StoreNext

Technical Bulletin

OpenEPS: Setting up Store-and-Forward

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OpenEPS relies on a network connection to the data centers to process online payment authorizations. The connection from OpenEPS to the data centers can be impacted when a communication interruption occurs such as during a network outage or during high network usage intervals that significantly slows down network traffic.

Instead of allowing these network disruptions to cause a transaction to be declined, OpenEPS can switch to "off-line stand-in" or "store and forward" mode. While in offline mode, OpenEPS will approve transactions locally and store them for forwarding to the data center when connection is reestablished.

Offline processing can be configured for all, some, or none of the payment types as determined by the merchant. Additionally, the merchant is free to determine the individual transaction limits for each card type, specifying the maximum dollar amount that will be approved per transaction.

This technical bulletin first provides general information about the store-and-forward feature and off-line stand-in transactions and considerations. A subsequent section describes the setup process and parameters in detail.

General Store-and-Forward Information

APPLICABLE TENDERS

All valid payment types can be set to allow offline processing. Specifically, each payment type is tailored individually. Tenders can be allowed for offline processing, and if allowed, the specific types of transactions allowed offline can be controlled. Additionally the maximum total amount and maximum cash back amount (if applicable) per transaction can be set uniquely for each payment type.

COSTS

Offline Processing can entail some cost to the store since some offline transactions accepted at store level could be declined by the host processor when reconnected. Every store is different so these costs will vary, but the settings available for Offline Processing can be adjusted to control these costs by limiting risky transactions. Merchant should be aware that they will not be able to collect many declined transactions, so the transaction value allowed offline should be decided carefully to control these costs.

With debit and other PIN-based transactions, there is a risk that a shopper will enter an incorrect PIN. Since these transactions are seldom if ever recoverable once declined, merchants should minimize these costs by converting PIN debit transactions to credit using the system's debit-to-credit offline feature for this purpose. And while non-sufficient-funds (NSF) declines

for debit (or even some EBT transactions) can often be recovered later (see Resubmits below) there is no available mechanism for resubmitting gift cards and other stored-value media that are declined for NSF.

Another potential concern is that a store may remain offline for an extended period of time due to a network outage. If a store appears to be processing payments normally, it will not be apparent to most of the staff (on purpose) that the lanes are operating in offline mode. There is a reason for this: one objective of offline processing is have offline processing be as "transparent" as possible so shoppers and staff will not know the store is offline and take fraudulent advantage of the situation (e.g. by tendering bad credit cards or intentionally mis-typing a debit PIN).

Until a payment is processed the merchant cannot be paid for it and the customer is not charged; a long delay in charging the customer and the merchant receiving payment is undesirable. In addition, the only record of the payment to be processed resides on the POS hard drive; if an issue with the POS develops, stored transaction information may be delayed in forwarding (or even lost in the event of a total hard drive failure). Of course, the likelihood of a POS hard drive failure during offline processing is minimal, but if that POS was disconnected or offline for weeks and weeks prior to a hard drive failure the loss could be significant.

To minimize these risks from disconnected lanes, merchants should review the online transaction values against the values reported by the POS system to verify that all transactions have been accounted for.

COST MITIGATION WITH RESUBMISSIONS

Some offline transactions may be subsequently declined by the host due to Non-Sufficient Funds. To aid the merchant in collecting the funds for these transactions, Connected Payments can resubmit these transactions once per day for up to seven (7) days. This resubmit time period varies by the host processor. Once a transaction is approved, it is marked complete.

It is important to note that not all declined transactions are automatically resubmitted; only those flagged as declined due to NSF are eligible for resubmission.

CREDIT TO DEBIT AND BACK AGAIN

A popular feature for OpenEPS is Credit-to-Debit Conversion. This feature encourages customers to enter their PIN for dual-purpose cards, thus converting the transaction automatically from a credit transaction to a debit transaction.

Depending upon the store's settings, however debit may not be enabled for store-and-forward or the minimum offline credit-to-debit amount could be set to a higher number than the total of a specific transaction. In these cases, Connected Payments will convert the transaction ***back to credit*** and prompt the shopper to sign a credit transaction slip instead (even though they may have already entered a debit PIN).

