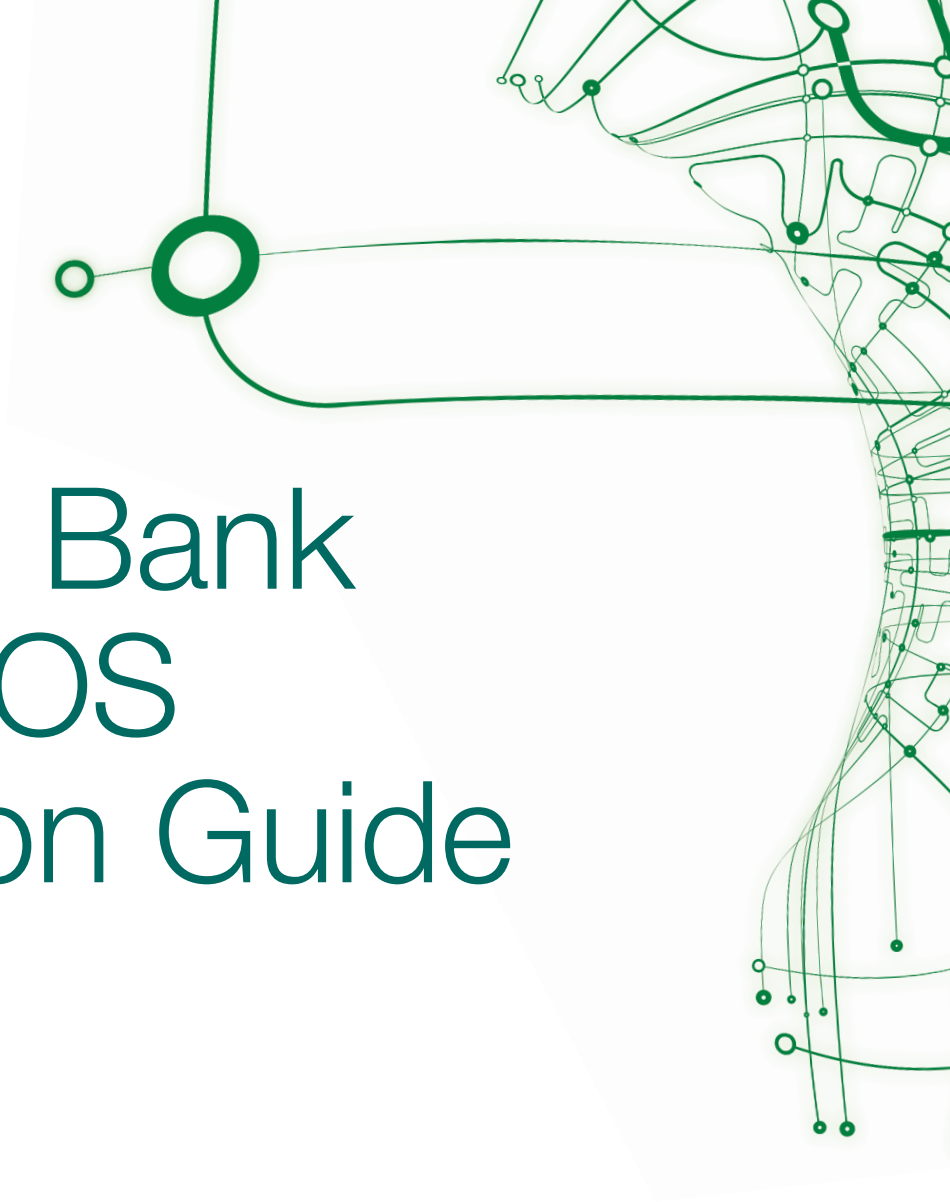

Suncorp Bank Virtual POS Integration Guide

December 2016

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Business

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Suncorp Bank
GPO Box 1453
Brisbane QLD 4001
Phone 13 11 55
www.suncorpbank.com.au

Contents

Preparing for Integration

Before you start integrating, you must determine if Suncorp Bank supports the functions that you require.

3-Party Payments Integration Model

3-Party Payments allow the Payment Server to manage the payment pages and collect the cardholders' card details on your behalf. The Payment Server's payment pages are Suncorp Bank branded to help assure the cardholder of a secure transaction. The advantage of 3-Party payments is that the complexity of securely collecting and processing card details is handled by the Payment Server, allowing you to focus on your application's part of the payment process.

The 3-Party Redirect method only works for web applications where a web browser is involved. This method is also required to implement 3-D Secure initiatives of MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™. The Redirect method works with most network configurations and you do not need to take into account proxy servers, as the information is communicated to and from the Payment Server using the cardholder's Internet browser.

The cardholder's Internet browser is redirected to take the Transaction Request to the Payment Server to process the transaction. After processing the transaction, the cardholder's Internet browser is returned to a web page that you nominate in the transaction together with a Transaction Response. The Transaction Response processing of the receipt information completes the transaction.

The three parties involved in a 3-Party transaction are the merchant, Suncorp Bank and the cardholder. The cardholder's browser provides the Redirect method to communicate the information between the merchant and Suncorp Bank. This is an asynchronous connection and the cardholder leaves your website to go to the Payment Server, which means the transaction is broken or disrupted into two distinct sessions, namely the creation of the Transaction Request and the processing of the Transaction Response.

Because of this, you may be required to capture session variables and include them in the Transaction Request so they can be passed back appended to the Transaction Response for restoring the original web session.

About Merchant IDs

To use Merchant Administration, a merchant profile is required. The profile is a record of merchant details and the permitted functionality that the merchant has within the MA portal; all details are stored on the MiGS Server. Two types of merchant profile are created through the bank's enrolment process:

- **TEST merchant profile**—allows merchants, within the test facility, to perform transactions against an emulator of the bank's transaction processing system. This profile will always exist for testing purposes. To access this facility, precede the merchant ID with the word TEST (i.e. MERCHANT01 becomes TESTMERCHANT01).

  In TEST mode only, the decimal value will determine the Acquirer/Issuer Response Code (e.g. 5995 will return an Acquirer Response Code of 95). Once you move to production the response will be provided by the Issuer and has nothing to do with the Amount's decimal value. Use an Amount that is a multiple of 100 to simulate an approved transaction during TEST mode (e.g. 100, 43500, 700).

  There are also test cards that will use the expiry date to determine the Response Code instead of the submitted Amount. The Suncorp Bank Support Team can provide the set of test card numbers.

- **PRODUCTION merchant profile**—activates merchants within the production system, allowing them to process transactions directly against the MiGS live transaction processing system. This profile is only activated once testing has been deemed sufficient by the bank.

Contact Suncorp Bank when you have completed your testing. The Production merchant ID must be enabled by Suncorp Bank first.

Note: The Access Code / Secure Hash Secret for the Test Merchant ID and the Production Merchant ID are different.

Prerequisites

This section lists the requirements and basic steps you need to take to build a successful integration.

Support Material and Information

You must have the following:

- Virtual POS Integration Reference Guide
- Example code for your site (written in ASP, JSP, PHP and Perl)
- Test Card setup document

Determine the Payment Model

- **Purchase** – requires a single transaction to transfer funds from the cardholder's account to your account.
- **Authorisation/Capture** – requires two transactions - the Authorisation, followed separately by a Capture.

Determine Any Advanced Functionality

The available advanced functionality includes:

- MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™. See Securing Your Payments on page 10.
- Capture
- Refund
- Voids
- QueryDR.

Look Up Your Access Code and Secure Hash Secret in Merchant Administration

You need your Virtual POS Access Code and Secure Hash Secret before starting your integration:

- **Access Code**

  The access code uniquely authenticates a merchant and the Merchant ID on the Payment Server.

- **Secure Hash Secret only**

  The Secure Hash Secret is a key used as the initial piece of encryption data to create a Secure Hash. This ensures transaction data is not tampered with while in transit to Virtual POS.

Your access code and secure hash secret can be found in Merchant Administration on the Configuration Details page of the Admin menu option.

