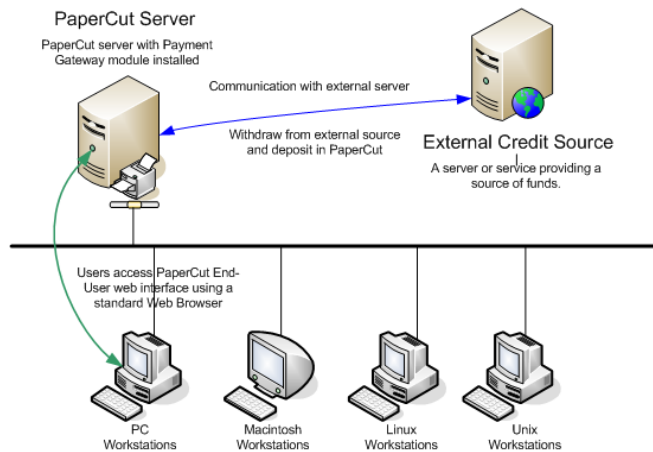
Setup and testing time should take around 30 minutes. No system level restart is required; however, the PaperCut application server will be restarted during the install process. If other administrators are using the PaperCut administration interface at this time, it may be advisable to warn them of the pending restart.

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

3 End-User Overview

The system may be configured in one of three operating modes. The operating mode is configured by the administrator.

3.1 Mode 1: Manual Transfer Mode

3.1.1 Micro Account and WyWallet

In this mode, users manually instigate a payment or a transfer, directly from their desktop using the PaperCut MF User web interface. The interface and workflow is based on the proven interface used for other payment gateway interfaces including PayPal and CyberSource systems used by many organizations.

1. The user logs in to the standard PaperCut.
2. A new "Add Credit" link existing on the left (The link will appear after the module is installed. The name of the link can be changed).
3. The user clicks "Add Credit" and select the amount to transfer (the range of amounts can be defined by the administrators).
4. After clicking the form Submit button, the selected amount, if available, is transferred from PayEx and placed in the user's PaperCut account in real time.
5. The end-user can view and report on all details of their historic transactions via the web interface.

