

# **The Journey of Credit Card Payments behind the Scenes**

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## **Abstract**

**Credit Card is one of the widely used mode of payments across many countries in the world as it offers benefits to everyone involved in the Journey. It is also one of the most complex payment methods behind the scenes. Credit Card payment processing appears straightforward on the frontend, but the mechanism that runs in the backend involves a tightly secured and complicated validations of credit card details and authentication of credit card transactions, yet it takes microseconds to seconds for the successful authorization creating convenience for both sellers and customers. This article explores the journey of credit card transaction right from swipe of credit card by customer at a store until the funds are settled to seller's bank accounts and how its integrated with ERP (Enterprise Resource Planning) systems such as SAP.**

**Keywords: Credit Card Payments, Reconciliation of Credit Card Payments in SAP S4HANA, Credit Card Settlement Process**

## **Introduction to Credit Card Payment Process:**

Credit Card Payment has evolved as the most preferred payment method with the digitalization of payments and significantly reduced the usage of traditional tender types such as Cash, Cashier Checks etc. Credit Card Payment process involves validating credit card details and authenticating the transaction whereas either the customer making such payment or the seller accepting such tender types usually don't have all the necessary tools, technologies or integrations to complete the transaction. This limitation has created an opportunity for various platforms such as payment gateway, payment process, credit card network etc which act as intermediary between customer and the banking or financial institution issued such credit card in getting successful authentication for seller to proceed with the transaction. The intermediary platforms have eased the way the seller and customers do their business as they don't need to worry about how the credit card transaction is authenticated in the backend.

## **Parties Involved in Credit Card Payment Process:**

### **Seller:**

Seller in this context represents any organization irrespective of their classifications such as Public or private, offering services or products collecting some amount from the other party through Credit Card. Seller would have their Enterprise Resource Planning platforms such as SAP S4HANA to process and record these transactions in their books of accounts.



## **Customer:**

Customer denotes any party willing to pay the amount to seller through Credit Card.

## **Payment Gateway:**

Payment gateway is a software platform that Sellers implement on top of their ERP Systems. Payment gateway acts as a carrier between Seller and Payment Processor by gathering all the credit card information punched or scanned by customers at POS (Point of Sales) or online platforms using encrypted and tokenized methods to adhere as per Payment Card Industry (PCI) Compliance so that seller does not need to worry about storing and protecting Credit Card details in their systems.

## **Payment Processor and Acquiring Bank:**

The payment processor receives tokenized customer payment data from the payment gateway software tool and handles technical aspects such as verifying the transaction, communicating with Card Network, receiving authorization and communicating this authorization back to payment gateway for merchant to proceed with completing the transaction with the customer. Payment Processor works along with Acquiring Bank which helps in actual settlement of funds from Credit Card holder bank account to seller bank accounts.

## **Card Network:**

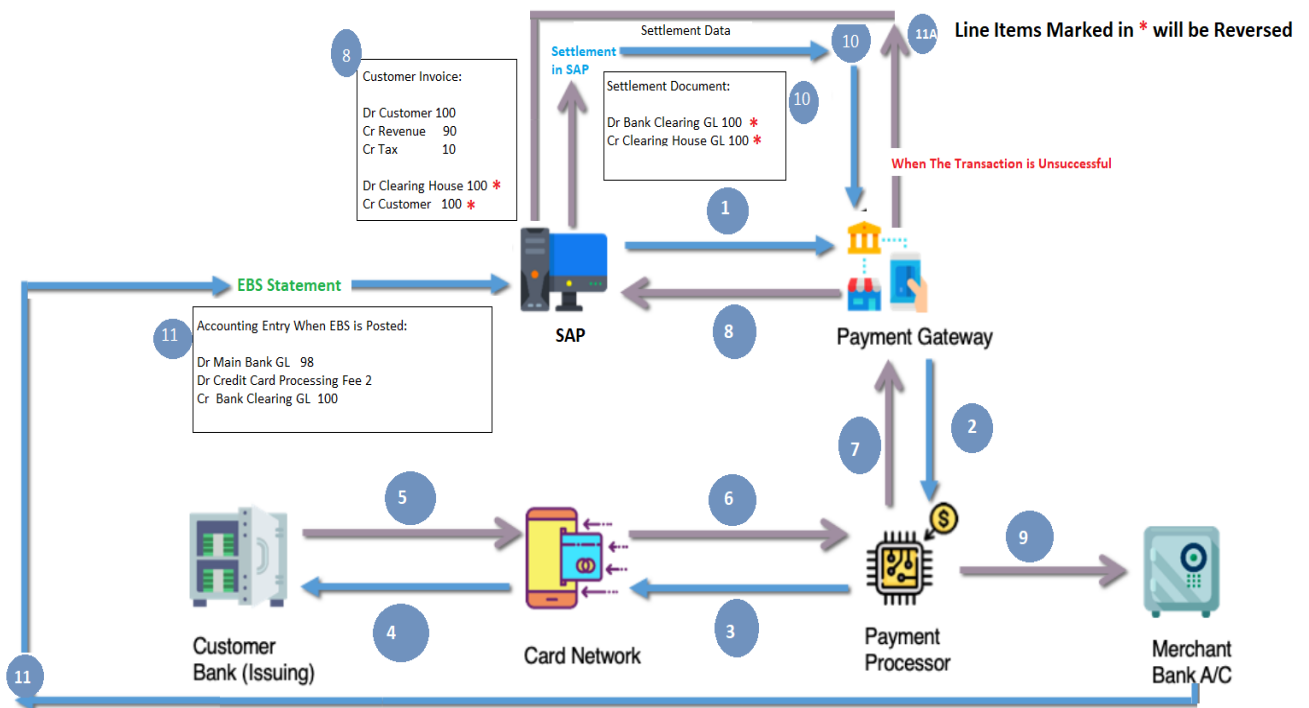
Credit card networks provide the communication system that issuing banks and businesses use to process credit card transactions. The networks and issuers authorize and process credit card transactions, set the transaction terms, and move payments between customers, businesses through their respective banking institutions and their bank accounts. Major credit card networks include Visa, Mastercard, American Express, and Discover, but there are others.