To retrieve your Access Code and Secure Hash Secret:

1 Using your Merchant ID and log in details.

  Login to the new Merchant Administration website as Administrator:

  https://migs.mastercard.com.au/ma/suncorp

2 Select **Admin > Operators**.

3 Click on the *Create a new Merchant Administration Operator* link.

Ensure that you enable **Modify the merchant configuration**.

4 Click **Submit**.

5 Logout, then login again as the new Operator.

6 Select **Admin > Configuration Details**.

You will see the **Access Code** and **Secure Hash Secret**.

Determine the Input and Output Fields

Determine how you are going to get the Transaction Request input fields and where to store the Transaction Response output fields in your application.

You need to consider:

- **Session Variables** – When using 3-Party payment integration some applications may require session variables to be collected and sent to the Payment Server in the Transaction Request. The session variables are returned in the Transaction Response allowing your application to continue with the order process using the same application session. For more information on session variables see, *Handle Session Variables* on page 19.
- **Merchant Transaction Reference (vpc_MerchTxnRef)** – You need to determine how you are going to produce a unique value for a transaction using the vpc_MerchTxnRef field.

  For more, see *Merchant Transaction Reference (vpc_MerchTxnRef)* on page 8.

  The Merchant Transaction Reference is primarily used in the QueryDR function, which is used for reconciling timed out transactions.

MiGS Payment Server IP Addresses

You must ensure your system and firewall are set up to access both the primary and fallback (DR) MiGS Payment Server IP addresses. This is to ensure that when MiGS switches to the fallback address, your firewall will continue to permit connectivity to the MiGS Payment Server.

It is highly recommended that you validate the SSL certificate of the Payment Server—for both the primary and fallback (DR) servers—whenever you connect to the Payment Server

The MiGS Payment Server IP addresses are:

- MiGS primary IP address: 203.42.65.51
- MiGS fallback (DR) IP address: 216.119.208.69

Design and Implement the Integration

You are now ready to enable your application. This step requires a web developer familiar with both your application and the web programming language used in your web environment.

This guide provides the information and best practice guidelines to assist you with this task. You should also refer to the example code and Virtual POS Integration Reference Guide for further assistance.

Test Your Integration

You need to test your integration by performing test transactions. The Payment Server has a test acquirer facility to test all the different response codes that you are likely to encounter in a live environment.

Performing test transactions allows you to test your integration, so that you won't encounter problems when processing real transactions. For a list of card numbers to use for testing, refer to Appendix A.

Conduct Final Pre-Production testing

It is recommended that you follow standard IT practices and complete final pre production testing with live credit cards to validate that the end-to-end functionality works correctly, including successful settlement of funds from Suncorp Bank.

Remember you can always refund or void these test transactions.

Go Live

Once you are satisfied that your integration works correctly, advise Suncorp bank that your testing has been successfully completed.

Suncorp Bank will validate your testing results and then provide you with your production profile and instructions on how to change your website from test mode to live production mode, allowing you to process live transactions with Suncorp Bank.

Commence Live Online Payments

You should now be ready to launch your payment enabled application and start processing online payments from your cardholders.

Virtual POS Integration Guidelines

This section describes certain key issues that you must take into account while writing your integration code.

Reference Fields

It is helpful to have an understanding of the following fields when integrating your payment application.

Merchant Transaction Reference (vpc_MerchTxnRef)

The **vpc_MerchTxnRef** field is a unique identifier that the merchant assigns to each transaction. This unique value is used by the merchant to query the Payment Server database to retrieve a copy of a lost/missing transaction receipt using QueryDR function. This value is displayed with the transaction in Merchant Administration, and can also be used in transaction search criteria.

You can use a value like an order number or an invoice number as the foundation for the **vpc_MerchTxnRef**. However, if you want to allow cardholders to repeat a transaction that was declined and you want to keep the same order number (or invoice number), you must modify the **vpc_MerchTxnRef** for each subsequent attempt, by appending extra characters for each attempt. For example **vpc_MerchTxnRef** = '1234/1' on first attempt, '1234/2' on second attempt, and '1234/3' on third attempt, etc.

Under a fault condition, such as if the Transaction Response does not arrive back at the merchant's site due to a communication error, you may need to check if the transaction was carried out successfully. A unique **vpc_MerchTxnRef** makes cross referencing the transactional data easier.

This is achieved by performing a QueryDR command that will search the Payment Server's database for the transaction, based on the **vpc_MerchTxnRef**. If you have not given each transaction attempt a unique **vpc_MerchTxnRef** number, then there will be multiple results and the QueryDR command may not return the correct transaction attempt you are looking for, as it only returns the most recent transaction information.

Order Information/Order Reference

vpc_OrderInfo is an identifier provided by you to identify the order on the Payment Server database. This value is displayed in the Merchant Administration portal when manually searching orders. It can be an order number, an invoice number, or a shopping cart number.

The **vpc_OrderInfo** field is used to send a merchant specified reference, for example, Merchant's Invoice No = **vpc_OrderInfo**, and can be used to search for another in Merchant Administration.

Ensuring Successful Payments

It is recommended that you consult with security experts with experience in your web environment to ensure that your security implementation is suitable for your needs.

An issue that merchants have to deal with when implementing payments solutions is ensuring successful payments for the goods shipped. This includes ensuring the response integrity and identification/authentication of the Payment Server during the payment process.

To ensure that you are paid you can:

- Where possible, implement the 3-Domain Secure services of MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™. See *Securing Your Payments* on page 10.
- Manually check all transaction results at the Payment Server by logging into Merchant Administration before fulfilling each order.
- Automatically check transaction results at the Payment Server before fulfilling each order by using the Query DR functionality (if available).
- Automatically check and verify the integrity of each message when the payment is performed by using the Secure Hash functionality.

Manually Check Transaction Results Using Merchant Administration

This process suits merchants with very low volume sales. It requires you to log in to your Merchant Administration and run a report to view the OrderIDs and then match them against the orders logged on your website. If they match, you can ship the product, and follow up on or discard orders where the payment failed, or the payment does not exist.

The risk involved in manual checks is the possibility of incorrectly matching OrderIDs with the cardholders' orders. Also as volumes grow, the risk may become significant as would the time and cost involved completing the task.

Ensure Correct Character Encoding

The Payment Server only allows the use of ISO 8859-1 (Latin 1) characters. By default all incoming data is assumed to be encoded as ISO 8859-1. This default encoding is also safe for incoming data encoded as US-ASCII.

Note: The Payment Server will still only accept characters which are valid in the ISO 8859-1 encoding. Providing data in an encoding such as UTF-8 will ensure that the Payment Server correctly interprets those characters, but it will still reject the request if any character cannot be represented in ISO 8859-1.

3-Party Payment Model

If you are using HTTP GET to pass in data then you **MUST NOT** pass in any characters outside of the ISO 8859-1 character set. Any such characters cannot be correctly decoded by the Payment Server.

Automatically Check the Integrity of 3-Party Transactions Using Secure Hash

The Secure Hash is used to detect the cardholder modifying a Transaction Request or Transaction Response when passing it through their cardholder's browser. Using the Secure Hash ensures a high level of trust in the transaction result.

The benefit of using Secure Hash is that the integrity of each response can be checked without having to create a new SSL connection to the Payment Server for each transaction.

The Secure Hash Secret must be kept secret to provide security and should be changed periodically for this method to be effective

The Secure Hash method is **only applicable when using the 3-Party Payments integration model.**

Note: It is critical that you verify that the Secure Hash of the Digital Receipt / Transaction Response is correct.

See *Detect alteration of Requests and Responses using Secure Hash* on page 13.

Securing Your Payments

This section describes the security features available for Virtual POS. It is recommended that you understand this section before you start integrating your application with Virtual POS.

Protecting Cardholder Information Using SSL

All websites collecting sensitive or confidential information need to protect the data passed between the cardholder's Internet browser, the application and the Payment Server.

SSL is a security technology that is used to secure web server to Internet browser transactions. This includes the securing of any information (such as a cardholder's credit card number) passed by an Internet browser to a web server (such as your web “Shop & Buy” application). SSL protects data submitted over the Internet from being intercepted and viewed by unintended recipients.