These screen-shots show the equivalent end-user screens. Attributes such as visual design, link names, and instruction/help text can all be customized.
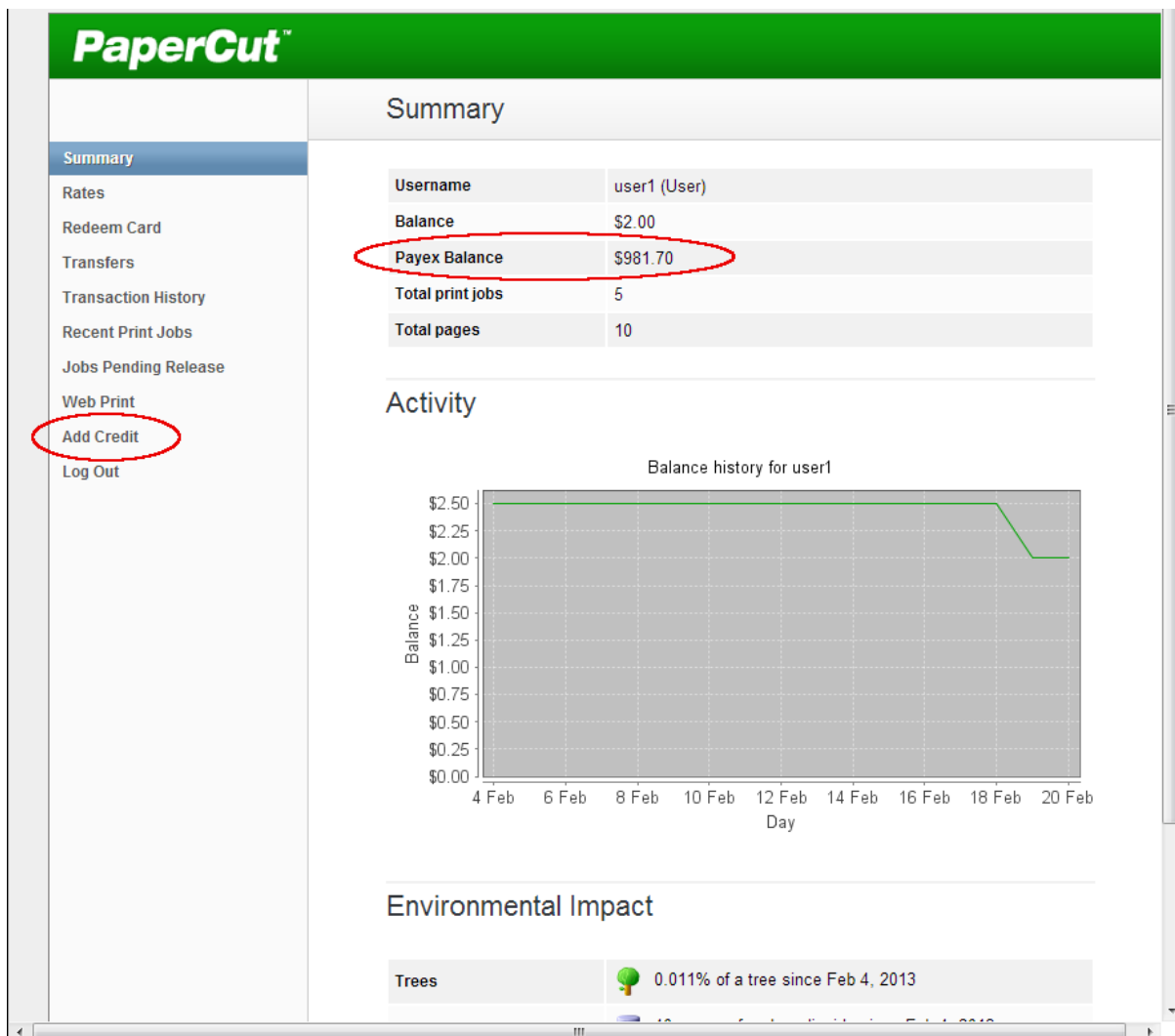
Figure 1: Interface accessed via standard end-user PaperCut login (can be skinned to organization design) Illustration shows extra option(s) above normal options after gateway is installed.
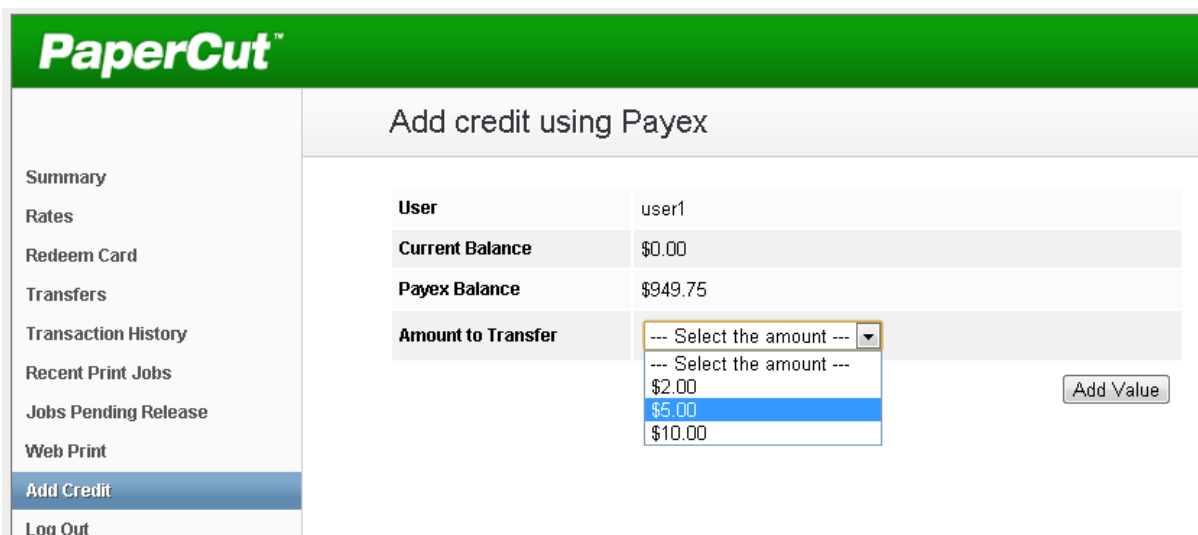
The Payex Balance field is visible only when at least one of the configured payment methods includes either 'Micro Account' or 'WyWallet'. You can customize the text of this field using the payex.balance-display.label option in the payment gateway configuration file.

