PaperCut Payment Gateway Module - CardSmith 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 CardSmith. The main Payment Gateway Module documentation may be downloaded from:

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

1 Introduction

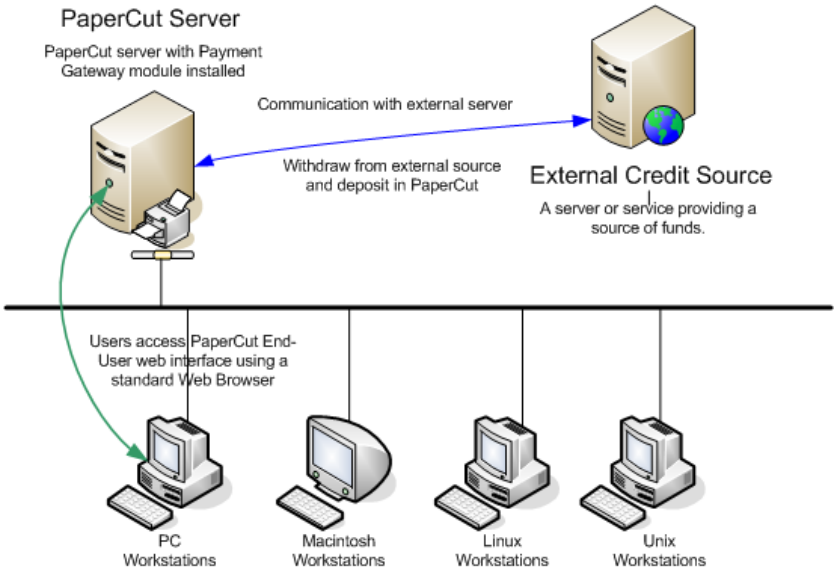
CardSmith develop campus card systems for education and other types of organizations. The PaperCut payment gateway module for CardSmith provides integration that allows students to pay for printing from their CardSmith account.

Key Feature Summary

- Automatic network level integration with CardSmith – no mandatory hardware requirement.
- Different operation modes:
  - **On-demand transfers**: automatically transfer on low/zero balance.
  - **Manual transfers**: end-user instigated transfer via a web interface.
  - Combination thereof as configured by the administrator.
- Full transaction auditing for both end-users and administrators.
- Ability to extract/import CardSmith account numbers out of Active Directory (if secure) and/or an external database table such as a student management system.
- 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.

2 Architecture

The solution is designed with security as the number one objective. All communication with the CardSmith server (the *external credit source*) is made via the PaperCut Server using SSL. Client systems and other components do not connect with the CardSmith server. Communication with end-users is encrypted using SSL/TLS browser encryption.



CardSmith integration architecture

Time should be allocated to arrange configuration of the CardSmith system to be ready for PaperCut integration. Once this is done, setup and testing of the basic integration should take around 30 minutes. More detailed integrations are possible and time should be allocated accordingly after reading through this guide. 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.