The Payment Server is responsible for securing the cardholder details when you implement the 3-Party integration model. It uses SSL, which encrypts sensitive financial data to provide a secure transmission between a cardholder and the Payment Server.

When implementing the 3-Party integration model you must ensure your application presents a secure form using SSL. You should also consider using a secure form in your application when collecting confidential information such as cardholder addresses.

Note: SSL should be used for 3-Party. This avoids the possible browser alert message indicating that the cardholder is being redirected to an unsecured site. This can happen when the cardholder's browser is being redirected back to the merchant's website with the encrypted Transaction Response for decryption.

If the cardholder clicks on 'No' within the pop-up message, then neither the cardholder nor the merchant will receive any receipt details.

How Do My Cardholders Know If My Site is Using SSL?

When a cardholder connects to your application using SSL they will see that the http:// changes to https:// and also a small gold padlock will appear in their Internet browser, for example:

Whenever an Internet browser connects to a web server (website) over https:// this padlock symbol signifies that communication with the Payment Server is encrypted and secure.

You can alert your customers to this fact so they know what to look for when transacting on your website.

Using 3-D Secure Payment Authentications

3-D Secure Payment Authentication contains MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™, which are designed to minimise credit card fraud by attempting to authenticate cardholders when performing transactions over the Internet. Authentication ensures that a legitimate owner is using the card as the Payment Server redirects the cardholder to their card issuing institution where they must enter a password that they had previously registered with their card issuer.

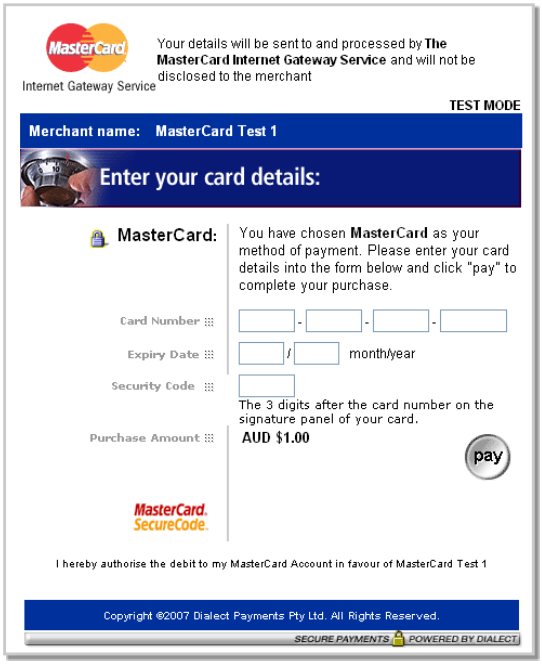
To use MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™ you need to request a 3-D Secure enabled merchant profile from Suncorp Bank and implement the 3-Party Payment integration model.

Note: Payment authentication is only supported for web transactions using 3-Party Payments through a browser. This is because the cardholder's web browser must be redirected to their card issuing bank.

For the information flow of a 3-Party Authentication and Payment transaction see *3-Party Payment Information Flow*.

If the merchant is using 3-D Secure payments, the payment page displays the appropriate 3-D Secure logo.

The following example shows a MasterCard SecureCode request screen on the payment page:



The following example shows the Verified by Visa request screen on the payment page:

The following examples show a MasterCard SecureCode and Verified by VISA request screen as seen by the customer:

Best Practices to Ensure Transaction Integrity

The following Best Practices are guidelines only. It is recommended that you consult with security experts with experience in your web environment to ensure that your security is appropriate for your needs.

Use a Unique MerchTxRef for Each Transaction Attempt

Each transaction attempt should be assigned a unique transaction reference ID. Most applications and web programming environments will generate a unique session for each cardholder, which can be used as the unique merchant transaction reference ID. You can alternatively create a unique reference ID by combining an order or invoice number with a payments attempt counter. You may also consider appending a timestamp to the transaction reference ID to help ensure that each one is unique.

Before sending a transaction to the Payment Server, you should store this unique transaction reference ID with the order details in your database. The merchant transaction reference ID is returned in the Transaction Response.

The unique transaction reference ID is required for you to reliably use the QueryDR function to retrieve the transaction details you may be searching for. For example, if a transaction is reported as lost or missing, you can use QueryDR to locate it.

Check for a replay of a transaction

You should check each Transaction Response to ensure that your unique Merchant Transaction Reference ID (**vpc_ MerchTxnRef**) matches that order, and that it does not correspond with any previous order that has already been processed.

Check That the Field Values in the Response Match Those in the Request

You should ensure that important fields such as the amount and the merchant transaction reference ID in the Transaction Response match the values input to the original Transaction Request.

Check for suspect transactions

Common things to look out for are:

- Use of free or anonymous email by the cardholder
- Different Ship To and Bill To addresses
- Foreign orders or shipments from countries with reputations for high fraud activities
- High-priced orders
- Multiples of the same item.

Note: It is recommended that you do not store any credit card information in your website database. If you must store credit card numbers, they should be securely hardware encrypted, or you should store them as masked values (for example, 498765XXXXXXX769).

Use Good Password Security for Merchant Administration

It is highly recommended that you choose a password that is difficult to guess and that you change your password regularly. A good password should be at least 8 characters and should contain a mix of capitals, numbers and special characters.

Validate the SSL Certificate of the Payment Server

It is highly recommended that you validate the SSL certificate of the Payment Server—for both the primary and fallback (DR) servers—whenever you connect to the Payment Server. The Payment Server SSL certificate is issued by an industry standard Certificate Authority whose root certificate should already be available in your web environment.

Note: Consult a web developer if you are not familiar with validating SSL certificates or exporting certificates from websites. Always ensure the server is a trusted source.

Detect alteration of Requests and Responses using Secure Hash

MiGS supports SHA-256 secure hash methods.

Virtual POS uses a secure hash in transaction security as it is used to detect whether the Transaction Request and Transaction Response have been tampered with. The Secure Hash Secret is generated by the Payment Server and assigned to you. It is a unique value for each merchant and is made up of alphanumeric characters. Only you and the Payment Server know what the Secure Hash Secret value is.

Your Secure Hash Secret is used along with the Transaction Request details to generate a secure hash, which is appended to the Transaction Request. Because the Payment Server is the only other entity apart from your application that knows your Secure Hash Secret, it is the only other entity that can recreate the same secure hash:

- If the secure hash recreated by the Payment Server is equal to the secure hash sent in the Transaction Request, it means that the Transaction Request has not been tampered with. The Payment Server will continue to process the payment.
- If the secure hash recreated by the Payment Server does not equal the secure hash sent in the Transaction Request it can be assumed the data has changed in transit. The Payment Server will not process the payment and will return the cardholder to your site with an error message in the Transaction Response.

After processing the transaction, the Payment Server uses your Secure Hash Secret and the Transaction Response details to generate a secure hash which is sent to your application. Your application uses the Secure Hash Secret and the Transaction Response details received from the Payment Server to also generate a secure hash. If your generated secure hash matches the secure hash sent by the Payment Server, the Transaction Response has not been tampered with.

If your generated secure hash does not match the secure hash sent by the Payment Server, the Transaction Response has been tampered with and should be checked against the data stored in the Payment Server. This can be done by using a QueryDR (if available) or manually using Merchant Administration.

The Secure Hash Secret is never sent from the application to the Payment Server or from the Payment Server to the application. It is held securely at both sites and is only used as a seed in the generation of the secure hash.

Store Secure Hash Secret Securely

You must keep your Secure Hash Secret stored securely. Do not store your secret within the source code of an ASP, JSP, or other website page as it is common for web server vulnerabilities to be discovered where source code of such pages can be viewed.

You should store your Secure Hash Secret in a secured database, or in a file that is not directly accessible by your web server and has suitable system security permissions.

You should change your Secure Hash Secret regularly in accordance with your company's security policy, and any time when you believe that its security may have been compromised.