Figure 2: Conducting a transfer: What the end-user sees (Currency symbol is set by your System locale). Interface wording can be configured by administrator.

Transaction Date ▼	Transacted By	Amount	Balance After	Transaction Type	Comment
Feb 19, 2013 5:21:14 PM	user1	$2.00	$2.00	Payment gateway	Funds added from Payex (
Feb 19, 2013 3:26:58 PM	[system] (print)	-$0.20	$0.00	Printer Usage	
Feb 19, 2013 3:26:58 PM	[system] (print)	$0.20	$0.20	External adjustment	Printing account auto top-up from Payex

3.1.2 Credit Card

PaperCut's PayEx implementation also supports the Credit Card payment method.

With the credit card payment method, users are redirected to an external PayEx page where they enter their Credit Card details. When a transaction is successful, the user is redirected back to the User web interface, which shows the updated Current Balance.

When the Credit Card payment method is configured together with another payment method (either Micro Account or WyWallet), then two other additional fields are displayed:

- **PayEx Balance** – The real-time balance of the other payment method (either Micro Account or WyWallet). This has no relevance to the Credit Card payment method.
  Note: You can customize the text of this field using the payex.balance-display.label option in the payment gateway configuration file.
- **Payment method** – The various payment methods available. For example:
  either, Credit Card and Micro Account*, or*
  Credit Card and WyWallet

3.2 Mode 2 & 3: On-Demand Mode (Live or Batched Transfer)

In this mode, the system automatically transfers funds from the user's PayEx account or WyWallet account (mobile number), to the user's PaperCut account on an as-need basis based on rules defined by the Administrator.   For example, if a user performs printing when they have no PaperCut printing credit, the PaperCut PayEx integration will automatically transfer a defined amount, or the cost of the job, into the user's PaperCut account to pay for the print job.

By default only the amount required for the current print job is transferred. This leaves the user with a zero PaperCut balance after the cost of the print job is deducted. This is known as "Live Mode" where there is a one-to-one link between a print job requiring funds and a transaction in the PayEx system.

The other on-demand transfer mode is batched mode where a fixed pre-determined amount is transfer into the user's account as required (i.e. the user runs out of funds). The default transfer amount is defined by the administrator.

Each on-demand mode offers different advantages and compromises. Live mode ensures funds never remain in the PaperCut account and hence could potentially be used elsewhere by the user. Batch mode on the other hand partly decouples PaperCut from the PayEx system offering advantages around reliability and scalability:

1. Batch mode reduces the number of transactions sent to the PayEx system.
2. If the PayEx system or the network link is down, printing for most users can continue and downtime would only affect users who require PayEx credit at this time.

These modes are best illustrated by examples:

Example of *live mode*:
1. User Betty only has SEK0.00 in her PaperCut printing account.
2. Betty prints a job that costs SEK3.50.
3. The PaperCut PayEx gateway transfers the required SEK3.50 into Betty's PaperCut account.