Note that this debit-to-credit feature can be used only with "dual-use" cards, which provide credit capability as well as debit. Most debit cards in use today are dual-use cards and offer this feature, indicated by a credit association logo (e.g. Visa) on the debit card. Also known as "signature debit," the subsequent transaction is processed as a credit with the shopper signing the slip as they would a credit transaction. The credit transaction rules apply for the merchant,

greatly reducing the number of declines. The shopper has the funds deducted immediately, no differently than if the standard "PIN debit" transaction had taken place.

OFFLINE PROCESSING VISIBILITY

As noted above, offline processing is intended to be as transparent as possible compared to normal processing on-line, although there are some indicators that a store may be, or soon may be, processing offline.

Each OpenEPS determines for itself whether it is offline; this means that not all POS systems in a store location may be processing offline at the same time. Similarly, each OpenEPS attempts reestablish connection to the payment servers individually so each POS system will switch back to online processing when the connection stabilizes for them.

The first indicator that a POS may be in the process of going to offline is a transaction taking around 45 seconds to complete. This 45-second period is the default timeout interval, which is the length of time the system gives the host to respond to a payment authorization request. If this timeout lapses, OpenEPS will switch to its Offline mode. If offline is not allowed, this will result in a decline; if it is allowed, OpenEPS will follow the merchant offline configurations to determine if the transaction is approved or declined.

After a POS lane determines that it is offline, it will attempt to reconnect to the payments server, however, until it does all further transactions will be processed offline with a delay of only about 4 seconds for approvals or declines. This means that even if a POS is offline, after the first long 45 seconds timeout, transactions should then go back to a much faster response rate.

One thing to look for to determine if a lane is currently offline is the authorization number on the receipt. If the "Auth #" starts with "LA" (for Local Approval) then the POS lane is processing offline transactions.

Another potential method if recognizing the store is offline is based on which transaction types get approved. If, for example, Debit with PIN is not allowed offline but Credit is, and every debit transaction is being declined while every credit transaction is being approved, then that is a strong indicator that the POS is running in offline mode.

Offline processing has been made seamless not only for smooth processing, but to prevent cashiers and customers from recognizing the offline status and fraudulently taking advantage of it. For example a canceled card or EBT with an invalid pin might be attempted if the location was known to be offline, so it is recommended that the methods of recognizing the store is offline be limited to trusted employees.

TRANSACTION FORWARDING

Transactions will accumulate in the offline queue at a POS lane until the lane reestablishes connection to the datacenter. After reconnecting, OpenEPS will wait a short period of time before beginning to forward transactions to verify that the connection is solid.

After the connection is verified, offline transactions will be sent, one at a time, to the host. They are processed on at a time to prevent overloading the communication network and the approving host.

A small random variance in time between initial forwarding and each individual forward has been introduced to prevent multiple lanes that all lost connection at the same time from reconnecting and cycling their queue at exactly the same time, which could potentially overload and slow a network. In general once connected an offline transaction will be forward about every 30 seconds.

If communication after reestablishing connection is slow enough so that regular online approvals are significantly delayed, forwarding of offline transactions will be deliberately slowed to avoided overloading the network further. This will result in longer periods of time between offline forwards – usually in the range of several extra minutes.

See the pages following for offline setup instructions and information.