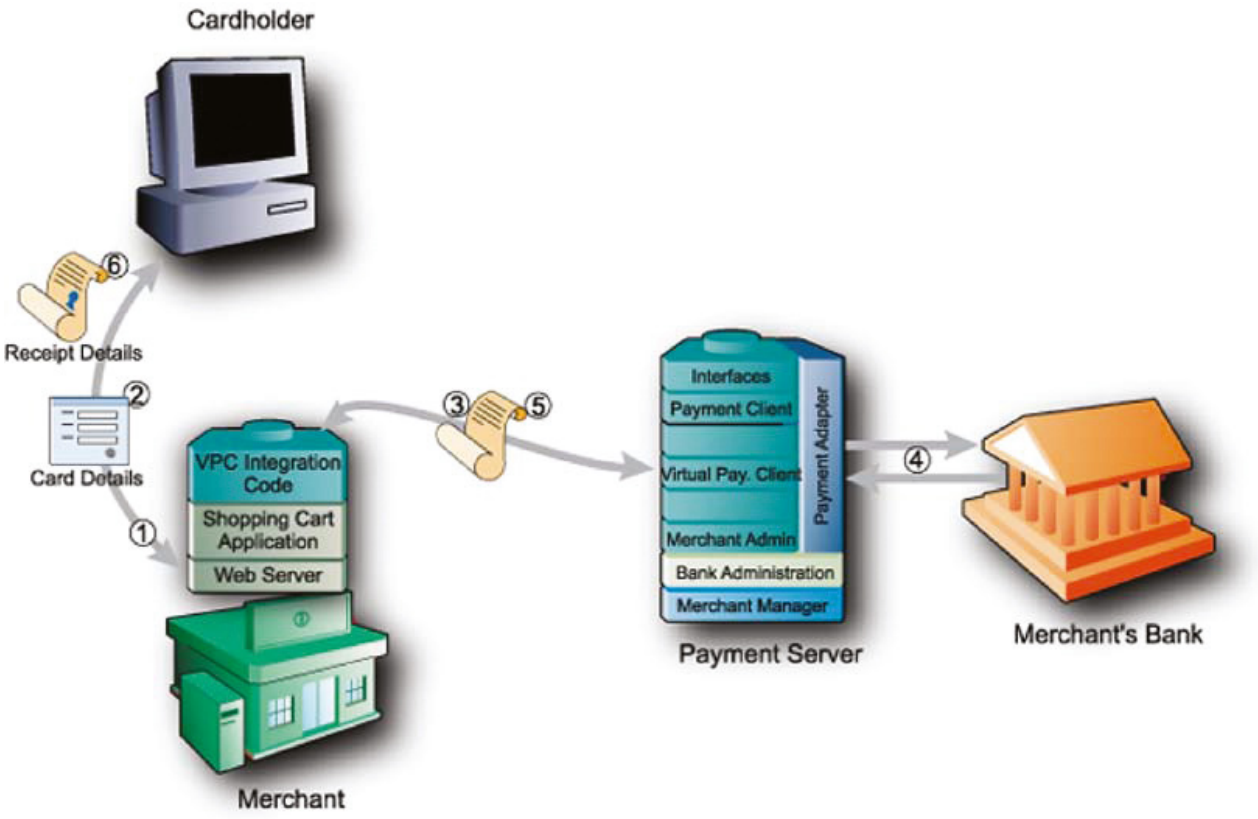
You can change your Secure Hash Secret in Merchant Administration via the Configuration Details page of the Admin option. For more information, refer to your Merchant Administration User Guide.

Integrating 3-Party Payments

This section describes the information flow and integration model for 3-Party Payments. The three parties involved in a 3-Party transaction are the merchant, Suncorp Bank and the cardholder.

3-Party Payments allow the Payment Server to manage the payment pages and collect the cardholder's card details on your behalf. The cardholder's Internet browser is redirected to take the Transaction Request to the Payment Server to process the transaction. After processing the transaction, the cardholder's Internet browser is returned to a web page that you nominate in the transaction together with a Transaction Response. The Transaction Response processing of the receipt information completes the transaction.

3-Party Payment Information Flow



The following is the information flow in a 3-Party transaction:

1. A cardholder browses your online store, selects a product and enters their shipping details into your online store at the checkout page.
2. The cardholder clicks a pay button and your online store sends the payment request to the Payment Server by redirecting the cardholder's Internet browser to the Payment Server.
3. The Payment Server prompts the cardholder for the card details using a series of screens.

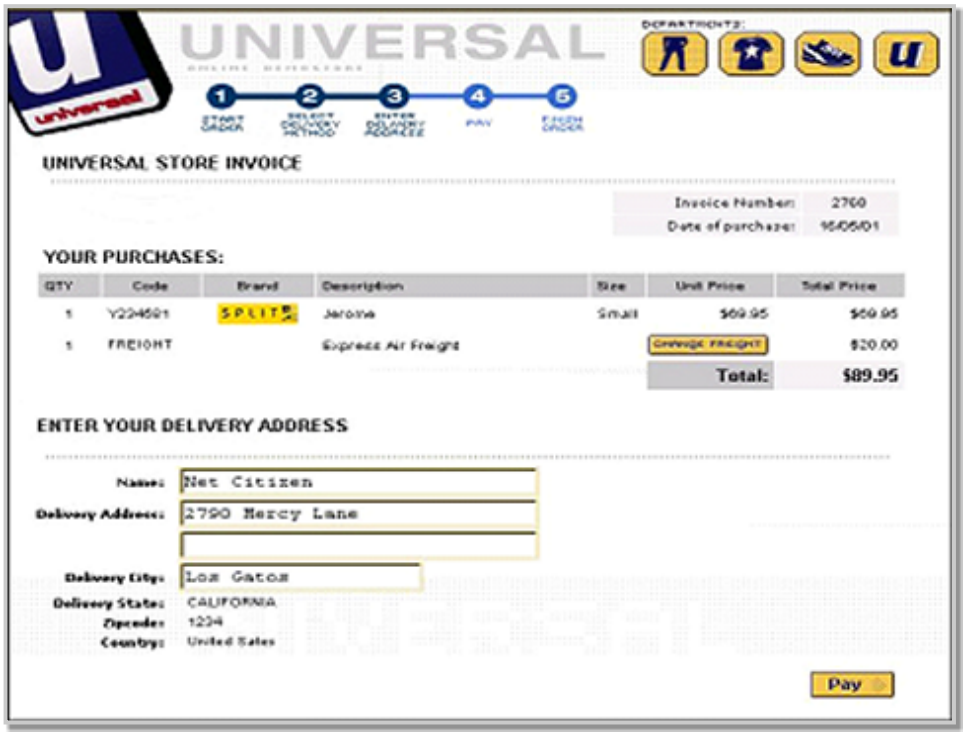
   The first screen displays the cards supported, for example MasterCard, Visa, and American Express. The cardholder chooses the card type they want to use for the transaction.

   The second screen accepts the details for the chosen card such as card number, card expiry date, and card security number if required.
4. The Payment Server passes the details to the acquirer bank to process the transaction. After processing, the Payment Server displays the result of the transaction with a receipt number if it was successful, or an appropriate information message if it was declined. It then advises the cardholder to wait while they are redirected back to the merchant's site.
5. The Payment Server then redirects the cardholder back to merchant's site with the transaction response. The response contains the result of the transaction.
6. The online store interprets the response, displays the receipt and confirms the order to the cardholder for their records.