Example of *batch mode* with a SEK5.00 default transfer amount:
1. User Betty only has SEK0.50 in her PaperCut printing account.
2. Betty prints a job that costs SEK3.50.
3. Because the print job costs more than the value currently in her account, the PaperCut PayEx gateway transfers the default transfer amount of SEK5.00.
4. The job cost is deducted from the PaperCut account leaving Betty with SEK1.50 in her PaperCut account, which may be used for future printing.

The on-demand transfer mode is enabled and configured by the administrator. No end-user intervention is required. End users however have a full list of all transfers available from their End-User web interface. If using batch mode, sites should explain to users how the system works (e.g. default transfer amounts).

Notes:
- On-demand mode can be configured to only apply to a group of users (e.g. Students and not staff)
- Any free quota allocated to users is used first before the PayEx system is contacted for value.
- May be used to implement a predictable system where a fixed amount is transferred each time (e.g. SEK5 blocks). Or may be configured to simply transfer the value of each job on demand.
- If the user is out of PayEx funds the "inadequate credit" message will propagate to the user as it normally does in PaperCut (options include popup message or email notification).

Both Mode 1, or 2 and 3 (on-demand) can be enabled together offering a flexible hybrid system, or the group-level restrictions may be used to enable one mode for one group of users and another mode for another group.

On demand transfer is by default enabled for the Micro Account payment method but can also be enabled for the WyWallet payment method.

4 Prerequisites

This section describes the prerequisites before the payment gateway module can be installed.

4.1 PayEx settings and payment methods

4.1.1 Common settings

To use the Credit Card payment method or the Micro Account payment method, you must provide the following details about your PayEx setup:

- Merchant Account Number.
- Merchant Encryption Key

To use the WyWallet payment method, you must provide the following details about your PayEx setup:

- Acquirer ID
- Agreement ID
- Shared Secret

These settings are configured in the payment gateway configuration file.

4.1.2 Micro Account

Following settings and configurations are applicable for the Micro Account payment method.

- Client Account Type (email or account number)

The payment gateway requires a user's PayEx Client Reference to perform a transaction from their PayEx Micro Account. This requires a mapping between PaperCut users (e.g. a network domain username) and Client References.

In PaperCut, users are identified by their network username. This differs from a PayEx Micro Account where a PayEx client reference is required. The two must be linked together via a mapping method. The PaperCut PayEx payment gateway allows for a number of mapping options (described below). The settings for the Account lookup are found in the payment gateway configuration file in the section "Account Lookup Settings". e.g. "payex.account-lookup.mode".

If you have questions about the account mapping, please contact your reseller or Authorized Solution Center. You can find their contact information in your PaperCut Admin interface on the **About** page.

4.1.2.1 Use the PaperCut Card/ID number field (default)
In this lookup mode, the number stored in the "Card/ID field" for the user in PaperCut is used for PayEx Micro Account transactions. This is number may be automatically imported from Active Directory or LDAP, or alternatively imported from a text file. Information about

importing the Account numbers into PaperCut can be found in the PaperCut Manual in the section titled "Importing Card/Identity numbers from Active Directory or LDAP".

This approach is generally suitable for sites that store users' PayEx Account numbers in fields in their existing Active Directory or LDAP server.

4.1.2.2 Use the PaperCut email field

Some PayEx accounts use an email address as the client reference. If this email address matches the email address associated with a user's PaperCut account, you may identify the PayEx account by email address. Set the "payex.account-lookup.mode" setting to "EMAIL". The "payex.server.PayEx-client-type" field should also be set to EMAIL.

4.1.2.3 Lookup in external database

Many PayEx sites maintain a database mapping PayEx client references to network usernames. The PaperCut PayEx gateway can be configured to lookup a user's PayEx Account in an external database. To do this you will require:

- The lookup data in an external database server (for example Microsoft SQL Server, Oracle or PostgreSQL).
- Connection details for the database (e.g. network address, database name, and username/password). NOTE: Only read-only access to the database is required.
- An SQL query that will return the user's PayEx Client Reference given a username (or other user details).