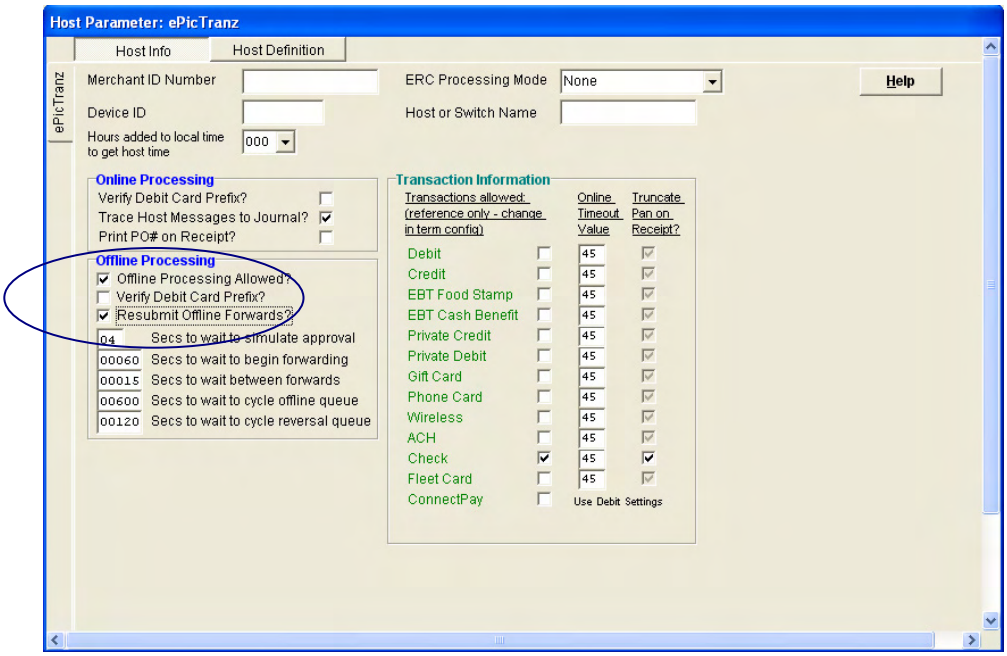
Offline Processing Setup

To set up offline processing you must have access to the online Web Services interface and have a valid login.

To set up Offline Processing perform the following steps:

Host Screen Setup

1. Log into Web Services; in the Configuration Manager go to the Store tab, open the store you are configuring.
2. Select the Host option from the lower left menu.
3. When the host screen appears, select the Host Info Tab at the top of the screen.

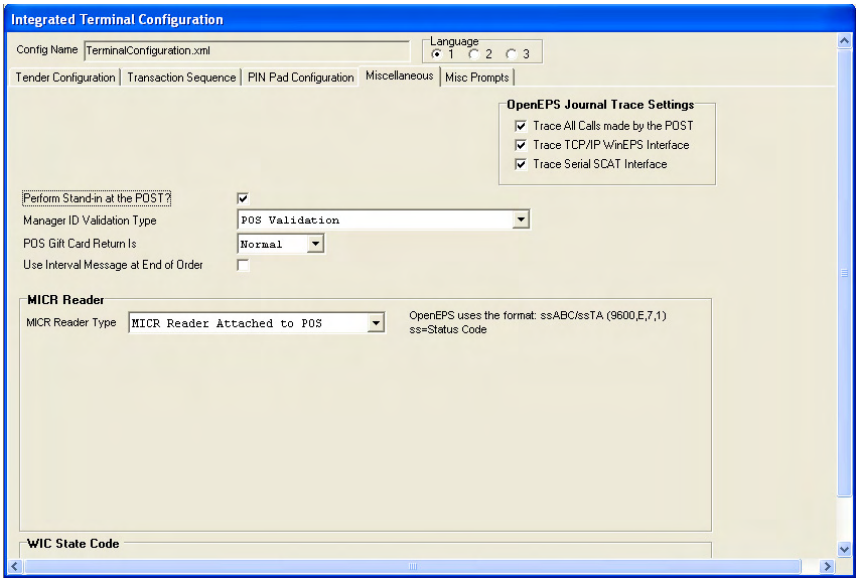


Offline Processing - Host Definition

4. Under Offline Processing, check Offline Processing Allowed
5. Check Resubmit Offline Forwards
6. If more than one host is defined, there will be multiple host tabs on the left hand side. Repeat these steps for each host.
7. Save your changes.