What the Cardholder Sees

In 3-Party Payments, the cardholder is presented with the following pages:

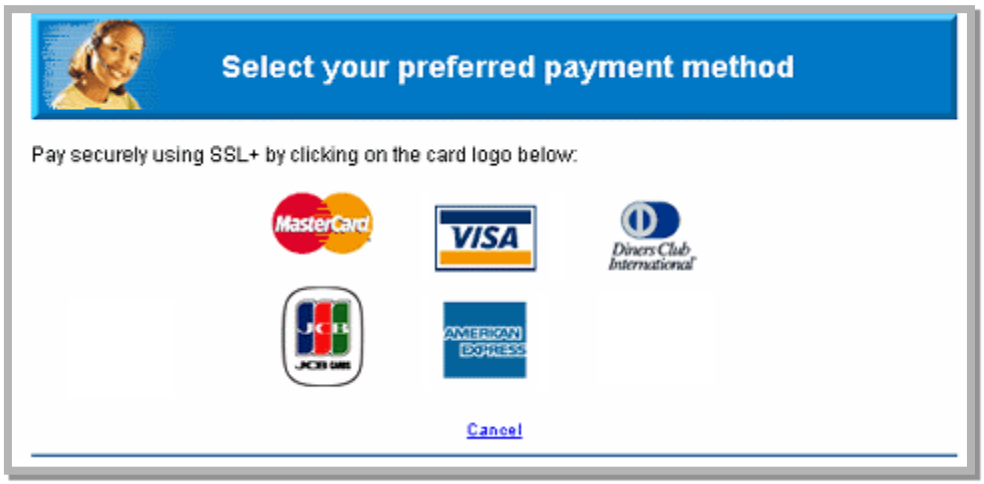
1. The merchant's application checkout page.



The application checkout page displays the line items that the cardholder wants to purchase and the total amount to pay, including any delivery charges and taxes. The cardholder accepts the amount and proceeds to the payment server payment pages to enter their card details. The application checkout page is created by the merchant and displayed on their website.

2. The Payment Server's payment options page.

   Suncorp Bank creates this page and the following pages.



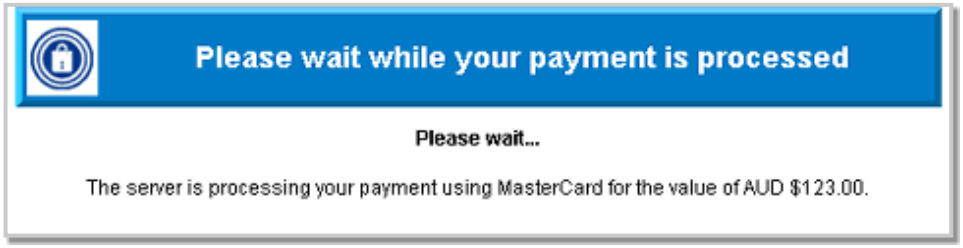
The payment options page presents the cardholder with the card types the merchant accepts. The cardholder clicks a card type and proceeds to the Payment Details web page.

3. The Payment Server's payment details page.

On the Payment Details page, the cardholder enters their card details including the card number, expiry date and card security code (if applicable). Then the Payment Server processes the payment.

4. The Payment Server's payment pending page.

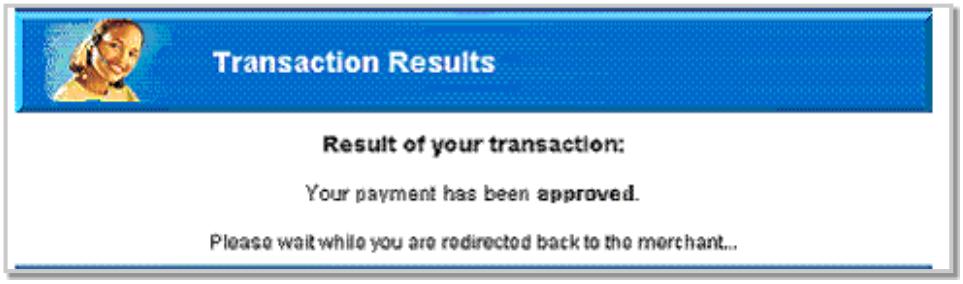
As the bank is processing the payment, a payment pending page can be displayed to the cardholder.



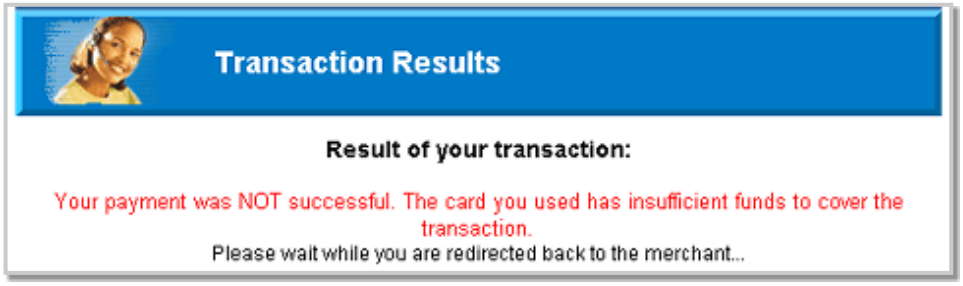
5. The Payment Server's redirection page.

The redirection page is displayed in the cardholder's browser and the Transaction Response is passed to your application.

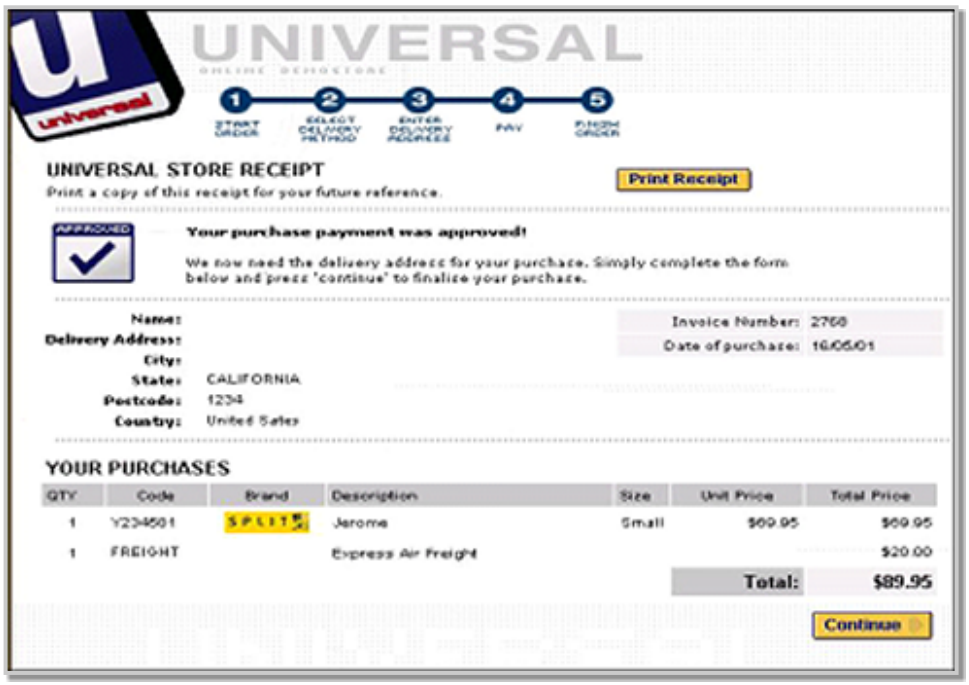
A successful transaction would appear as follows.



A declined transaction would appear as follows.



6. The merchant's application receipt page.



The application receives the Transaction Response and displays a receipt page. The application receipt page is created by you and displayed on your website.

Integrating 3-Party Payments with Virtual POS

To process a payment your application needs to be integrated with Virtual POS in order to:

- Create the secure hash signature
- Send it with the Transaction Request, and
- Check that the secure hash signature in the Transaction Response is valid for the received data.

To do this you need to do the following:

Handle a Transaction Request

1. Add any variables required by the application to re-create the session before the Transaction Request has been processed. These should be included in the secure hash signature.
2. Collect the minimum required information for a Transaction Request. This includes your MerchTxnRef, Merchant ID, an Order Information field, the Transaction Amount, the Locale and the Return URL to which the Payment Server needs to redirect the cardholder.

   You may require additional information fields when using optional features.
3. Formulate a Transaction Request using the fields outlined above.
4. Redirect the cardholder's Internet browser using the Transaction Request you just created. At this point the cardholder session with your application is interrupted while the cardholder is redirected to the Payment Server.