This lookup mode can be enabled by changing the "payex.account-lookup.mode" setting to "EXTERNAL_DATABASE" in the PayEx gateway configuration file. For detailed configuration instructions, see the config file.

4.1.2.4 Payex AutoPay

By default, the PaperCut Payex integration uses the PxPurchase API for micro ccount to perform debit transactions.

Some sites prefer to use the Payex AutoPay system to perform transactions. The AutoPay system requires that each user first creates an agreement with the Payex system permitting debit transactions to be performed. This agreement is identified by an Agreement Reference, which is required to perform the transaction using the AutoPay API.

Creation and validation of AutoPay agreements is the responsibility of the customer and is outside the scope of the PaperCut Payex gateway.

To use Autopay, an external database lookup must return two values for each user, the Client Reference and the Agreement Reference. PaperCut will then use the Agreement Reference to perform the Autopay transaction.

For detailed configuration instructions, see the config file.

4.1.3 Credit Card

For credit cards, define the 'Credit Card' payment method as a payment method option in the config file, along with the common configuration specified above.

You don't need any other special configuration, as the user will be redirected to the external page every time the user performs a transaction using a credit card.

The credit card payment method can be used only for manual transfers.

4.1.4 WyWallet

For WyWallet, define the 'WyWallet' payment method as a payment method option in the config file, along with the common configuration described above.

If WyWallet is used as payment method for 'manual' or 'on-demand' transfer, then the user's mobile number must be accessible from an external database.

You can configure the PaperCut PayEx gateway to lookup a user's PayEx WyWallet account (user's mobile number) in an external database. To do this you will require:

- The lookup data in an external database server (for example, Microsoft SQL Server, Oracle, or PostgreSQL).

- Connection details for the database (such as, network address, database name, and username/password). NOTE: You only need read-only access to the database.

Add connection details here:
```
payex.account-lookup.db-driver=
payex.account-lookup.db-url=
payex.account-lookup.db-username=
payex.account-lookup.db-password=
```

Use the following SQL query to return the mobile number for a specific username (or other user details).

```
payex.account-lookup.db-sql=
```

For example:
```
payex.account-lookup.db-sql=select msisdn from user_table
where username ={username}
```

The SQL query should return a single row, and the first field should be the MSISDN with the country code (for example, 46987654321 where 46 is country code for Sweden).

Enable this lookup mode by changing the "payex.account-lookup.mode" setting to "EXTERNAL_DATABASE" in the PayEx gateway configuration file. For detailed configuration instructions, see the config file.

4.2   PayEx transfer modes

The payment gateway offers two transfer modes as described in section 3 End-User Overview ":

- Manual transfer – the user initiates the transfer and selects the amount. This mode is the simplest for users to understand and give the user full control over the funds they transfer from PayEx into PaperCut. This setting is controlled by "payex.manual-transfer.enabled" in the config file.
- On-demand (Live or Batched) transfer – the gateway will automatically transfer funds when required for printing with no end-user interaction. This setting is controlled by "payex.on-demand-transfer.enabled" in the config file.

4.2.1 Manual transfer

Specify the payment method for manual transfers using the following property :

```
payex.payment-method=
```

You can provide multiple payment methods if your merchant account is activated for those payment methods. The payex payment method can have the Credit Card payment method together with either WyWallet or MicroAccount. However, it cannot have both WyWallet and MicroAccount payment methods at the same time.

For example, any ONE of the following is accepted:
```
payex.payment-method=WyWallet,Credit Card
OR
payex.payment-method=Micro Account,Credit Card
```

If you want only one payment method for all user transactions, then provide only a single payment method. For example:
```
payex.payment-method=WyWallet
```

If `payex.payment-method` is blank, then 'Micro Account' is used as the default payment method.

4.2.2 On demand (Live or Batched) transfer

To enable WyWallet on demand transfer, set following property to 'WyWallet'

```
payex.on-demand-transfer.payment-method=WyWallet
```

If left blank, Micro Account is used as the default on transfer payment method.