## **Issuing or Customer's Bank:**

The issuer, also called as the issuing bank or card issuer, represents the customer in a transaction. The issuing bank is the financial institution that supplies an individual with a credit card they use to initiate a transaction. An issuer can be a bank, credit union, or other financial institution.

## **Seller's Bank Account:**

Seller's bank account refers to the account to which the settled funds are deposited by Acquiring bank.



**Figure 1:** End to End Flow of Credit Card Transaction behind the Scenes in Integration with SAP

**Sequence of Steps in Credit Card Payment Process:**

1. Customer presenting Credit Card for a purchase or transaction at a Seller's Point of Sales or Online platforms which are connected to Seller's ERP Systems like SAP S4HANA.
2. Payment gateway available on top of seller's ERP Systems securely collecting and transmitting sensitive information such as Credit Card Number, Name etc with Acquiring Bank and Payment Processor.
3. Payment Processor forwarding payment request and transaction details to card network on behalf of the acquirers.
4. Card Network validating the request, routing it to card issuing bank to receives bank authorization.
5. Issuing bank executing checks for identifying fraudulent activities, validating request and transaction details, verifying if funds are available in the account and issuing successful or denial authorization accordingly to Card Network.
6. Card Network sharing the authorization back to Payment Processor.
7. Payment Processor communicating this authorization Data back to Payment Gateway.
8. Payment Gateway notifying seller about the authorization received and the seller proceeding with the sale or cancel as per the authorization received.
9. Merchant Acquirer processing the transactions from settlement perspective i.e. transferring funds from issuing bank to acquirer and depositing funds into seller's bank account.
10. Seller receiving Electronic Bank Statements where bank confirms that the funds are deposited into Seller's bank accounts.

## Settlement and Reconciliation of Credit Card Data in SAP S4HANA:

Medium to large scale organizations usually accept a large number of credit card transactions on any given day, so reconciling these transactions with the amounts deposited by acquirer can be very challenging due to following reasons.

1. Amounts deposited by Acquirer may reflect any sales minus all the applicable processing or transaction fee depending on the contract that Seller has with Acquirer.
2. Acquirer would not settle the funds on the day of sale, it will take some-time for acquirer to receive the funds and process into Seller's bank accounts, meanwhile system keep accumulating transactions happening every day, so reconciling funds deposited with the transactions already sitting in the system would not be straight forward.
3. Acquirer facing issues for settling the authorized transactions due to various reasons such as issuing banks placing holds on few transactions.

So, it is important for business to reconcile each transaction and identify any discrepancies, but reconciling such large amount of data manually is time consuming, hence custom functionalities are to be created in SAP S4HANA so that settlement data can be received from Acquirer to perform reconciliation, clear the items reconciled and follow up with customers on discrepancies that are caught up.

## Conclusion:

Any credit card transaction once initiated travels through complex mechanism and a secured and highly advanced authorization process which is done across multiple layers or platforms. So it is important to choose right ERP System along with the compatible Payment Gateways and Payment Processors. SAP S4HANA offers seamless integration with secured payment gateways and payment processors thereby making the customer experience at retail outlets or online platforms a quick and smooth process and offers efficient ways for business to reconcile the payments and easily identify the discrepancies.

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