Cashflows

Account Updater Integration Guide

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Introduction

Account updater helps prevent recurring payments from failing when a Visa or Mastercard customer cancels or changes their card details without informing you.

By running periodic reviews, you can check for failed recurring transactions and cards that are near, or past, their expiry date. You can then request updated details for those cards from the card schemes.

Updates are requested from the Visa Account Updater (VAU) and Mastercard Automatic Billing Updater (ABU) services by sending SHA2-512 signed JSON requests.

Using Account Updater enables you to:

- Reduce costs and the need to manually contact customers.
- Minimise the rejected transaction threshold.
- Update cards on record with new expiry dates if they have expired.
- Replace card information if cards have been reported lost or stolen.

Sensitive data and PCI-DSS

Using Account Updater means that you will be capturing, transmitting, and possibly storing card data.

The storage of Sensitive Authentication Data (track data and/or CVV2) post-authorisation is prohibited by Visa and Mastercard, as well as Requirement 3 of the Payment Card Industry Data Security Standard (PCI-DSS).

If you use Account Updater you need to demonstrate your systems handle this data securely and that you take full responsibility for your PCI compliance. This includes, but is not limited to, providing your current Attestation of Compliance certificate and evidence of a recent clean vulnerability scan.

A list of approved Security Assessors can be found at:
https://www.pcisecuritystandards.org/assessors_and_solutions/qualified_security_assessors.

For more information on PCI security standards, see https://www.pcisecuritystandards.org.

Setup

Prerequisites

To use Account Updater, you must process recurring or account on file payments and use Cashflows as your acquirer. Contact us to see if you qualify for the service.

Base URL

A single API endpoint is provided for all users making API calls to Cashflows. You must identify each request using your API Key and sign the message with a signature.

All calls use HTTPS through the standard port 443, and TLS v1.2 or higher must be used in line with PCI requirements.

The base URLs for Account Updater are:

- Test - https://integration.cashflows.com/accountupdater/[commandname].
- Live - https://live.cashflows.com/accountupdater/[commandname].

The `[commandname]` is the name of the service being requested. For example, to request an account update the URL would be: https://live.cashflows.com/accountupdater/requestaccountupdate.

Testing

You should use the test environment when integrating or testing with the Account Updater.

Test data needs to be generated to fully build and test Account Updater. For example, a valid Merchant ID is required to attempt `RequestAccountUpdate` requests.

Contact your Implementation Manager for more information about test accounts and data.

Calculating request signatures

To ensure server to server messages have been issued by valid users, request messages must be signed. The `signature` field is a SHA2-512 hash calculated by concatenating your security token (provided during Account Updater sign up) with a string of the `request` object. If you don't have your security token, please contact your Implementation Manager.

If the signature is incorrect, an error will be returned. Repeated failures will lock your account, if this happens, please contact techsupport@cashflows.com.

For example, if your `request` object looked like:

```
"Request": {
  "MerchantId": "5912345",
  "Details": [
    {
      "CardNumber": "4444333322221111",
      "ExpiryDate": "0120"
    },
    {
      "CardNumber": "5555444433331111",
      "ExpiryDate": "0121"
    }
  ]
}
```

You would prepend your security token onto the string of your request contents:

```
3031E5834AAD94B05C563292E6590ED13336501627EF1248036838C9BEBC08226A030134B3D791B488C086A
97EA521FB192B D578CD41583DCB6DC21A896A497E"MerchantId": "5912345","Details":
[{"CardNumber":"4444333322221111","ExpiryDate": "0120"},{"CardNumber":
"5555444433331111","ExpiryDate": "0121"}]
```

Warning - Whitespace and new lines in the `request` object **are** included in the hash calculation. We use CR-LF for line breaks, however Unix systems often use just LF, and this can affect calculations. If you can't match signatures but have the correct password hash, remove unnecessary whitespace from your Request nodes.