3 End-User Overview

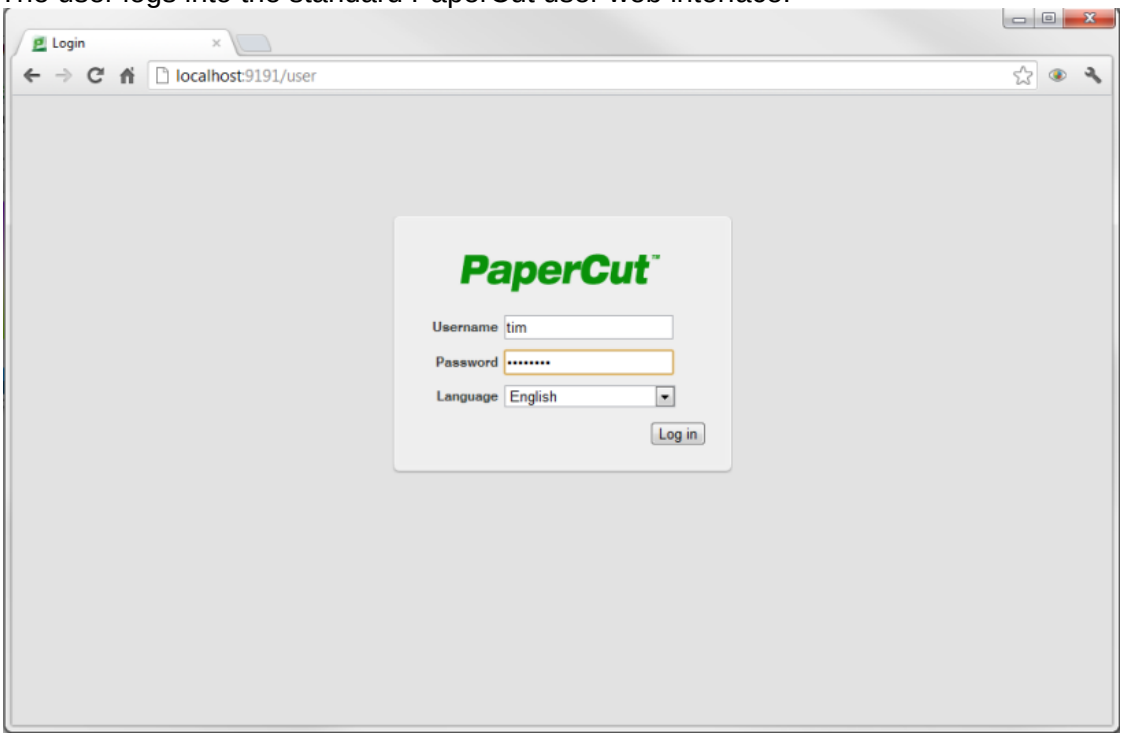
The system may be configured using one or both of the integration modes (on-demand transfers and manual transfers). The integration options are configured by the administrator. The section below provides an overview of the end-user experience for each option.

3.1 Option 1: Manual Transfers

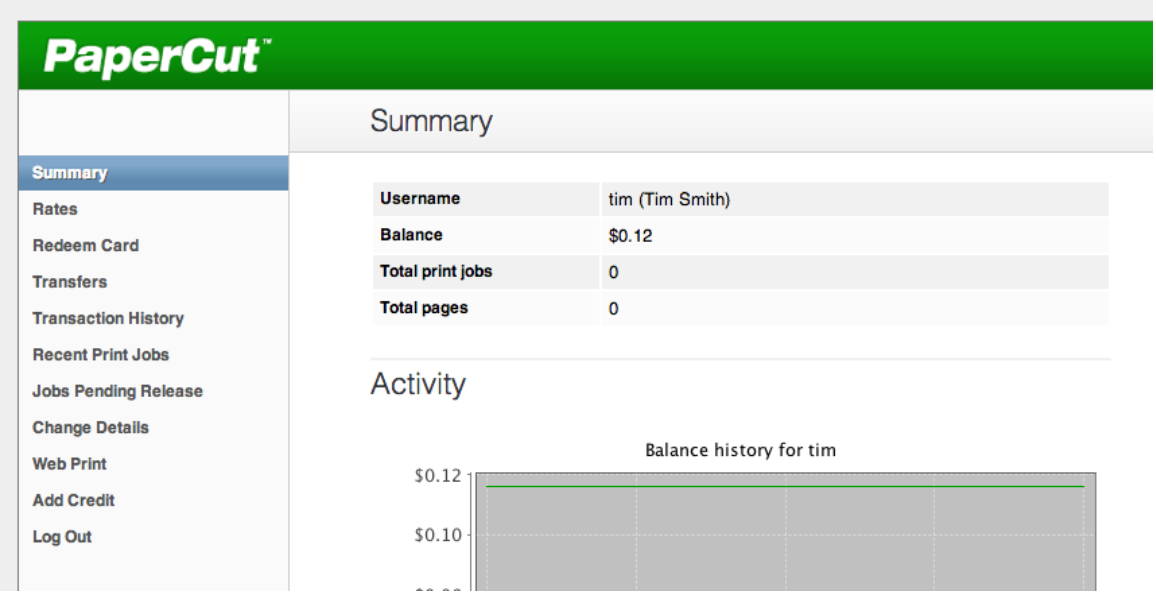
Manual transfers allow users to instigate a transfer of a selected amount from their CardSmith account into their PaperCut account.