An example of the start of a Transaction Request is:

```
https://Virtual_Payment_Client_URL/vpcpay?vpc%5FVersion=1&vpc%5FLocale=en&vpc%5FCommand=pay&vpc%5FAccessCode=A8698556&vpc%5FMerchTxnRef=123&vpc%5FMerchant=TESTMERCHANT&vpc%5FOrderInfo=Example&vpc%5FAmount=100&vpc%5FReturnURL=http%3A%2F%2FMerchant_Web_URL%
```

What the Payment Server does

When a Transaction Request arrives at the Payment Server, the Payment Server checks the digital secure hash signature on the Digital Receipt, and:

- If the digital signature is correct, it decrypts the encrypted Digital Receipt data and:
  - Displays the card selection page for the cardholder to choose their card type
  - Displays the card details page so that the cardholder can provide the card details for the selected card type
  - Processes the data and sends the Transaction Response to the acquiring bank so that the funds can be settled into the merchant's account
  - Sends back a Transaction Response to the website page (as nominated by the ReturnURL in the Transaction Request) indicating whether the transaction was successful or declined. The Payment Server generates a signature hash that is sent with the data
  - Sends back error messages, for example if there is a communication error in the banking network and the transaction cannot proceed.
- If the digital signature is incorrect:
  - Returns the cardholder to the merchant with a Transaction Response with an error message indicating the signature was invalid in the Transaction Request. No payment takes place.

Handle a Transaction Response

The Transaction Response is returned to your website using an Internet browser redirect as specified in the vpc_ReturnURL field. The DR will always have a secure hash for the online store to check data integrity. An example of the start of a transaction response is:

```
http://Merchant_Site_URL/Receipt.asp?vpc_AVSResultCode=Unsupported&vpc_AcqAVSRespCode=Unsupported&vpc_
AcqCSCRespCode=Unsupported&vpc_AcqResponseCode=00&vpc_Amount=100&vpc_AuthorizeId=020072&vpc_BatchNo=20051209&vpc_
CSCResultCode=Unsupported&vpc_Card=MC&vp
```

The merchant application receipting function needs to be able to calculate the secure hash signature in the Transaction Response to determine if the signature received is valid for the receipt data. It has to handle:

- Incorrect secure hash signatures
- Successful transactions
  - If **vpc_TxnResponseCode** code is equal to '**0**' then the transaction was completed successfully and you can display a receipt to the cardholder.
- Declined transactions
  - If **vpc_TxnResponseCode** is equal to '**1**', '**2**', '**3**', '**4**', or '**5**' the transaction has been declined and this needs to be conveyed back to the cardholder.
- Error Conditions –
  - If **vpc_TxnResponseCode** equals '**7**' or '**8**' an error has occurred
  - Other values may also indicate an error has occurred
  - Further details for error conditions can be gathered by examining the **vpc_Message** field so a decision can be made as to the next step.

All four of these conditions are responses that can be returned from Virtual POS.

Handle Session Variables

A session begins when a cardholder enters your website and ends when they leave your website.

Some merchant applications use session variables to keep track of where the merchant application is up to and to prevent unauthorised entry without the cardholder signing in.

Other applications create session variables in other ways. Some applications do not create session variables at all. If there are no session variable(s) in your application then the next section will not apply.

Sending Session Variables to the Payment Server

When using 3-Party Payments, Virtual POS requires the cardholder's browser to support cookies.

Session variables that are required to identify the users must be collected and sent to the Payment Server. The session variables are not used by the Payment Server, but are returned appended to the Transaction Response.

You can store up to five session variables using any name that your application needs, providing:

- They conform to HTTP or HTTPS protocols. To make them conform to the standard URL, you need to URL encode all session variables before sending them.
- A URL can only be a maximum total of 2047 characters long, otherwise the browser will not perform a redirect function.
- Their names must not start with **vpc_**.

With a SHA-256 HMAC secure hash, you must not use session variables. For more information, see **Creating a SHA- 256 HMAC Secure Hash** in Virtual POS Integration Reference Guide.

The session variables are not stored in the Payment Server database. Virtual POS will send these session fields back to the merchant application in the Transaction Response. This allows the merchant application to recover the session variables from the Transaction Response, and use them to restore the session.

Additional 3-Party Functionality

The Payment Server provides you with additional ways to process payments, for example:

- Where the merchant collects the cardholder's card type
- Where the merchant collects all the cardholder's card details
- Where the merchant is enabled for MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™. For more information, see *Using 3-D Secure Payment Authentications* on page 11.

3-Party Payments using Verified by Visa™ and MasterCard SecureCode™

In 3-Party Payments you can have Suncorp Bank enable you to use MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™, which provide additional security to these your payments. This type of transaction requires the 3 Party model, and works by redirecting the cardholder to their card issuer to enter a password. For more information, see *Using 3-D Secure Payment Authentications* on page 11.

MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™ can be implemented using a standard 3-Party transaction; a 3-Party transaction where you bypass the card selection page (EPS); or a 3-Party transaction where the merchant supplies full card details.

You can choose with this last transaction type to bypass all the Payment Server payment pages displayed. This can be helpful if you want to keep merchant branding consistent throughout a 3-Party MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™ transaction, except for the one page where the cardholder types in their password. You can achieve this by providing the following card details in extra fields in the Transaction Request. These fields are: Card Number, Card Expiry, Gateway and Card Type. You can also submit Card Security Code and any other optional data at this point.

You must have the EPS, VbV and 3-Party privileges enabled in your merchant profile if you wish to use this functionality. Contact your Suncorp Bank to have these, and any other 3-Party privileges enabled.

Supplementary Transactions

To implement the supplementary features available on the Payment Server, you need to add additional data to the Transaction Request.

Multiple supplementary features may be combined in the one Transaction Request, but you need to ensure that the functionality being implemented can be combined.

Some additional data returned in the Transaction Response can be accessed using the appropriate key value.

Card Security Code (CSC/CVV2)

The Card Security Code (CSC) is a security feature used for card not present transactions that compares the Card Security Code on the card with the records held in the card issuer's database.

On MasterCard and Visa credit cards, the CSC is the three-digit number printed on the signature panel on the back.

On American Express cards, the CSC is the four-digit number printed on the front above the credit card account number.

In a standard 3-Party transaction the Payment Server requests this information from the cardholder. The level of the match between what the cardholder's issuing institution has on file and what the cardholder has provided in the transaction determines if the transaction will complete successfully or fail.

In most cases where the transaction fails due to the CSC not being accepted, it results in a declined transaction with **vpc_TxnResponseCode** = "2" – "Bank Declined Transaction".

The CSC result code (**CSCResultCode**) is returned which indicates the level that the CSC code matches the data held by the cardholder's issuing institution. However, this is not always provided and may show up as "Unsupported".

Note: If CSC is collected by the merchant, this data is never to be stored or retained. This includes storing it in a log file.

CSC is mandatory in some countries and regions.

Furthermore, not all banks support CSC, so even though CSC data is passed in the transaction data, if the issuing bank does not support CSC, it is ignored.

Merchant Transaction Source

Merchant transaction source functionality allows a merchant to indicate the source of a transaction. These can be

- INTERNET – indicates an Internet transaction
- MOTOCC – indicates a call centre transaction
- MOTO – indicates a mail order or telephone order
- MAILORDER – indicates a mail order transaction
- TELORDER – indicates a telephone order transaction
- VOICERESPONSE – indicates that the merchant has captured the transaction from an IVR system.

Merchants and acquirers can optionally set the merchant transaction source so the Payment Provider can calculate correct fees and charges for each transaction.

Note: If this field is not present the default value set in the Merchant ID Profile will be used.

Merchant Transaction Frequency

Merchant transaction frequency functionality allows a merchant to set the frequency of the transactions for the cardholder's order.

This can only be used if the merchant has the privilege set to use this functionality, otherwise the transaction is set to the merchant's default transaction source as defined by Suncorp Bank.