Then use that string to generate a SHA2-512 key:

```
35b4957df561b0bc0ad64582416e536f75a7f146d7c548e6df17496a351cecf3367c2d555e0d299657c09ae
a7f5ab311e3cfc 6a3b7d9ba35112a312efde585c4
```

Finally, add the generated key as the `Signature` value in your request:

```
{
  "ApiKey": "12345678-ABCD-ABCD-ABCD-12345678ABCD",
  "Signature":
"35b4957df561b0bc0ad64582416e536f75a7f146d7c548e6df17496a351cecf3367c2d555e0d299657c09a
ea7f5ab311e3cf c6a3b7d9ba35112a312efde585c4",
  "Request": {
    "MerchantId": "5912345",
    "Details": [
      {
        "CardNumber": "4444333322221111",
        "ExpiryDate": "0118"
      },
      {
        "CardNumber": "5555444433331111",
        "ExpiryDate": "0119"
      }
    ]
  },
  "Version": "1.0"
}
```

Updating Account Details

To check for new account details, you need to first request an account update from the card schemes, then retrieve that update once the request has been processed (typically 24 hours). This is achieved with two request calls:

1. `RequestAccountUpdate`
2. `RetrieveAccountUpdate`

Each request can contain up to 5,000 card updates, and you can only send one request a day for Visa and for Mastercard. Visa process requests between 18:00 and 22:00 UTC, and requests received after 17:30 UTC will not be processed until the next day. Mastercard process requests around 08:00 UTC.

All requests to Account Updater need to include your API Key, API version, signature, and a request object in your JSON payload:

Parameter	Requirement	Type & size	Details
ApiKey	Mandatory	String (36)	API Key responsible for calling the API
Version	Mandatory	String (10)	Version of the API being called
Signature	Mandatory	String (128)	SHA2-512 Hash of security token and request
Request	Mandatory	Object	A request object

RequestAccountUpdate

The `RequestAccountUpdate` request asks the card schemes for updated card details for the specified card numbers.

To request updated card details you need to make a `RequestAccountUpdate` request to the `…/accountupdater/requestaccountupdate` endpoint, providing your Merchant ID, and the card numbers you want to check.

Request object parameters

Parameter	Requirement	Type & size	Details
MerchantId	Mandatory	String(15)	Merchant Id (Acquirer MID) to send in requests
Details	Mandatory	Object	Contains `Details.CardNumber` and `Details.ExpiryDate`
Details.CardNumber	Mandatory	String(20)	The full Primary Account Number on the card
Details.ExpiryDate	Optional	String(4)	The payment card's expiry date and month (mmyy)

The response will return a `RequestId` that you can query with `RetrieveAccountUpdate` after 24 hours, the usual time it takes a `RequestAccountUpdate` request to process.

Example `RequestAccountUpdate` request:

```json
{
  "ApiKey": "12345678-ABCD-ABCD-ABCD-12345678ABCD",
  "Signature":
"35b4957df561b0bc0ad64582416e536f75a7f146d7c548e6df17496a351cecf3367c2d555e0d299657c09a
ea7f5ab311e3cf c6a3b7d9ba35112a312efde585c4",
  "Request": {
    "MerchantId": "5912345",
    "Details": [
      {
        "CardNumber": "4444333322221111",
        "ExpiryDate": "0118"
      },
      {
        "CardNumber": "5555444433332222",
        "ExpiryDate": "0119"
      },
      {
        "CardNumber": "5555444433331111",
        "ExpiryDate": "0119"
      }
    ]
  },
  "Version": "1.0"
}
```

Example `RequestAccountUpdate` response:

```json
{
  "Response": {
    "RequestId": "6fbc91f55d7e401ea89e91dd5fe52af7",
    "MerchantId": "5912345",
    "Results": null,
    "Status": 1
  },
  "Error": null,
  "Date": "2012-04-21T18:25:43Z",
  "Version": "1.0"
}
```

The status indicates the current state of the request. For `RequestAccountUpdate` requests, this is usually `1` (pending) as requests take 24 hours to process.

RetrieveAccountUpdate

To retrieve the updated card details you need to make a `RetrieveAccountUpdate` request to the `…/accountupdater/retrieveaccountupdate` endpoint, providing the `RequestId`, received from the `RequestAccountUpdate` call.

Note - It can take up to 24 hours for updated card details to be supplied from the initial `RequestAccountUpdate` request.

Request object parameters

The request object will contain just one parameter:

Parameter	Requirement	Type & size	Details
RequestId	Mandatory	String(32)	Unique ID returned in the response to RequestAccountUpdate request.