This option does not require any additional hardware such as card readers.

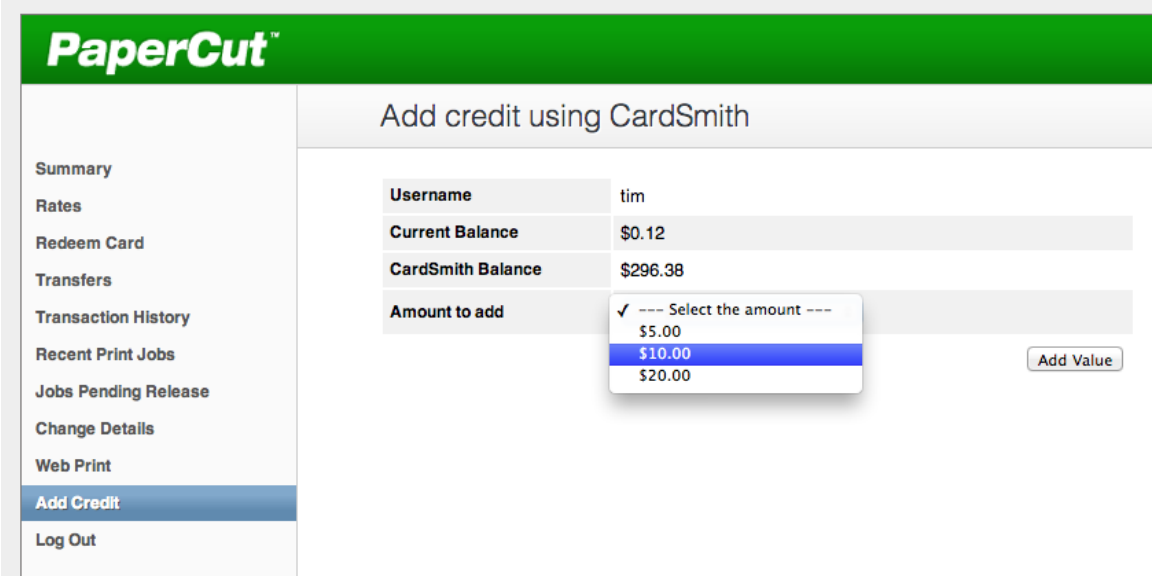
1. The user logs into the standard PaperCut user web interface.



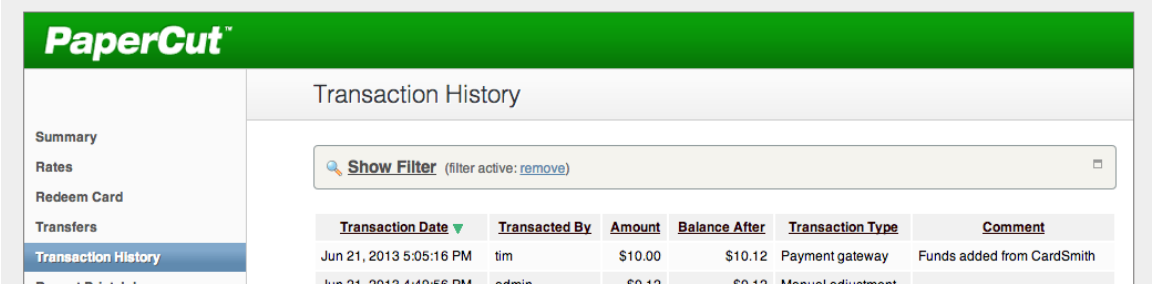
2. A new “Add Credit” link is available in the navigation menu. (The link will appear after the module is installed. The name of the link is configurable.)