If `payex.on-demand-transfer.payment-method` is set to 'WyWallet', then you must configure the external database lookup. For more information, see 4.2.2 Lookup in external database.

5 Installation

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

Setup and testing time should take around 30 minutes. 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.

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 NG. This is normally:

   C:\Program Files\PaperCut NG

3. Open the file:

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

   in a text editor such as Notepad.

4. Locate the line payex.enabled=N and change the N to Y. This will enable the PayEx module.

5. The following is applicable to Credit Card and Micro Account payment methods:

   a. Locate the line payex.server.merchant-account-number and enter the assigned PayEx account number.

   b. Locate the line payex.server.merchant-encryption-key and enter the key provided by PayEx.

   c. Locate the line payex.server.payex-client-type and enter the client type provided by Payex.

   d. Locate the line payex.account-lookup.mode and enter the chosen Payex account lookup mode. For more information, see 4.1.2 Micro Account.

6. The following is applicable to WyWallet payment method:

   a. Locate the line payex.server.acquirerId and enter the Acquirer Id that has been assigned by PayEx

   b. Locate the line payex.server.agreementId and enter the Agreement Id that has been assigned by PayEx.

   c. Locate the line payex.server.shared-secret and enter the shared secret assigned by PayEx.

   d. Locate the line payex.account-lookup.mode and enter the chosen Payex
       account lookup mode. For more information, see 4.1.4 WyWallet.

7. Review the configurable options available in the payment-gateway-payex.properties
    file. Options include limits on the amount to transfer, access groups and custom
    display messages. 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.

6 Testing

The Payment Gateway Module for PayEx is now ready for testing. This test will involve performing a live transaction with the PayEx system, testing real-world end-to-end functionality.

6.1 Manual transfer mode

6.1.1 Single payment method: *Micro Account*

To begin testing for Micro Account, you need a PaperCut login for a user that has an associated PayEx account. The simplest way to achieve this is to enter a test PayEx Account in the "Card/ID number" field of your test user in the PaperCut Admin web interface.

1. Log in to the PaperCut User web interface at http://papercut:9191/user

2. In the left menu, click "Add Credit".
   The user's available PayEx Micro Account balance is displayed in the User web interface.
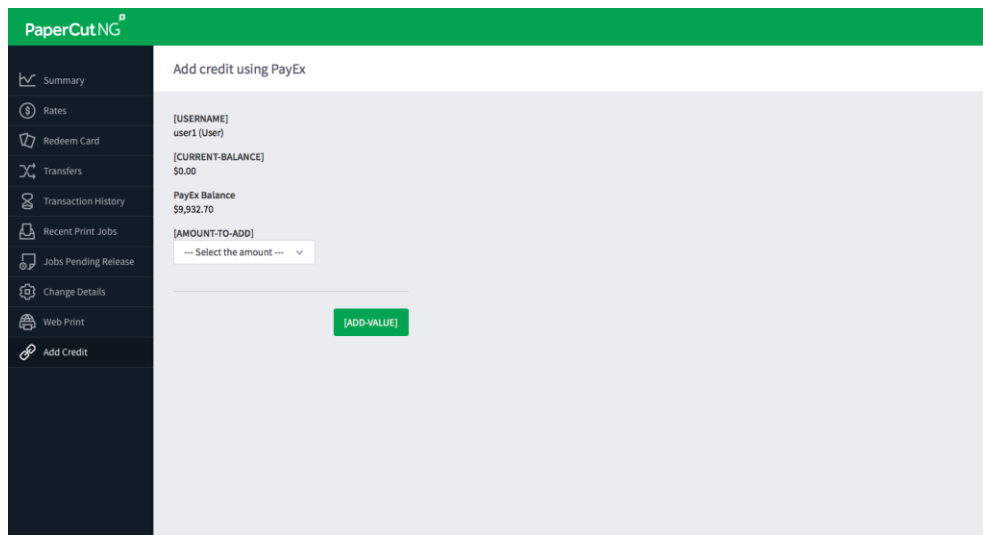
3. Select an amount to add; then click "Continue".