The frequencies are:

- SINGLE – indicates a single transaction where a single payment is used to complete the cardholder's order
- INSTALMENT - indicates an instalment transaction where the cardholder authorises the merchant to deduct multiple payments over an agreed period of time for a single purchase.
- RECURRING – indicates a recurring transaction where the cardholder authorises the merchant to automatically debit their account for bill or invoice payments. This value only indicates to the acquirer that this is a recurring type payment it does not mean that the merchant can use the Payment Server's Recurring Payment functionality.

Note: The Payment Server does not contain a recurring payment facility to automatically trigger a recurring payment. The merchant is responsible for generating recurring payments.

Note: If this field is not present, the default value set in the Merchant ID Profile will be used.

Enhanced Industry Data

Although Enhanced Industry Data functionality was originally designed for the travel industry, this functionality allows the merchant to enter any industry related data to be stored on the Payment Server for that transaction. It includes fields for:

- Ticket Number – allows the merchant to submit airline ticket number in the Transaction Request, including Capture transactions. The previous ticket number is overwritten when a new ticket number is submitted. The Payment Server does not maintain an audit record of these changes. You can view the latest Ticket Number in the search results of a Transaction Search using the Merchant Administration portal on the Payment Server.
- Addendum Data – allows the merchant to include industry specific data in the Transaction Request. The data can include passenger names, ticket numbers, hotel bookings, etc. The addendum data is stored in the database, which may be used in creating reports external to the Payment Server.

Both Ticket number and Addendum Data are passed with the Transaction Request and stored on the Payment Server. The ticket number is passed to the financial institution as part of certain transactions.

Ticket Number

Ticket Number functionality allows the merchant to enter additional information in the Transaction Request about the transaction that will be stored in the Payment Server database. Although the ticket number was originally designed for the travel industry, it can be any alphanumeric data about the transaction up to 15 characters. The ticket number is passed to the acquirer in the settlement file.

You can view the Ticket Number field in the search results of a Transaction Search using the Merchant Administration portal on the Payment Server.

Payment Authentication

MasterCard® SecureCode™ (MasterCard 3-Domain Secure), Verified by Visa™ (Visa 3-Domain Secure), and J/Secure™ (JCB 3-Domain Secure) are payment authentications designed to reduce credit card fraud by authenticating cardholders when performing transactions over the Internet.

A payment authentication is performed immediately before a merchant performs an authorisation or purchase. Authenticating ensures that the card is being used by its legitimate owner.

During a transaction, authentication allows a merchant to confirm the identity of the cardholder by redirecting them to their card issuer where they enter a password that they had previously registered with their card issuer.

Merchants using 3DS can be configured to block any transaction that fails 3DS authentication. A transaction is considered to fail 3DS authentication if it results in a Verification Security Level of '07'. A blocked transaction results in a Dialect Response Code of 'B', which is included in the DR and displayed in the Financial Transaction Details page.

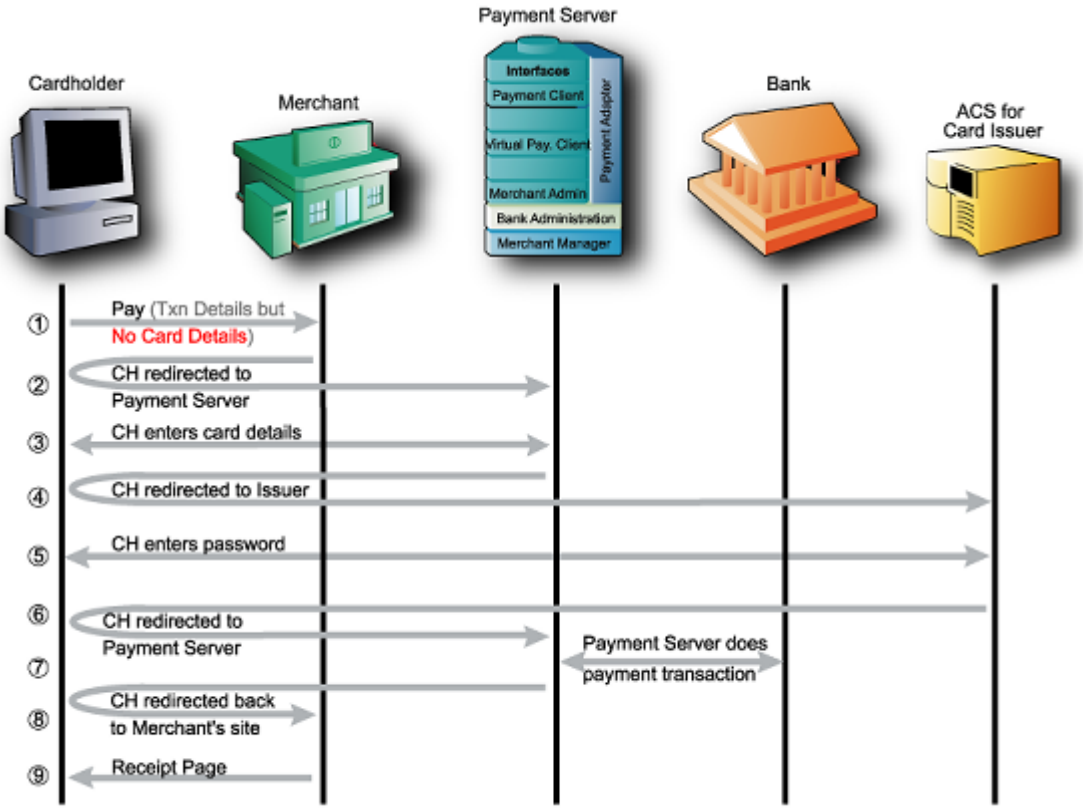
Note: 3DS Authentication can only take place if the merchant is using a 3 Party model of transaction as the cardholder's browser has to be redirected to their card issuing bank where they enter their secret password. This is performed by the Payment Server if the cardholder is enrolled in the 3DS schemes of MasterCard® SecureCode™, Verified by Visa™ or JCB J/Secure™.

Payment Authentication 3-D Secure transaction modes

1. **Combined 3-Party Authentication and Payment transaction –** the merchant uses the Payment Server to perform the authentication and payment in the one transaction.

   The Payment Server, and not the merchant's application, collects the cardholder's card details. The Payment Server redirects the cardholder to the card-issuing bank to enter their 3-D Secure password. If the authentication is performed correctly the Payment Server uses the authentication information to perform the payment transaction.

Implementing a 3-Party Authentication and Payment transaction (Payment Server collects card details)



The information flow for a successful 3-Party Authentication and Payment transaction is very similar to a standard 3-Party transaction.

1. The cardholder submits the order.
2. The browser is redirected to the Payment Server.
3. The Payment Server collects the cardholder's card details and determines if the cardholder is enrolled in 3-D Secure.

   If the card is not enrolled in 3-D Secure then steps 4, 5 and 6 are skipped.
4. The Payment Server redirects the cardholder's browser to the Access Control Server (ACS) site for authentication.
5. The ACS displays the cardholder's secret message and the cardholder enters their password, which is checked with the Card Issuer system.
6. The cardholder is redirected back to the Payment Server and the card issuer returns an authentication message showing whether or not the cardholder's password matched the password in the card issuer system. If the authentication failed, step 7 is bypassed and the cardholder is redirected back to the merchant (step 8) with a **vpc_TxnResponseCode** of 'F'. No payment takes place in this scenario.
7. If the cardholder is authenticated correctly, the Payment Server continues with processing the payment part of the transaction. The cardholder is redirected back to the merchant, where the receipt is passed back to the merchant.
8. The merchant displays a receipt page to the cardholder to indicate whether the transaction was successful or not.

Advanced Merchant Administration (AMA)

There are a number of additional transactional options that you can implement.

Merchants and users who need AMA transactions must have a username, password and be set up with the appropriate AMA privileges to perform a particular AMA transaction.

Capture

The AMA Capture command allows you to capture the funds from a previous authorisation transaction.

A merchant that operates using Authorisation/Capture mode performs two transactions to transfer the funds into their account.

1. The first transaction (Authorisation) reserves the funds on the cardholder's credit card account.
2. The second transaction (Capture) transfers the funds from the cardholder's account to the merchant's account.