3. The user clicks “Add Credit” and selects the amount to transfer. (The range of amounts can be defined by the administrator.)



4. After clicking the form Submit button, the selected amount, if available, is placed in the user’s account in realtime.
5. The end-user can view all details of their transaction history via the web interface.



3.2 Option 2: On-Demand Transfers

On-demand transfers occur when a user lacks sufficient balance to print a job. When this happens the system will automatically transfer funds from CardSmith into the user's PaperCut account as required, based on rules configured by the administrator.

This option does not require any additional hardware such as card readers.

The amount transferred may be just the amount required to print, or a batch amount. In batch mode $10 could be transferred whenever the user runs out of balance, for example, reducing the number of transfers that occur.

On-demand transfer example without batching:

1. User Betty has $0.10 in her PaperCut printing account.
2. Betty prints a job that costs $0.70.
3. The PaperCut CardSmith gateway transfers the required $0.60 into Betty's PaperCut account and the job is allowed to print.

On-demand transfer example with $5.00 batching:

1. User Betty has $0.10 in her PaperCut printing account.
2. Betty prints a job that costs $0.70.
3. Because the print job costs more than the value currently in her account, the PaperCut CardSmith gateway transfers the default batch transfer amount of $5.00, making a total of $5.10.
4. The job cost is deducted from the PaperCut account leaving Betty with $4.40 in her PaperCut account which may be used for future printing.

On-demand transfers are enabled and configured by the administrator. No user intervention is required, although users are provided with a full list of all transfers in the user web interface. If using batch transfers, sites should explain to users how the system works (e.g. default transfer amounts).

Notes:

- On-demand transfers can be enabled for specific groups, e.g. for students but not staff.
- Any free quota allocated to users is used first before making transfers from CardSmith.
- If the user is out of CardSmith funds the user will receive an "insufficient credit" message as normal (e.g. notified via the client software, or via email).

4 Prerequisites

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

4.1 CardSmith Settings and Configuration

Please contact CardSmith support for assistance with setting up the system for use with PaperCut.

The PaperCut payment gateway module requires the following information about your CardSmith setup:

- Your CardSmith merchant id, a 15 digit number that identifies your site to CardSmith.
- A “terminal” will need to be created and configured in CardSmith. This terminal represents the connection from PaperCut. The terminal’s id will be required, which is an 8 digit number.

These settings will be configured in the payment gateway configuration file.

4.2 Determine How PaperCut Will Find CardSmith Account Ids

The payment gateway requires a user’s CardSmith Primary Account Number (PAN) to perform a transaction against their CardSmith account. This requires a mapping between a user in PaperCut and their CardSmith PAN. There are two ways to achieve this:

1. By importing/storing the PAN in PaperCut. This is generally the easiest method if the PAN is readily available for import into PaperCut. See “*4.2.1 Populate CardSmith PANs into PaperCut Card/Identity Numbers”* below for more detail.
2. By using details about the user that are available for PaperCut to look up / map to a PAN in a database. This is useful when the PAN cannot easily be imported into PaperCut (or the card/id fields in PaperCut are used for a different purpose, such as authentication), but can be easily “looked up”. See “*4.2.2 Looking Up CardSmith PANs in a Database*” below for more detail.

4.2.1 Populate CardSmith PANs into PaperCut Card/Identity Numbers

This method involves importing the CardSmith PANs into PaperCut. It allows PaperCut to quickly and easily identify the information that needs to be sent to CardSmith without relying on external system.