Terminal Configuration Setup

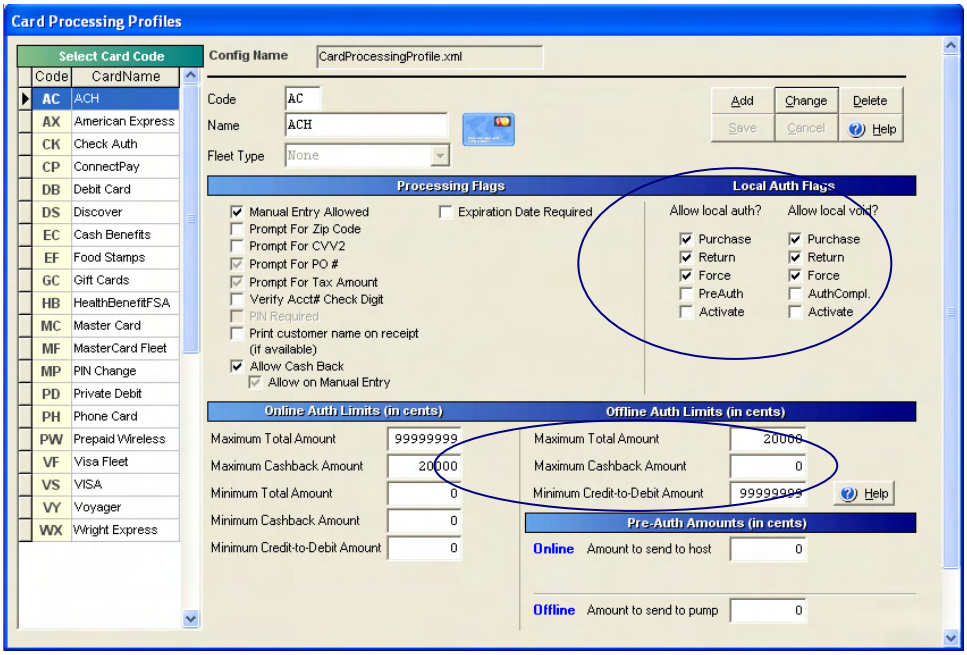
1. Log into Web Services; in the Configuration Manager go to the Lane tab, open the configuration you are using.
2. Select the Terminal Configuration option from the lower left menu.



3. Select the Miscellaneous tab.
4. Check the box next to Perform Stand in at the POST.
5. Save your changes

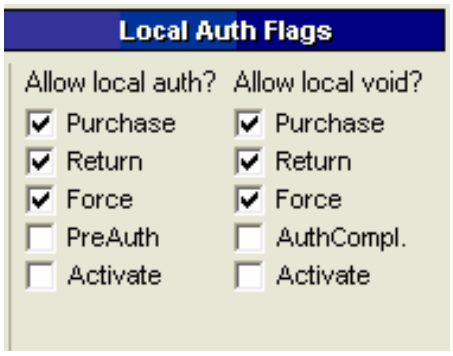
Card Processing Profile Setup

1. Log into Web Services; in the Configuration Manager go to the Lane tab, open the configuration you are using.
2. Select the Card Processing Profile option from the lower left menu.

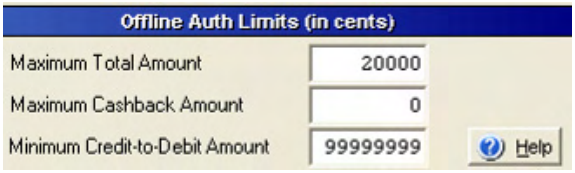


Offline Processing – Card Processing Profiles

3. To modify a specific card (payment) type, select that card from the list on the left and click the Change button.
4. To set whether the card is allowed offline, locate the Local Auth Flags section:



5. Place a check mark next to each transaction type you would like to allow while offline.
6. Next, locate the Offline Auth Limits section:



7. For the Maximum Total Amount, enter the value (in cents) of the largest amount to automatically authorize. In the example above 20000 was entered so all transactions under $200.00 each will be automatically authorized by OpenEPS and placed into the store and forward queue for later forwarding.
8. Similarly for Maximum Cash back Amount, enter a value for the maximum cash back amount per transaction (if the tender type supports cash back). An entry of zero will prohibit cash back while offline.

Caution: This is where acceptable risk level is determined. A higher dollar amount allows a larger sum to be charged by the customer while WinEPS is offline to the host. If a customer has insufficient funds available, WinEPS will not be able to check while it has no connection to the host. While WinEPS will attempt to send the transaction up several times if declined for insufficient funds, there is no guarantee of host approval. The exact number and duration of attempts vary by host.

Note: When determining the maximum offline amount to allow, a balance must be struck between risk for the store, and a customer's typical purchase. Too high an amount exposes the store to unneeded risk, while to low amount may cause loss of customer business due to declines for purchases being over the allowed amount.

9. Click Save
10. Repeat the above steps for each tender type you wish to modify.