The response will return a `Status` field with the following values:

- `0` - Unknown
- `1` - Pending
- `2` - Complete
- `3` - Error
- `4` - Expired (results have already been retrieved or not been collected after 7 days)

A `Results` object with the following parameters will also be returned:

Parameter	Type & size	Details
OldCardNumber	String(20)	The original card number
OldExpiryDate	String(4)	The original expiry date
NewCardNumber	String(20)	The new card number
NewExpiryDate	String(4)	The new expiry date
VauRawResponse	Object	Visa only, see API Reference below
AbuRawResponse	Object	Mastercard only, see API Reference below
Status	String(20)	0 - Unknown 2 - Complete 3 - Error

Example `RetrieveAccountUpdate` request:

```
{
  "ApiKey": "12345678-ABCD-ABCD-ABCD-12345678ABCD",
  "Signature":
"2c6d6a6e134bebdfaf76034563e4c3975c5628cf715aa8eb509500976a82af0fc06c5072d1755dfee41ee8
1aa74c8cb34dac d4b4ec8fa53a4ede209cad65cf56",
  "Request": {
    "RequestId": "6fbc91f55d7e401ea89e91dd5fe52af7"
  },
  "Version": "1.0"
}
```

Example `RetrieveAccountUpdate` response:

```
{
  "Response": {
    "RequestId": "6fbc91f55d7e401ea89e91dd5fe52af7",
    "MerchantId": "5912345",
    "Results": [
      {
        "OldCardNumber": "4444333322221111",
        "OldExpiryDate": "0118",
        "NewCardNumber": "4444333332225555",
        "NewExpiryDate": "0221",
        "VauRawResponse":
      {
        "ResponseCode": "A"
      },
        "Status": 2
      },
      {
        "OldCardNumber": "5555444433332222",
        "OldExpiryDate": "0119",
        "NewCardNumber": "5555444433331000",
        "NewExpiryDate": "0122",
        "AbuRawResponse":
        {
          "ReasonIdentifier": "Update",
          "ResponseIndicator": null
        },
        "Status": 2
      },
      {
        "OldCardNumber": "5555444433331111",
        "OldExpiryDate": "0119",
        "Status": 3
      }
    ],
    "Status": 3
  },
  "Date": "2012-04-21T18:25:43Z",
  "Version": "1.0"
}
```

API Reference

This section lists all currently available Account Updater API commands.

Standard API

Standard Request Parameters

Parameter	Requirement	Type & size	Details
ApiKey	Mandatory	String (36)	API Key responsible for calling the API
Version	Mandatory	String (10)	Version of the API being called
Signature	Mandatory	String (128)	SHA2-512 Hash of security token and request
Request	Mandatory	Object	A request object

Standard Response Parameters

Parameter	Type & size	Details
Version	String(10)	Confirmation of the version of the API used in the request
DateTime	Datetime	The date of the response
Error	ErrorResponse	Contains the details for all HTTP 4xx or 5xx responses. The structure is shown below
Response	Object	The response object for all HTTP 2xx responses

ErrorResponse

Parameter	Type & size	Details
Identifier	string	Returned with all HTTP 5xx responses, and can be used by customer services to help identify the exact nature of the error
Code	string	A code associated with the error type
Message	string	Summary of the error
Target	string	For validation errors, this states which property is in error
Details	ErrorResponse	Details about each individual error

RequestAccountUpdate

Submit new request for updated card details.

Endpoint: `https://live.cashflows.com/accountupdater/RequestAccountUpdate`

Request Parameters

Parameter	Requirement	Type & size	Details
MerchantId	Mandatory	String(15)	Merchant Id (Acquirer MID) to send in requests
Details	Mandatory	Collection of Objects	Contains `Details.CardNumber` and `Details.ExpiryDate`
Details.CardNumber	Mandatory	String(20)	The full Primary Account Number (PAN) on the card
Details.ExpiryDate	Optional	String(4)	The payment card's expiry date and month (mmyy)

RetrieveAccountUpdate

Used to obtain update on a previously requested `RequestAccountUpdate`.