If your card/id numbers are not already populated in PaperCut, take the time to do this now. There are a number of ways this can be done, including:

- Importing the numbers from Active Directory or LDAP. This is generally the simplest method and easiest to maintain, particularly if the account numbers are already stored in AD/LDAP. See the PaperCut user manual section “*Importing Card/Identity numbers from Active Directory or LDAP*” for more details.
- Pointing PaperCut to a database that contains the account numbers and can provide a mapping between the account number and the network username. This can be useful if there is a student management system or similar that contains the account numbers and usernames. See the user manual section “*Looking up account numbers in an external database*” for more details.

- Batch importing the account numbers from a text file. See the user manual section "*Batch User Card/Identity Update*" for more details.

4.2.2 Looking Up CardSmith PANs in a Database

This method involves using some information about a user that is available to PaperCut to look up a CardSmith PAN in a database. E.g. given a table of CardSmith PANs and network usernames, PaperCut knows the network username so it can look up the CardSmith PAN. E.g. given a table of CardSmith PANs and student ids, if the student id is stored in PaperCut then PaperCut can use this to look up a CardSmith account.

Configuration for database lookups can be found in the configuration file at [app-path]/server/lib-ext/ext-payment-gateway-cardsmith.properties, under the section titled "*CardSmith PAN Lookup Settings*". The configuration file provides further information and examples. For assistance please contact support.

5 Installation

This section covers the installation of the PaperCut payment gateway module. It 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.

5.1 Installing the Payment Gateway Module

1. The Payment Gateway Module will function during the PaperCut 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'.

2. Download the Payment Gateway Module from the PaperCut website:

   http://www.papercut.com/anonftp/pub/pcng/ext/payment-gateway/pcng-payment-gateway-module.exe

3. Install the module into the same directory as PaperCut. For example:

   `C:\Program Files\PaperCut NG\`

4. Open the file:

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

   in a text editor such as Notepad.

5. Locate the line `cardsmith-dti.enabled=N` and change the `N` to `Y`. This will enable the CardSmith module.

6. Enable (set to `Y`) one or both of the `cardsmith-dti.manual-transfers.enabled` and `cardsmith-dti.on-demand-transfers.enabled` options (see the End-User Overview section for more detail about these options).

7. Locate the option `cardsmith-dti.merchant-id` and enter the CardSmith-assigned merchant id that represents your site.

8. Locate the option `cardsmith-dti.terminal-id` and enter the CardSmith terminal id that PaperCut will use for transactions.

9. Take some time to review the configurable options available in the file. Options include custom labels, limits on the amount to transfer, access control and custom error messages. You may like to enable a group restriction to limit access to administrators until configuration is complete.

10. Save the file and exit the text editor.

6 Testing

The payment gateway module for CardSmith is now ready for testing. This test will involve performing a live transaction with the CardSmith system, testing end-to-end functionality.

To begin testing you will require a login for a user that has a card/id number that refers to an active account in CardSmith. The simplest way to achieve this is to manually enter a test CardSmith PAN in the “Card/Identity Number” field of a test user in the PaperCut administration interface.

6.1 Testing Manual Transfers

(Only if manual transfers are enabled)

1. Log into the PaperCut user web interface at http://papercut:9191/user (where papercut is the name of your PaperCut server)
2. A new link called Add Credit should appear on the left. Click this link.
3. Select and amount to add and click Add Value.
4. The requested amount will be transferred from the user’s CardSmith account into PaperCut. Check that the balance has been successfully adjusted via the Transaction History page. Check the records in CardSmith to ensure that the transfer is correctly accounted for.

6.2 Testing On-Demand Transfers

(Only if on-demand/automatic transfers are enabled)

1. Log into 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 $0.00 and ensure that the user is *restricted*.
3. Log into a workstation as this test user and perform a test print job.
4. The print job should trigger a transfer of credit from CardSmith and the print job should be allowed.
5. Log into 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 CardSmith into PaperCut (and then the deducted amount from PaperCut for the cost of the print job).
7. Check that the transferred amount is correctly accounted for in CardSmith.

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 payment gateway specific error messages and events.

Primary/Application Server 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.

Please feel free to contact the PaperCut Software Development Team via support@papercut.com if you require assistance.