Capture allows you to complete a transaction performed using the Authorisation/Capture Payment Model. The capture transaction initiates the transfer of funds from the cardholder's account to your account.

Note: In Purchase mode, the authorisation and capture operations are completed at the same time in the one purchase transaction, so a separate capture is not needed. This Capture command is not necessary if you are operating in Purchase mode.

There are two ways you can capture the funds from an authorisation transaction:

1. Manually using Merchant Administration. This is the simplest method if you do not have many transactions. For more information, refer to your Merchant Administration User Guide.
2. Using the Capture command in Virtual POS to directly perform the capture transaction from your application.

Suncorp Bank allows merchants to perform as many capture transactions on the original authorisation transaction as required, but the total amount captured cannot be more than the amount specified in the original authorisation transaction, unless the excessive capture privilege is enabled.

Refund

AMA Refund allows you to refund funds for a previous purchase or capture transaction from your account back to the cardholder's account.

Refunds can only be performed for a previously completed purchase or capture transaction for the particular order. You can perform any number of refund transactions on the original transaction, but cannot refund more than has been obtained via a purchase or capture transaction.

There are two ways to refund the funds:

1. Manually using Merchant Administration. This is the simplest method if you do not have many Refund transactions. For more information, refer to your Merchant Administration User Guide.
2. Using the AMA Refund command in Virtual POS to directly perform refunds from your application.

Void Capture

AMA Void Capture allows you to void a previous capture transaction in Auth/Capture mode that has not been processed by the acquiring institution.

This command cannot be used if you are operating in Purchase mode.

You can only perform one void capture transaction on the original capture transaction, as it completely removes the capture transaction as though it never occurred.

A void capture must be performed before the batch containing the original capture transaction is processed by the acquiring institution.

There are two ways you can perform a Void Capture. Suncorp Bank must enable this function on your Merchant Profile for you to use either of these methods:

1. Manually using Merchant Administration. This is the simplest method if you do not have many Void Capture transactions. For more information, refer to your Merchant Administration User Guide.
2. Using the Void Capture command in Virtual POS to directly perform Void Captures from your application. You must have a user enabled with AMA and Void privileges to use this functionality.

Note: Only the most recent transaction in an order can be voided.

Void Purchase

AMA Void Purchase allows you to void a previous purchase transaction that has not been processed by the acquiring institution. It is not available for Auth/Capture mode merchants. This transaction is not possible for Debit and EBT transactions.

You can only perform one Void Purchase transaction on the original purchase transaction as it completely removes the purchase transaction as though it never occurred.

A Void Purchase must be performed before the batch containing the original purchase transaction is processed by the acquiring institution.

There are two ways you can Void Purchase the funds. Suncorp Bank must enable this function on your Merchant Profile for you to use either of these methods:

1. Manually using Merchant Administration. This is the simplest method if you don't have many Void Purchase transactions. For more information refer to your Merchant Administration User Guide.
2. Using the Void Purchase command in Virtual POS to directly perform Void Purchases from your application. You must have a user enabled with AMA and Void privileges to use this functionality.

Note: Only the most recent transaction in an order can be voided.

QueryDR

The AMA QueryDR command allows you to search for a duplicate transaction receipt. The search is performed on the key **vpc_MerchTxnRef**, so the **vpc_MerchTxnRef** field must contain a unique value.

If you want to use QueryDR to return duplicate receipts, it must be done in less than five days or no results matching the criteria are returned. This is because the database only contains data up to five days old.

If a transaction receipt is found, the results will contain the same fields as the original receipt plus the two flags described below.

QueryDR always returns these two flags:

- **vpc_DRExists**: if no transactions are found that match the **vpc_MerchTxnRef** number, this value will be set to “N” for No. If any transactions are found that match the **vpc_MerchTxnRef** number, this value will be set to “Y” for Yes.
- **vpc_FoundMultipleDRs**: This is used to determine if there are multiple results. If the value is “N”, then only one **vpc_MerchTxnRef** matches the search criteria. If the value is “Y”, then there are multiple **vpc_MerchTxnRef** matching the search criteria, but it will return the most recent transaction. If the query result returned is not the correct one, the merchant must manually search through Merchant Administration.

Note: QueryDR does not return receipt data for 3-D Secure (MasterCard® SecureCode™, Verified by Visa™ and JCB J/Secure™) Authentication Only transactions.

Troubleshooting

This section contains suggestions and solutions to problems that may occur with your integration.

What if a Session Timeout occurs?

The current 3-Party Payment Timeout value is set at 15 minutes.

It is possible that while a cardholder is entering their card details at the Payment Server, the session is terminated (e.g. by a communication failure due to a modem connection dropping off). If this occurs, a cardholder will lose their session. Even if they come back to your site, they will have a new session, and their old session will never be completed.

To determine the status of the lost transaction, you will need to perform a **QueryDR** based on the original **vpc_MerchTxnRef.**

What Does a Payment Authentication Status of "A" mean?

An authentication state of "A" indicates that the authentication transaction failed when the Payment Server tried to authenticate itself with the Directory Server.

A possible reason for the failure is that the 3-D Secure merchant ID or password is set incorrectly for a merchant profile in the Payment Server Merchant Manager.

Does the Cardholder's Internet Browser Need to Support Cookies?

The Virtual POS interface requires a cardholder's browser to support cookies for all 3-Party transactions.

Glossary

Term	Description
Access Code	An identifier that is used to authenticate you as the merchant while you are using Virtual POS. The access code is generated and allocated to you by Merchant Administrator.
Acquirer Bank	Where your business account is maintained and settlement payments are deposited. This is normally the same bank with which you maintain your merchant facility for your online credit card payments.
Bank	The bank with which you have a merchant facility that allows you to accept online credit card payments.
Capture	A transaction that uses the information from an authorisation transaction to initiate a transfer of funds from the cardholder's account to the merchant's account.
Card Token	The identifier for the stored card details that may be used later to refer to the card details to perform a payment.
Financial Institution (FI)	See Bank.
Issuing Bank	The bank or financial institution that issues credit cards to customers.
Merchant Administration	Allows you to monitor and manage your electronic transactions through a series of easy to use, secure web pages.
Payment Provider	Acts as a gateway between your application or website and the financial institution. It uses the Payment Server to take payment details (Transaction Request) from your cardholder and checks the details with the cardholder's bank. It then sends the Transaction Response back to your application. Approval or rejection of the transaction is completed within seconds, so your application can determine whether or not to proceed with the cardholder's order.
Payment Server	Facilitates the processing of secure payments in real-time over the Internet between your application/website and the Payment Provider. All communications between the cardholder, your application, the Payment Server and the Payment Provider is encrypted, making the whole procedure not only simple and quick, but also secure.
Purchase	A single transaction that immediately debits the funds from a cardholder's credit card account.
RRN	The Reference Retrieval Number is a unique number generated by the Payment Provider for a specific merchant ID. It is used to retrieve original transaction data and it is useful when your application does not provide a receipt number.
Transaction Request	Also called the Digital Order (DO) and is a request from Virtual POS to the Payment Server to provide transaction information.
Transaction Response	Also called the Digital Receipt (DR) and is a response from the Payment Server to Virtual POS to indicate the outcome of the transaction.
Virtual POS	The interface that provides a secure method of communication between your application and the Payment Server, which facilitates the processing of payments with your financial institution. It allows a merchant application to directly connect using HTTPS protocol in the merchant's choice of programming language.
Transaction	A combination of a Transaction Request and a Transaction Response. For each customer purchase or order, merchants may issue several transactions.

Appendix A

Test Environment – Test Cards

The following table shows the test card numbers and associated expiry dates configured for each card scheme on the MiGS Payment Server.

Card Type	PAN	Expiry
MasterCard	5123456789012346	05/17
MasterCard	5313581000123430	05/17
VISA	4005550000000001	05/17
VISA	4557012345678902	05/17
AMEX	371449635311004	05/17
Bankcard (Australian Domestic)	5610901234567899	05/17
Diners	30123456789019	05/17

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