Endpoint: `https://live.cashflows.com/accountupdater/RetrieveAccountUpdate`

Request Parameters

Parameter	Requirement	Type & size	Details
RequestId	Mandatory	String(32)	Unique ID returned in the response to `RequestAccountUpdate` request

Response Parameters

Parameter	Type & size	Details
MerchantId	String(15)	The merchant number from the original request
Status	String(20)	0 - Unknown 1 - Pending 2 - Complete 3 - Error 4 - Expired (result has already been retrieved or not been collected after 7 days)
Results	Collection of Objects	See Results Object below
RequestId	String(32)	Unique ID returned to be used to retrieve results of an account update request

Results Object

Parameter	Type & size	Details
OldCardNumber	String(20)	The original card number
OldExpiryDate	String(4)	The original expiry date
NewCardNumber	String(20)	The new card number
NewExpiryDate	String(4)	The new expiry date
VauRawResponse	Object	Visa only, see below
AbuRawResponse	Object	Mastercard only, see below
Status	String(20)	0 - Unknown 2 - Complete 3 - Error

If there is an error the following HTTP status codes may be returned in the response header of the response:

Code	Description	Troubleshooting
400	Bad request	Check for correct formation and mandatory parameters
403	Forbidden	Check the signature calculation
429	Too many requests	Rate limits exceeded or replay protection triggered
500	Internal server error	Please contact us for more information

Scheme codes

This section lists all the currently provide codes return by card schemes.

Visa Service Identifier codes

These codes are returned in the standard response parameter when a Visa account number has been queried `VauRawResponse`.

Parameter	Type & size	Details
ResponseCode	String(1)	The code returned by Visa

Response Code	Description
A	Account number change (account number or account number and expiration date updated)
C	Closed account advice
E	Expiration date change
N	Non-participating BIN
P	Participating BIN, no match
Q	Contact cardholder
V	Match made, account number and expiration date unchanged

Mastercard Response parameters

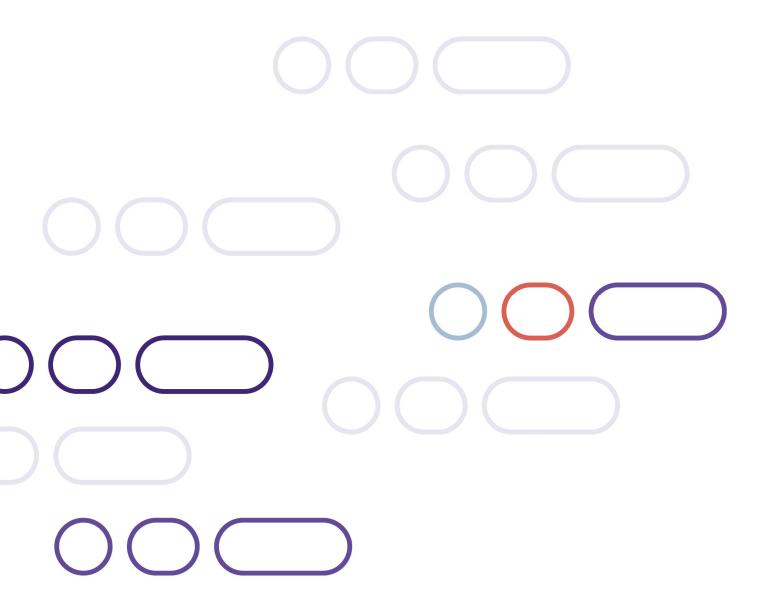Automatic Billing Updater for Mastercard will return reason identifier and response indicator `AbuRawResponse`.

Reason Identifier	Description
UPDATE	Match made; update data provided (includes issuer Reason Codes R, B, and P): R – Replacement Card B – Brand Flip to Mastercard P – Mastercard to Mastercard Portfolio
CONTAC	Match made; account closed (includes Issuer Reason Code C) C - Closed Account
EXPIRY	Match made; expiration date changed (includes Issuer Reason Code E): E – Update Expiration Date (Update Only)
VALID	No updates were found but the account is valid
UNKNWN	The account number could not be found in the ABU database (see Response Indicator for further explanation)

Response Indicator

ABU Validation Response Indicator (displayed only when the Reason Identifier is VALID or UNKNWN).

Response Indicator	Description
V	Matches the account as reported by the issuer
P	No match, participating BIN/ issuer
N	No match, non-participating BIN/issuer
R	Replacement Card
B	Brand Flip to Mastercard match
C	Closed Account
E	Update Expiration Date

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