The requested amount is transferred from the user's PayEx account into PaperCut. You can view the transaction in the user's "Transaction History".
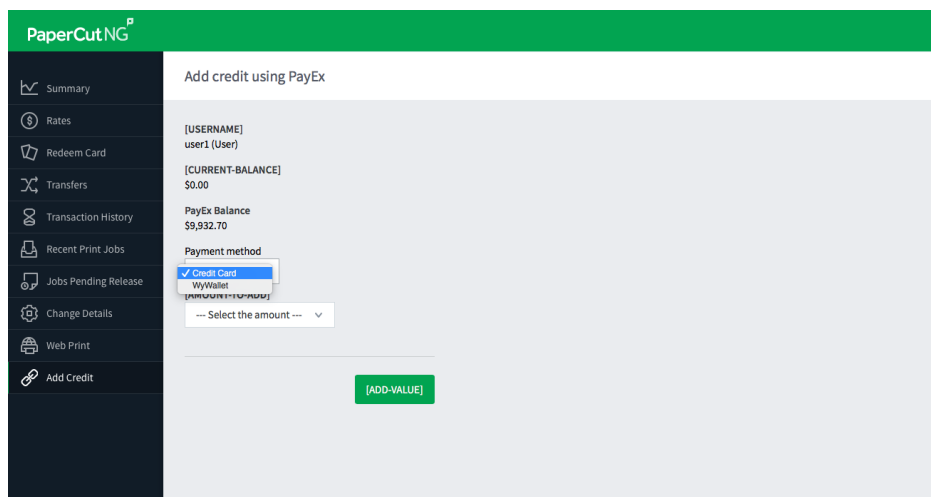
6.1.2 Single payment method: *WyWallet*

When only one payment method is configured, and it is: WyWallet, then the User web interface is as follows:

Clicking Add Value, accesses the user's mobile number from the configured database and transfers credit to the PaperCut account. The balances are updated in real time and displayed for both the Current Balance (credited) and the PayEx Balance (debited).

6.1.3 Multiple payment methods: *Credit Card, WyWallet*

When the payment methods configured are: Credit Card and WyWallet, then the User web interface is as follows:

Selecting Credit Card redirects the user to the PayEx external page where they provide their details. When the transaction is successful, the User web interface is redisplayed with an updated Current Balance. The requested amount is transferred from the user's Credit Card account into PaperCut. The Current Balance (credited) is updated in real time. The PayEx Balance is unchanged because this is not related to the Credit Card payment method. The transaction is recorded in the user's "Transaction History".

Selecting WyWallet, accesses the user's mobile number from the configured database and transfers credit to the PaperCut account. The balances are updated in real time and displayed for both the Current Balance (credited) and the PayEx Balance (debited).

6.2 On-demand or auto transfer mode

1. Login to the PaperCut admin interface (http://papercut:9191/admin) and select your test user from the **Users** tab.
2. Change the user's account balance to SEK0.0.
3. Login to a workstation as this test user and perform a test print job.
4. The print job should trigger a transfer of credit from PayEx and the print job should be allowed.
5. Login to the PaperCut admin interface and select the test user from the **Users** tab.
6. Select the user's Transaction History tab, where you should see the funds transferred from PayEx into PaperCut (and then the deducted from PaperCut for the cost of the print job).

Transaction Date ▼	Transacted By	Amount	Balance After	Transaction Type	Comment
Feb 19, 2013 5:21:14 PM	user1	$2.00	$2.00	Payment gateway	Funds added from Payex (
Feb 19, 2013 3:26:58 PM	[system] (print)	-$0.20	$0.00	Printer Usage	
Feb 19, 2013 3:26:58 PM	[system] (print)	$0.20	$0.20	External adjustment	Printing account auto top-up from Payex

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.